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Improving functioning of cross-functional teams

Improving Internal Functioning of Cross-functional teams: A Social Identity Theory Based
Process.

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Abstract

Cross-functional teams are becoming increasingly common in organisations. However, a large proportion of these teams fail to meet their full potential as social and productive units. The present research was conducted under the assumption that a cross-functional team involves simultaneous intragroup and intergroup contact. The failure of cross-functional teams often involves the neglect of normal social psychological processes that occur in intergroup contexts that may potentially be employed to increase the likelihood of success with cross-functional teams. The social identity theory approach to intergroup relations was used to formulate two identity management strategies intended to improve the functioning of a cross-functional team. One strategy involved social interaction within an intragroup social frame. The intragroup aspect was apparent in that there was no outgroup present, with participants operating at the intergroup level of psychological processing after exposure to (successful) pre-task manipulations intended to facilitate acceptance of the task group social identity. The intragroup identity management process required increasing pre-task salience of the task group social identity, absence of any outgroup, wearing a team uniform, and performance of an intellectually challenging problem solving as a group. A second identity management process was based in an intergroup social frame. The intergroup procedure involved pre-task manipulation of social identity, wearing of a team uniform, and performance of a physically and intellectually involving problem solving task in a competitive intergroup social frame. Two separate studies were performed.

In Study one, 110 university students were randomly assigned to ‘mono-functional’ teams (teams with no obvious basis for internal intergroup differentiation). The relative efficacy of either of the two identity management processes was assessed with regards to changes in social identity, subjective uncertainty, conceptualisation of the aggregate, similarity, heterogeneity, effort, and trust. Pre-post within groups differences were analysed

by repeated measures ANOVA. Between groups differences were analysed with ANCOVA. The results indicated both identity management strategies resulted in improved team functioning. In general, neither strategy was notably superior to the other, however there was less subjective uncertainty reported by participants from the intragroup condition than those from the intergroup condition due to the effect of losing the competition. Participants from losing teams also became more aware of 'subgroups within the single group' than those from the intragroup condition. Participants from the intergroup condition were less likely to think of themselves as separate individuals than participants from the intragroup condition. The social identity theory approach to intergroup relations was useful for interpreting the results as well as developing the two strategies which suggests SIT/SCT provide a potentially useful conceptual base from which to develop team building processes in mono-functional teams.

In study 2, 110 university students were assigned to cross-functional teams (composite task groups containing three academic subgroups). The identity management processes used in Study one were extended by drawing participant attention to the presence of subgroups within the cross-functional teams. The intragroup process involved pre-task manipulation of social identity, wearing uniforms which denoted both task group and subgroup membership, and performance of an intellectually challenging problem solving task which was performed with out an outgroup present. The intergroup identity management strategy involved pre-task manipulation of social identity, performance of a physically and intellectually involving problem solving task requiring integration of subgroup knowledge and inter-functional cooperation within a competitive intergroup context. As in the intragroup condition, participants were made aware of the social complexity of the task group through their uniforms. Participants responded differently to the two identity management processes, with the intergroup strategy proving more beneficial than the intragroup strategy. The intragroup process was marked by non-significant pre-post differences, indicating neither

a marked improvement nor decline in group functioning. In contrast, participants from the intergroup condition reported results indicating increased post-task self-definition with the cross-functional team, increased trust, and higher effort. Losing the competition did not impact on post-task levels of any dependent variable with the exception of subjective uncertainty, where ‘winners’ reported less uncertainty than ‘losers’. The intergroup condition gave rise to the most potential perceived ‘distinctiveness threat’; however there was no sign of any threat across the array of dependent variables. Therefore it can be suggested that the intergroup identity management strategy provided some protection to the cross-functional team from the negative impact of inter-functional distinctiveness threat. All results could be explained with recourse to the concepts of SIT/SCT which suggests social identity theory has utility for interpreting results as well as developing team building processes in cross-functional teams. Future research in cross-functional team settings would benefit from the development of comprehensive measures of uncertainty, status, and heterogeneity with item content drawn from social identity and self-categorisation theories.

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Statement of originality: The work as presented in this thesis, is to the best of my knowledge and belief, original except as acknowledged in the text. I hereby declare that I have not submitted this material, either in whole or in part, for a degree at this or any other university.

Signed:

Date:.....

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Chapter One: Introduction

Overview

The present research program has two aims. The first aim is to examine whether the functioning of cross-functional teams can be improved through application of social psychological theory in the form of a process intended to facilitate acceptance of a cross-functional team as a social identity group. The second aim is to examine which of two identity management strategies will be most effective for improving improve the functioning of cross-functional teams. The research is guided by the social identity theory approach to intergroup contact. This approach is represented by two complementary theories: Social Identity Theory (SIT) and Self-Categorisation Theory (SCT). It should be noted ‘functioning’ will be treated as having social and task aspects. Improved functioning will be represented by evidence of increased willingness to accept the cross-functional team as a safe locum of social self-definition and increased willingness to perform tasks for the cross-functional team. The researcher’s aims are contained within the following research question.

“Is it possible to make use of intergroup level social psychological processes to improve the functioning of a cross-functional team? If so, will an intergroup or intragroup context be associated with the best outcomes?”

A cross-functional team is defined as a task group whose members are from different organisational subgroups, each bringing a specific body of knowledge. Cross-functional teams are intended to promote creativity, increased performance, shorter development times, civilised task related debate, unity within an organisation via positive inter-functional contact and the cross-fertilisation of ideas between representatives of different occupational groups while engaged in the attainment of a

goal (West, Borril, & Unsworth, 1998; Cunningham & Chelladurai, 2004; Keller, 2001; Lovelace, Shapiro, & Weingart, 2001).

This research is undertaken in the wake of observations that although cross-functional teams can work as intended if there is integration subgroup knowledge (Keller, 2001; Lovelace et al, 2001), there can be resistance to sharing knowledge across functional boundaries (Hansen, Mors, & Lovas, 2005; van Der Vegt & Bunderson, 2005). Despite suggestions by some researchers that cooperative intergroup interdependence and shared goals are the key to reducing intergroup conflict (Gaertner & Schopler, 1998; Rabbie, Schot & Visser, 1989) evidence indicates that interdependence within cross-functional teams creates internal conflict with accompanying low trust, low commitment to the group and output, resistance to knowledge sharing and integration, and less than ideal performance (van Knippenberg, De Dreu, & Homan, 2004; Hansen, Mors, & Lovas, 2005; Cunningham & Chelladurai, 2004). The suggestion is that interdependence and cooperative contact is of itself insufficient to improve intergroup relationships within cross-functional teams (Brewer, 1996; Brewer, 1996*b*).

Brickson (2000) and Schneider and Northcraft (1999), commenting on the inconsistent success achieved with cross-functional teams, noted team management was often characterised by intuitive methods. It was proposed in both these papers that the key to improving the functioning and outcomes associated with cross-functional team was to develop a theoretically sound, yet practically useful method for improving intra-group intergroup relationships. Van Dick (2004) noted that financial incentives, although common in merger situations, may also prove ineffective at increasing acceptance of intergroup integration in organisational contexts. Further, the great deal of effort devoted to managing team members as individuals is likely to

be ineffective if these strategies are framed at an inappropriate level of social psychological processing (Lembke & Wilson, 1998; Haslam, 2001; van Dick, Wagner, Stellmacher, & Christ, 2004). Evidence that attempting to maximise the organisational utility of cross-functional teams through creating positive interpersonal relationships is working at the wrong level of psychological processing is provided by Mannix & Neale (2005). These researchers suggested that the similarity-attraction paradigm is suitable for improving dyadic relationships (the purpose for which it was developed), however the management of interfunctional diversity requires knowledge of social identification and self-categorisation theory processes so as to bond diverse social identities within a uniting higher order social identity.

The author proposes the source of much of this conflict can be attributed to poor inter-functional relationships within the cross-functional team (Jassawalla & Sashittal, 1999; Hogg & Terry, 2000, Milliken & Martins, 1996; Cunningham & Chelladurai, 2004). Further, addressing organisational issues will be more effective if efforts are exerted at the level from which the problem originates (van Dick, 2004). It is argued that cross-functional team functioning can be improved through managing relationships at the intergroup level

The logic behind taking the intergroup contact perspective of SIT/SCT is that a cross-functional team cannot be assumed to be a meaningful social identity in comparison to native functional ingroup (van Knippenberg & van Schie, 2000; Cunningham & Chelladurai, 2004). While a cross-functional team may be meaningful in an administrative sense, it is much less so in a psychological sense, thus rendering it an intergroup context. Social comparisons are encouraged by team based work settings (Haslam, 2001; Lembke & Wilson, 1998; van Dick, 2004). Intergroup contact tends to produce ingroup favouring social comparisons (Turner, Oakes,

Haslam, & McGarty, 1994) which can be threatening to members of a devalued social identity subgroup in cross-functional teams (Cunningham & Chelladurai, 2004).

Social identity can also be threatened by implied loss of distinctiveness of the function based social identity through immersion in a cross-functional team. Those from higher status functions may feel threat through being positioned as psychologically equivalent with lower status groups (Northcraft, Polzer, Neale, & Kramer, 1996; van Knippenberg et al. 2004; van Leeuwen & van Knippenberg, 2003; Rosenberg & Trevino, 2003).

Identity threat can engender competitive thought, feeling and behaviours within the cross-functional team, which due to the reciprocal nature of conflict behaviours (De Dreu, Hanrick & van Vianen, 1999) may result in pervasive and persistent intra-organisational conflict based around an us-them division (Gaertner, Bachman, Dovidio, & Banker, 2001) inside a cross-functional team. The result can be a cross-functional team that looks good from the outside (Jassawalla & Sashittal, 1998) but in reality is marred by conflictual behaviours such as withholding knowledge and intragroup intergroup cooperation (Rosenberg & Trevino, 2003; Huang & Newell, 2003).

However, according to SIT/SCT, social self-definition is dynamic and fluid with the most contextually salient identity structure the driver of affect, cognition and behaviour (Hogg & Terry, 2001; Ashforth & Johnson, 2001). Knowledge of self categorization and social identification processes makes it possible to identify which locum of identity will drive thinking, feeling, and behaviour in a specific context (Ellemers, de Gilder, & Haslam, 2004). This suggests the key to managing intergroup contact between organisational functions may be to take advantage of this fluidity in self-definition by creating a context where multiple social categories are

simultaneously salient and contextually relevant (van Knippenberg et al, 2004). Multiple identification has been proposed to be a means of preventing the development of threat to the distinctiveness of valued subgroup identities while allowing acceptance of a shared, more inclusive social identity which encompasses the subgroups (Brewer & Gaertner, 2001; Brewer, 1996; Gonzalez & Brown, 2003). Removing a threat to subgroup identities, multiple identification allows functional diversity to be accepted as one of the distinctive self-defining properties of the cross-functional team, rather than a cue for inter-functional competition. This can pave the way for members being more open to the different perspectives within the team, a crucial factor in cross-functional team effectiveness (van Knippenberg & Haslam, 2003; van Knippenberg et al, 2004).

In other words, cross-functional team functioning may be improved if group member self-definition can be changed from a state where single level of identity is salient, to one where multiple identities become contextually adaptive, and therefore simultaneously salient, through manipulation of the processes underlying social comparison (Haslam, 2001; Eggins et al, 2003; van Dick, Wagner, Stellmacher, & Christ, 2005). The current researcher proposes that an effective means of achieving this is to create a social frame including intergroup competition, cooperative physical and intellectual activity between subgroups, and where the complexity of the intragroup social structure is both observable, and seen to be useful for task accomplishment (Brewer & Gaertner, 2001; Terry, 2003). It is assumed that integration of the unique knowledge held by each function, simultaneous symbolic recognition of difference and connection implied by multiple loci of social identification framed within an intergroup competition would improve connections within and to the cross-functional team (Bornstien & Erev, 2000; Hogg & Terry,

2000; Ashforth & Johnson, 2001; Worchel, Rothgerber, Day, Hart, & Butemeyer, 1998; Jetten, Hogg, & Mullin 2000). It should be noted that team building processes involving competition have not always been associated with better team functioning than processes built around intragroup cooperation (Ibbetson & Newell, 1999). A comparison condition based in a non-competitive intragroup context will provide a comparative standard. It should be noted the intragroup context is *not* intended to be an interpersonal interaction, but an intragroup interaction based in a salient social identity.

Alternative models

Although SIT is the conceptual foundation present research it is acknowledged that alternative models do exist that may be applied in managing intergroup contact within organisations. One such model is the categorisation-elaboration model (CEM) of van Knippenberg et al (2004). The CEM is concerned with explaining both the positive and negative effects of intra-organisational diversity on the performance of heterogenous task groups. The CEM was devised in response to a perception of diversity research took an overly simplistic view of social categorisation (as a process) and imposed an artificial segregation of social categorisation from information processing and decision making.

Van Knippenberg et al (2004) propose that the process and aspects of social categorisation specified by SCT combine the threat to sub-group identity (from intergroup contact and imposed integration) lessen the likelihood that group members would make use of informational diversity within the group. When a threat to social identity exists the motivation to preserve the positive distinctiveness of the ingroup (as per SIT) is likely to result in biased information processing. Outgroup information may be discounted while ingroup information is accepted as true and receive more

elaboration than outgroup information. The true value of the information to task performance is therefore less important than the source of the information. The risk is that task performance will suffer as an outcome of biased information processing based in poorly managed intergroup contact. Van Knippenberg et al (2004) suggest the key to gaining the benefits of diversity in organisational settings (including cross-functional teams) is to provide a context where the diversity within the group is seen as valuable and relevant to team performance with the team being a shared, internally complex, loci of social identity . It should be noted that this position, and the use of SIT and SCT as conceptual bases for the CEM, is in accord with the reasoning of the present author. Furthermore, the present work addresses a need identified by van Knippenberg et al (2004) for research that will identify specific social conditions conducive to promoting cognitive elaboration of all information within a task group even if it does originate from an outgroup subgroup.

Another model that has been suggested as potentially useful in organisational settings is the cognitive complexity model of Roccas and Brewer (2002). This model proposes social identity complexity is an outcome of an individual's ability to recognise, accept and integrate non-convergent loci of social identity within a higher order identity structure. In essence complexity is a reflection of the knowledge regarding the properties of the various ingroup memberships with more tolerance of outgroups being displayed by those with more social identity complexity (Roccas & Brewer, 2002; Brewer & Pierce, 2005). Individuals with low social identity complexity are those who perceive that multiple social identities are largely convergent in that there is a large amount of overlap between the prototypical qualities, boundaries, and membership within the multiple social identities. Individuals of high complexity are able to reconcile a larger amount of divergence in

terms of the structure of their multiple social identity structure with reference to different, prototypical qualities, separation of boundaries and different membership.

The cognitive complexity model draws on the notion of an ingroup prototype containing the defining features of an ingroup and situational uncertainty (Brewer & Pierce, 2005), both contained within SCT (Haslam, 2001). The cognitive complexity model, although proposing that intrapsychic characteristics (needs and values) influence the quality of intergroup contact (Roccas & Brewer, 2002) has a degree of consistency with SIT and SCT. For example, the heightened situational salience of a specific social identity from identity threat or intergroup competition (Hogg & Terry, 2000; Roccas & Brewer, 2002) or an individual's situational distinctiveness (such as being the only woman in a group), will detract from the amount of identity complexity an individual will be able to access in making social judgments (Roccas & Brewer, 2002).

The use of SIT/SCT in both present research and the cognitive complexity model suggests that the present work a degree of compatibility between the alternative model and the present researcher. Agreement between the present research and this model is also evident in the shared assumption that increased social identity complexity is the key to improving contact between groups within larger social systems (Roccas & Brewer, 2002), in the present instance cross-functional teams. A further source of compatibility between the separate works is that the present research meets the need for research that helps discover methods and conditions which may be effective at increasing the complex inclusive representations of people located within internally diverse groups (Brewer & Pierce, 2005). Furthermore, the cognitive complexity model, like the CEM and the present author, would suggest that a cross-functional team will be most productive when team members can be given a set of

experiences that facilitate an integration of multiple social identities rather than extinguishment of a loci of identity in the order to preserve simplistic notions of self and society (Roccas & Brewer, 2002; Brewer & Pierce, 2005).

The ASPIRE model (Actualising Social and Personal Identity Resources) is an explicit attempt to use SIT and SCT to increase an organisations ability to fully realise the creative and performance potential through correctly managing the web of intra-organisational relationships that contribute to feelings of loyalty, trust, pride and commitment (Haslam, Eggins, & Reynolds, 2003). The ASPIRE model prescribes four sequentially arranged phases that if followed should foster the development of an organic organisational identity necessary for diversity to be valued. Consistent with the rationale for using cross-functional teams, the differences residing within organisational subgroups are not barriers to between groups interaction as integration of different knowledge, skills and perspective is best for achieving shared goals (Haslam et al, 2003).

The process begins with identification of the social identities used by employees (AIRing), establishing subgroup (Sub-Casing) and organisational (Super-Casing) goals. In the Super-Casing phase subgroups are treated as resources to be valued for the contribution they will make to fulfilling higher order goals (Eggins et al, 2003). In the final phase participatory goal setting and planning is conducted, preferably involving representatives of the subgroups as well as organisational leadership (ORGanising). The perspective of employees should be one where they have a full understanding of the organisation, and the complementarity of roles within it, as part of an organic superordinate social identity (Haslam et al, 2003; Eggins, Reynolds, & Haslam,, 2003). This model relies on the motivating potential of shared social identification to encourage employees to work towards organisational goals

within internally diverse task groups. In order to realise the desired end state of an organic social identity the superordinate organisational social identity legitimises the intra-organisational diversity as one of the prototypical or defining characteristics of the organisational social identity (Haslam et al, 2003; Eggins et al, 2003).

There is overlap between the current research and the ASPIRE model in the use of SIT and SCT as a common conceptual foundation. As in the present work, Haslam et al (2003) and Eggins et al (2003) draw on intergroup conflict reduction research arguing for the simultaneous activation of different but contextually allied social identities to lend legitimacy to their argument. At a more applied level the potential exists for the intergroup identity management strategy employed in the current research, involving as it does emphasis on intragroup-intergroup complexity based in shared membership in a complex loci of social identification and providing direct experience of the value of inter-functional diversity to team which makes becoming more inclusive reasonable and sensible, to play a role during the Super-Casing phase.

The preceding brief discussion of alternative models would suggest that present work is consistent with a number of alternative models intended to guide the understanding of psychological processes, and behavioural outcomes in multiple identity groups as typified by a cross-functional team. The use of the social identity approach in each model and the present research suggests a natural complimentary to each of the three models outlined above. Furthermore, the applied aspect of the present research, together with the conceptual alignment suggests the present research is valuable to each of the alternatives discussed above. The reason is, as acknowledged by the researchers responsible for each model, that each of the alternatives are in early stages of development and would benefit from applied

research (such as the current work) that can assist in identifying means of creating conditions where social psychological processes held within SIT/SCT can be harnessed to facilitate the positive evaluation of multiplicity within intrapersonal, intragroup, and intergroup social identity structures.

Overview summary

Three implications can be drawn from the cited literature. One, there is a need for the development of a methodology for managing cross-functional teams. Secondly, the management of cross-functional teams should be guided by an appropriate theoretical structure capable of giving practical guidance. Thirdly, poor internal functioning in cross-functional team has a basis in the intergroup (not interpersonal) contact and interdependence within the team (West, 2002). As an intergroup contact situation, the correct level of an intervention intended to improve functioning in a cross-functional team is the intergroup level (Haslam, 2001). Therefore it is logical to design an intervention based in intergroup contact perspective of SIT/SCT.

Organisation of thesis

Chapter Two reviews research concerned specifically with cross-functional teams. The aim is to show how the success or failure of a cross-functional team can be associated with varying degrees of inter-functional integration within the cross-functional team. It will be argued that the basis for the differing qualities of social integration rests on the nature of a cross-functional team as one that can best be described as simultaneously intragroup (the cross-functional team) and intergroup (occupational or professional subgroups) contact. The idea will be advanced that management of a cross-functional team requires management of the quality of intergroup contact.

Chapter Three examines the researcher's rationale for the selection of SIT and SCT as the conceptual guides for the two identity management strategies used in the present research. The assumption is that argument for application of specific theories must be preceded by evidence of the validity of fundamental theoretical postulates. The intention is to provide sufficient theoretical background to facilitate the analysis of SIT/SCT principles as applied to organisational, and more specifically cross-functional team settings in subsequent chapters.

Chapter Four extends the previous chapter via a review of studies illustrating the presence of SIT/SCT processes outside of the laboratory. Initially, there will be a critique of research from organisational settings that purportedly questions the validity of the social identity approach. This will be followed by a review of field research from the broader social domain and organisational settings in particular. It will be argued that organisations are a logical domain in which to be guided by the precepts of SIT/SCT. Finally, research will be provided to demonstrate the consistency between SIT/SCT principles and the social frame presented by cross-functional teams. This makes it possible to suggest SIT/SCT may be useful for the design of strategies for the integration of functions within the cross-functional team.

Chapter Five is focused on the use of SIT/SCT as a means for reducing intergroup conflict. Three approaches for improving intergroup contact will be described and critiqued. These three strategies are 'deategorisation', 'recategorisation', and 'multiple identification' (Hewstone, Rubin, & Willis, 2002). It will be argued that a basic multiple identification intervention can be complimented by incorporating three safeguarding principles (establishing pre-contact acceptance of the cross-functional team as a social identity, drawing attention to the social complexity within the team, and experiencing an intergroup competition on behalf of

the cross-functional team) that will account for factors research suggests may detract from the effectiveness of multiple identification as a means of improving intergroup relationships. The chapter will conclude with an overview of the research hypotheses.

Chapter Six outlines the methodology employed in Study One. Study One applies two identity management strategies in a non-cross functional group (referred to as mono-functional teams) environment. The research groups are artificial in that they are formed solely for the purpose of the present research. One condition involves participants in an intragroup context while the other condition is based around a competitive intergroup context. Participants from both conditions are intended to be working from an intergroup level of psychological processing by virtue of establishing acceptance of pre-task social identification with the research group. Chapter Seven provides the analysis of the results for Study One. Analysis is of pre-task to post-task differences within and between groups. Chapter Eight reports a discussion of these results in reference to previous research and the principles of SIT/SCT.

In Chapter Nine the methodology for Study Two is outlined. Study Two will involve the use of cross-functional teams rather than mono-functional teams. As with Study One, participants will experience either an intragroup or an intergroup identity management strategy. The results of the mixed between and within groups pre-task to post-task differences will be reported in Chapter 10. These results will be discussed in Chapter 11. Reference will be made to previous research, the principles of SIT/SCT, and the context of a cross-functional team.

Chapter 12 is a general discussion of the findings from the aforementioned studies. Possible implications of these experiments for the integration organisational and social psychological knowledge within organisational intervention practice will

be proffered. In addition to implications, the empirical limitations of the thesis will be acknowledged. The impact of these limitations will be discussed with reference to suggestions for future research and organisational practice.

Chapter Two: Cross Functional Teams as a Nexus of Social and Organisational Psychology

Overview

This chapter reviews relevant research to demonstrate how the success or failure of a cross-functional team can be based in the quality of the inter-functional relationships within the team. It is acknowledged that team work in organisation is not always cross-functional and that diversity in organisations is not just based in functional or departmental boundaries but may also be based in demographic differences. Appendix A is a review of research relevant to team based work and demographic diversity in organisations.

A cross-functional team can be defined as ‘a discrete collective entity, composed of members from diverse occupational or professional backgrounds, embedded in a larger social system, whose task fulfilment requires interdependence,’ (Schneider & Northcroft, 1999; Guzzo & Dickson, 1995). In other words, representatives from different organisational subgroups, each bringing a specific body of knowledge, are expected to collaborate for the purpose of meeting some organisational goal. There are two basic reasons relevant to the present program of research for the examination of cross-functional teams,

Firstly, despite the increasing use of cross-functional teams in organisations, research into the impact of occupation or profession based diversity is not conducted as often as research into the impact of demographic diversity (Harrison et al, 1998). Harrison et al (1998) opine that this is due to practical concerns. For example, demographic differences are more salient for both researchers and participants. Further, it is conventionally accepted that these observable differences actually represent differences in psychological processes and behaviour. However, excepting when organisational focus is on the interests of a demographic category (Jackson & Ruderman, 1996), functional diversity is potentially more valuable for accomplishing organisational goals than demographic diversity (Northcraft et al, 1996). It is assumed it would be more useful to focus research into areas where there is the

highest possible utility. It is therefore argued that there needs to be more research focused on functional diversity than demographic diversity.

A second reason to explore methods of improving the internal functioning of cross-functional teams is the apparent difficulty organisations experience in effectively using cross-functional teams (van Der Vegt & Bunderson, 2005; Cunningham & Chelladurai, 2004). As noted in Chapter one cross-functional teams are intended to provide a number of benefits. These include promoting support for projects across various organisational stakeholders, improve decision making (Huang & Newell, 2003) and allow for the undertaking of several project related tasks simultaneously rather than sequentially (Jassawhalla & Sashittal, 1999). They are also intended to promote the development of innovative work practices, encourage a culture of organisational learning and increase intra-organisational unity (van Der Vegt & Bunderson, 2005; Hansen et al, 2005; Cunningham & Chelladurai, 2004). As with demographic diversity, the mechanism by which a cross-functional team is assumed to provide these benefits is the expression and coordination of different perspectives embodied in the different skill, knowledge and value bases unique to discrete occupational groups (Brickson, 2000). Also like demographic diversity, it will be shown how the quality of intergroup contact within the cross-functional team is an important influence on the success or failure of the team.

Cross functional teams and organisational outcomes.

Evidence that cross-functional teams can be positive experiences for employees can be derived from research conducted in research and development teams by Cordero, Farris, and DiTomaso (1998). These researchers reported those working on cross-functional team experienced a more demanding work situation. Specifically, cross-functional team required more individual 'effort', job involvement', and 'exposure to different opinions'. There were positive relationships between cross-functional team membership and various job outcomes

including 'job satisfaction; and 'job growth' (the extent to which the job is challenging, adventurous, and provides an opportunity to learn or develop knowledge, skills, and abilities). Cordero et al (1998) reported that although cross-functional teams are more demanding when compared to mono-functional teams, the quality of working life was higher on the cross-functional team. This was due to the greater sense of team work experienced on cross-functional team.

Although no performance measures are reported by Cordero et al (1998), there is an implied potential for the positive job outcomes and demands experienced by individuals in cross-functional teams to become a positive experience for the organisation. For example, members of cross-functional teams reported increased job involvement and job satisfaction compared to mono-functional teams. Higher levels of job involvement and job satisfaction have been associated with increased motivation in work groups (van Knippenberg & van Schie, 2000). Coopman (2001) found that job involvement and job satisfaction are mediated by cross-functional team productivity. The suggestion is that members of cross-functional teams outperformed members of mono-functional teams in the Cordero et al (1998) study. In turn, this implies that organisations may benefit from the well-being of individuals working in groups.

Direct evidence indicative of a performance gain by cross-functional team performing conceptual tasks is provided by Keller (2001) who reported functional diversity provided technically better and faster work performance for lower cost over a 12 month period. Importantly, this outcome was due to the indirect effects of inter-functional communication rather than a direct result of functional diversity. Drach-Zahavy and Somech (2002) examined whether different types of diversity would have different relationships with ratings of team effectiveness and intra-team social support and it was found that the best predictor of team effectiveness as assessed by school principals was functional heterogeneity. Cross

functional diversity was the best predictor of intra-team social support whereas demographic variables such as gender or age had little association with this variable (Drach-Zahavy & Somech, 2002). In addition, there was a positive association between increased functional heterogeneity and general team support and effectiveness (Drach-Zahavy & Somech, 2002). As previously noted, social support implies collaborative behaviours, a safe intragroup climate and a sense of connection within the cross-functional team. This allows for two propositions to be made.

Firstly, the use of cross-functional teams can be associated with increased team effectiveness. Secondly, the effectiveness of a cross-functional team is related to the strength of the psycho-social social bonds operating within the team. However, it should be remembered many organisations exist to make a financial profit. Therefore, indicators of employee well-being, for example job satisfaction, as in Cordero et al (1998) although of interest to employers, could be considered too 'soft' to be indicative of the value of a cross-functional team (Thornhill & Saunders, 1998). Similarly, team performance can be thought of as contextually bounded. For example, Drach-Zahavy & Somech (2002) measured criteria of interest to educators such as the development of innovative teaching strategies. It may be that in a profit oriented organisation that the best indicator of cross-functional team effectiveness would be an increase in profitability (Husted & Michailova, 2002) rather than increased policy innovation.

Simons, Pelled & Smith (1999) present findings that meet the need for hard financial evidence relevant to the efficacy of cross-functional team. These researchers compared a range of diversity factors (age, function, education, tenure) in the top level management teams of 57 organisations. The dependent variable was the financial performance of the firms. Functional diversity moderated firm performance through an interaction with the amount of debate that took place within a cross-functional decision making group. More

specifically, increasing functional heterogeneity in teams encouraged an increase in the amount of relevant discussion and an increase in company financial performance (Simons et al, 1999). The idea that debate contributes to the performance of a cross-functional team is corroborated by Coopman (2001) who found the democratic involvement of all cross-functional team members in a decision making process, regardless of hierarchical status, mediated the productivity of the cross-functional team. In other words, increased participation of more functional areas led to better group productivity. The implication is cross-functional teams can make a difference to the performance of group tasks, and organisational performance, through the expression and discussion of different views (Keller, 2001).

Webber (2002) suggests that for the necessary debate to flourish within a cross-functional team there needs to be a social climate encouraging intra-group trust. Tsai & Ghoshal (1998) demonstrated the validity of Webber's (2002) idea when examining the impact intra-organisational cooperation between 15 functional areas had on performance. The researchers reported performance ultimately relied on the amount of intra-organisational trust and a core of collectively shared values. Intra-organisational trust and shared values influenced performance through behavioural parameters such as increasing the willingness to share knowledge, ideas and provision of inter-functional assistance (Tsai & Ghoshal, 1998). These results demonstrate the importance of trust between cross-functional team members for the establishment of valuable behaviours such as expression and consideration of alternate views. Note that trust in this instance refers to trust between occupational groups and within cross-functional team making 'trust' an intra-group and inter-group construct (Webber, 2002). The importance of 'trust' as both an intra and intergroup level variable underscores the importance of psycho-social phenomena for the functioning and output of cross-functional team.

Overall, the suggestion is cross-functional teams are potentially a valuable resource for organisations engaged in conceptual tasks. However, in their review of diversity research Miliken & Martins (1996) noted the impact of functional diversity can vary between contexts. The research cited above was conducted in groups performing conceptual or cognitive tasks as opposed to more behavioural tasks. While it has been argued that in behavioural tasks cross-functional team are of limited benefit some recent evidence suggests this is not necessarily the case.

Cross-functional teams and task characteristics.

Gittell (2000) undertook research in nine American airports using employees of four airlines whose behavioural work (baggage handling) is characterised by constant time pressure, multiple demands, a high degree of contextual uncertainty due to the impact of events beyond workplace control (flight delays), and constant cooperative interdepartmental interdependence if tasks are to be completed successfully. Gittell (2000) reported that the use of cross-functional teams could be positively associated with levels of relational coordination. Relational coordination is a composite concept embracing shared knowledge, assistance, timely problem solving communications and mutual respect. Although there was no explicit measure of performance by Gittell (2000), collaborative behaviours and positive regard between occupational groups evident in this research is the hallmark of a well performing cross-functional team (Jassawalla & Sashittal, 1998; Huang & Newell, 2003). The implication is that performance of behavioural tasks can also be improved through cross-functional team if the social interactions are positive.

It may be that it is not task type, in terms of being conceptual or behavioural, that sets a limit on the potential efficacy of a cross-functional team. Rather, it may be the degree to which the work is routine or non-routine. Evidence to this effect is provided by Jehn et al (1999). These researchers conducted a study that included measures of team performance

(member perceived performance, actual performance, group efficiency) using participants representing occupations that encompass both behavioural and conceptual tasks. In broad terms, the impact of functional interdependence (included in the variable ‘informational diversity’) was to increase the actual work group performance (based on official company records). As with Keller (2001) the positive impact of cross-functional teams on performance was due to the successful management of task relevant conflict through discussion (Jehn et al, 1999). However, a number of variables were found to moderate this positive relationship.

One such moderation relationship was found for the variable ‘task type’. Jehn et al (1999) stated a cross-functional team was more likely to increase performance (across all three criteria) if the task was more complex. This result can be interpreted as indication that cross-functional team will only be beneficial for conceptual tasks. Therefore, the suggestion by Gittell (2000) that the use of cross-functional teams will increase the work performance of employees engaged in behavioural tasks, cannot be assumed in the absence of performance measures. However, closer examination of Jehn et al (1999) reveals their measure of ‘task type’ is more a measure of task routinisation than task complexity. Items include “My job is very routine” and “I feel like I am doing the same thing over and over”. As noted previously, the behavioural task of baggage handling, although it cannot be regarded as conceptual in terms of generating innovative thought, strategy, or product, requires high speed coordination in a highly uncertain environment which the workers cannot control (Gittell, 2000).

In other words, behavioural tasks are not necessarily simple to perform. ‘Routine’ may refer to a state of constant difficulty due to uncontrollable external pressures. This may render the simplistic assumption that ‘behavioural’ equals lower complexity than ‘conceptual’ tasks inaccurate. It is possible that cross-functional team can be of benefit in completing behavioural tasks depending on contextual variables such as environmental uncertainty. Presently it may be difficult to confirm this idea due to the lack of empirical

investigations of cross-functional teams performing behavioural tasks (Milliken & Martins, 1996). However, it is possible to demonstrate that performance of a conceptual task is no guarantee of success for a cross-functional team.

Negative outcomes with cross-functional teams.

There is research based evidence that cross-functional teams are not guaranteed to deliver the outcomes desired by organisations or their employees. For example, a meta-analysis conducted by Webber and Donahue (2001) found that functional diversity had no statistically significant relationship with performance. Research also suggests the use of cross-functional teams can be detrimental to the climate within the organisation. For example, Keller (2001) found functional diversity was related to more workplace stress which reduced social cohesion. Similarly, Huang and Newell (2003) reported cross-functional work may increase emotional resistance to inter-functional cooperation which results in reluctance to contribute to the intellectual aspect of cross-functional work while Milliken & Martin (1996) noted the benefit of increased creativity was accompanied by higher turnover from the use of functional teams.. Jackson, Sessa, Cooper, Julin, and Peyronin (1991, cited by Scheider & Northcraft, 1999), reported higher turnover in heterogenous organisational settings could be directly linked to the amount of dissimilarity between team members. Dissimilarity can be associated with low trust and less liking (Hogg & Terry, 2000). If it is accepted that low trust or liking indicates a poor quality relationship, it becomes possible to suggest that the negative outcomes noted above may have a basis in the quality of inter-functional relationships within the cross-functional team (Brickson, 2000). Ironically, it may be that team member heterogeneity (Gruenfeld, Mannix, Williams, & Neale, 1996) is potentially the boon or the bane of a cross-functional team..

Functional diversity and resistance to knowledge integration.

A study conducted by Sethi (2000a) examined the impact of knowledge integration and functional diversity on the quality and innovation of products under development. Knowledge integration represents the degree to which members incorporate and debate the available functional perspectives into discussion. It was expected that with a moderate amount of functional diversity product quality would be highest. The level of knowledge integration would be positively related to product quality. Although this second expectation was met, there was no relationship, linear or curvilinear, between amount of functional diversity and product quality (Sethi, 2000a). These results were interpreted as suggesting functional diversity by itself will not ensure a positive outcome unless functional representatives manage to combine their respective knowledge bases successfully. This interpretation is corroborated by a number of studies.

Lovelace et al (2001) found cross-functional team innovativeness and adherence to budgets and schedules to be positively predicted by to express task related disagreement in a constructive manner. Van Der Vegt and Bunderson (2005) found decreased willingness to learn from other subgroups with higher levels of expertise diversity within a task group. Hansen et al (2005) found competition between subgroups decreased the likelihood of sharing knowledge across inter-functional boundaries. Maltz and Kohli (1996) reported inter-functional rivalry impacted negatively on levels of trust between cross-functional team members. The effect of lower trust was to lower both the perceived quality of information and willingness to accept ideas from other subgroups. It should be noted that the impact of cross functional trust dominated any palliative impact that regard for the outgroup member as an individual may have had on knowledge integration (Maltz & Kohli, 1996).

The intergroup dimension and cross-functional team outcomes.

The research cited above suggests a social dimension not explicitly addressed to date in the current discussion. Although a cross-functional team is on one level an intragroup

context, it is also an instance of intergroup contact (Northcraft et al, 1996). The intergroup contact is visible in Hansen et al (2005) as more intergroup competition is associated with decreased knowledge sharing. The intergroup contact aspect is evident in Maltz and Kohli (1996) by nature of reduction in trust where there is an element of rivalry between functional groups. A further result that signifies an intergroup nature to an apparently intragroup context is in the relative importance of functional membership compared to individual characteristics for evaluating trustworthiness (Maltz & Kohli, 1996). Hansen et al (2005), Sethi (2000a) and Malz and Kohli (1996) suggest a cross-functional team will be most effective when the intergroup contact within the cross-functional team permits the trust necessary for the synthesis of knowledge, skills and abilities held by each member function. The nature of a cross-functional team as both simultaneously intergroup and intragroup is observable in a case study by Amabile et al (2001).

The Amabile et al (2001) study describes the team functioning during a joint research effort by organisational practitioners and academic researchers. Although not altogether negative, for example, the involvement of practitioners allowed the academic staff to access a larger number of participants than would otherwise be possible, a number of problems are reported. For example, practitioners reported feeling excluded from the study for the duration (over 3 years) of the project. The reported source of practitioner exclusion was academic culture. Specifically academic exclusion of practitioners was justified via a belief that only trained researchers had the right to actually conduct the research. Further, there were persistent arguments that centred on process issues. For example, the academics preferred meeting where information was presented while practitioners preferred to use meetings as forum of debate and discussion. Additionally, there was strong dissatisfaction regarding the manner in which decisions were made. More specifically, the practitioners desired a democratic collaboration. This contrasted with the academic members of the group

who were culturally predisposed to favour an autocratic hierarchically stratified approach in which practitioners were excluded from discussion of group goal setting.

Culture is a social psychological phenomena (Triandis, 1996). Cultural differences inside the research group studied by Amabile et al (2001) were a source of friction. Cultural differences resided within subgroups. This meant friction was based in intergroup differences within the group. Therefore it can be suggested that the quality of internal processes of a cross-functional team can be based in factors which contribute to conflictual or peaceful inter-functional contact. However, there is a difference between the research group in Amabile et al (2001) and a more typical cross-functional team. The difference is that the majority of cross-functional team share membership in a single organisation with only functional differentiation. In Amabile et al (2001) there were a number of organisational memberships as well as functional differences. Some group members were participating without the support of their organisation. Therefore, it may be intergroup issues were exacerbated by a variables outside of functional membership. For example, amount of managerial support was reported by Song, Montoya-Weiss, and Schmidt (1997) to be a contributing factor to cross-functional team performance. Therefore Amabile et al (2001) may not be considered adequate evidence for the proposition that social psychological processes are involved in a conventional cross-functional team. The next section will use research to demonstrate the impact quality of intergroup contact has on a cross-functional team.

Intergroup contact in cross-functional teams.

Noting cross-functional groups are problematic more often than they are effective, Jassawalla and Sashittal (1998) conducted qualitative research within firms engaged in high technology industries. This research was further elaborated in Jassawalla and Sashittal (1999) wherein the more extreme examples of positive and negative cross-functional team

experiences reported in Jassawalla and Sashittal (1998) were compared to each other. It was proposed that the observable differences between cross-functional teams reflect four collaborative facets.

The first facet is the perceived equity in access to cross-functional team outcomes (at-stakeness). Second is the explicit communication of agendas and perspectives (transparency). Third is the basing of all decisions and behaviour in awareness of manifold member motivations, perspectives, and constraints (mindfulness). The fourth facet (synergy) reflects the knowledge integration mechanism by which members voice and discuss the divergent perspectives (Husted & Michailova, 2002; Jassawalla & Sashittal, 1999). Synergy requires acknowledgment of the value of intra-team difference as an aid to attainment of the common goal. In effect, quality of the intra-group synergy is the facet ultimately reflected the various group outcomes observable in the published cross-functional team literature (Simons et al, 1999; Coopman, 2001).

Basing their conclusions on content analysis of participant responses to a structured interview, Jassawalla and Sashittal (1998; 1999) reported that increasing levels of the four collaborative facets positively impacted on the quality of internal cooperation, and ultimately the performance of the new product. It is important to note that the level of each of the collaborative facets is dependent on the resolution of issues reflecting social integration within the cross-functional team . For example participants perceived social psychological distance between functions and personal involvement to reflect the sense of 'belonging' (Jassawalla & Sashittal, 1998).

Although all participants professed to value and welcome the use of cross-functional team, in reality intra-team social relationships reflected the inter-functional relationships as existent in the wider organisational milieu (Jassawalla & Sashittal, 1998). This was observable in behaviours within the cross-functional team. For example, the R&D functions

were of higher status within these high technology firms. Lower collaboration occurred when this higher status was reflected in the appointment of R&D representatives as leaders. The R&D representatives behaved in ways that cut other functions out of decision making, withheld information, and attempted to use the cross-functional team as a vehicle for gaining more influence over other functions (Jassawall & Sashittal, 1999). The effect of such leadership was to create an undercurrent of resistance to collaboration as cross-functional team as members acted to protect the interests of their own subgroup (Jassawalla & Sashittal, 1999)

A number of participant characteristics were found to have an impact on cross-functional team collaboration. One of these was termed ‘propensity to cooperate’, representing willingness to provide, and be receptive to information exchanges within the cross-functional team. Individuals high in the propensity to cooperate considered all member contributions equally valuable. These individuals assisted the process of knowledge integration and organisational learning through enabling discussions that allowed evolution in the perspective held by cross-functional team members (Jassawalla & Sashittal, 1998; van Der Vegt & Bunderson, 2005). Those lower in the tendency to cooperate would attend all team meetings, or act when a specific technical problem concomitant with their functional expertise demanded some action but were otherwise disinterested in non-compulsory action on behalf of the cross-functional team (Jassawalla & Sashittal, 1998).

The manner in which the researchers refer to the ‘propensity to cooperate’ as a ‘participant characteristic’ (Jassawalla & Sashittal, 1998) suggests an idiosyncratic characteristic of an individual. This could be interpreted as evidence contrary to the present researcher’s intention of demonstrating the application of social psychological theory, and therefore a group level of analysis (Haslam, 2001) to cross-functional teams. However, it should be noted that ‘propensity to cooperate’ increased as the magnitude of identification

with a cross-functional team became equivalent to the level of identification with the function of origin. (Jassawalla & Sashittal, 1998). Where there was low identification with the cross-functional team there was resistance to actively interacting with other cross-functional team members. Each function wanted exclusive control of their subgroups technical contributions (Jassawalla & Sashittal, 1999).

If it is accepted that identification with a group is indicative of social psychological connection to the cross-functional team, it follows that the quality of collaboration is dependent on management of inter-group level psychological processes. Further, in the context of a cross-functional team contact is intrinsically inter-group contact. Therefore management of cross-functional teams requires knowledge of social psychological processes generic to inter-group contact situations (Schneider & Northcraft, 1999; Hogg & Terry, 2000). This idea is consistent with research by van Der Vegt and Bunderson (2005) who found expertise diversity within a multi-disciplinary team detracted from team learning and performance unless there were higher levels of social identification with the team.

Ingroup biases in cross-functional teams.

An additional observation by Jassawalla and Sashittal (1998) consistent with social psychological processes witnessed in intergroup contact situations is the presence of ingroup bias (Haslam, 2001). Ingroup biases are perspectives held by group members that reflect the need for the ingroup (functional subgroup) to be distinguished from other groups (cross-functional team members from 'other' functional groups) in a manner that favours the ingroup in comparison to the outgroups present in the contact environment (Haslam, 2001).

In Jassawalla and Sashittal (1998) ingroup bias is observable in beliefs commonly expressed by cross-functional team members (regardless of function). One biased belief is that their functional ingroup is more willing to fully cooperate, in terms of willing to share and discuss information, than any other functional group in the cross-functional team. A

second ingroup bias is present in the commonly expressed the opinion that cross-functional team interactions and outcomes would improve if outgroup functions would change their behaviour to be as cooperative as the participants functional ingroup (Jassawalla & Sashittal, 1998). In other words, members entered cross-functional teams with a pre-existing tendency to blame problems on the actions and characteristics of functional outgroup members, by virtue of their membership in an outgroup function (McDonald, 1995).

The belief that improvement would come only when outgroup cross-functional team members started to behave like the members of the functional ingroup. This implies an unwillingness to accept a share of responsibility for problems as ingroup members are believed to set the standard for proper cooperative behaviour within the cross-functional team. As this view was held by representatives of all functions (Jassawalla & Sashittal, 1998), the entire membership of the cross-functional team may approach the group with a mindset geared to apportion blame along functional divisions (McDonald, 1995).

It may be assumed that expectancies of intransigent non-cooperation coupled to an intragroup climate drenched in willingness to blame functional 'others' is unlikely to be peaceful (Allred, 1995). Therefore it can be inferred that the manner in which early problems are dealt with is likely to be problematic. Further, it can be suggested that subsequent interactions are likely to echo initial interactions so that a cross-functional team will end with same quality internal interactions as they begin with (Marks et al, 2001). This suggestion is supported by research by Labianca, Bass and Gray (1998) where it was found the tone of intergroup contact is consistent with expectancies individual group members bring into the initial contact situation.

In practical terms, expecting non-cooperation or hostility before contact within the cross-functional team, can engender pre-emptive defensive behaviours consistent with the non-cooperative 'turf protection' noticed by Jasawalla and Sashittal (1998). LaBianca et al

(1998) reported that initially conflictual interactions repeat over time as each problematic interaction confirms the expectancy of inter-group conflict. The influence of negative contact was found to be more powerful for guiding inter-group contact within organisations than instances of positive contact or having friends in organisational outgroups. A likely by-product is that intra-organisational social connections are likely to deteriorate over time (LaBianca et al, 1998). In contrast Zolin, Hinds, Fruchter, and Levitt (2004) found higher initial levels of cross-functional trust to be associated with more benign interpretation of behaviour, and increased trust over time. Similarly Hoegl, Weinkauff and Gemuenden (2004) found team teams with higher initial levels of inter-functional collaboration (inter-team coordination, project commitment and team work quality) more likely to meet deadlines and higher levels of performance. These results would be consistent with the conclusion by Jassawalla and Sashittal (1998) that expectancies based in the quality of interdepartmental contact outside a cross-functional team set the standard for contact inside the team.

Another area where in-group biases may negatively impact on a cross-functional team observable in research by van Knippenberg, Lossie, and Wilke (1994). These researchers reported that information most closely resembling the idealised in-group position was given more attention, seen as more accurate, and was more influential than information sourced from an out-group representative. This effect held regardless of the objective quality of the information presented for review by the participants. In fundamental terms, the ingroup favouring information and source were deemed as more trustworthy than the out-group information source (Webber, 2002). Jassawalla and Sashittal (1998; 1999) reported behaviour consistent with the results of Van Knippenberg et al (1994) in that level of cross-functional team trust reflected the similarity in outlook between functions (Jassawalla & Sashittal, 1998). Zolin et al (2004) and Jassawalla and Sashittal (1998) reported trust develops when there is cognitive and affective acceptance of out-group function members as

in-group members. In other words there will be more trust when there is shared social identification with the cross-functional team. This can be contrasted with absence of cognitive or affective bonding, either on the basis of cross-functional team or shared organisational membership, that was a feature of exclusion focused low trust, poor performing cross-functional team (Jassawalla & Sashittal, 1998). Affective and cognitive connection between people are signatory of identification with a social group (Ellemers, Kortekaas, & Ouwerkerk, 1999). Kane, Argote and Levine (2005) found knowledge quality is less important than shared social identification in determining acceptance of information from another subgroup. Van Der Vegt and Bunderson (2005) found lower performance and less knowledge exchanged between groups in multidisciplinary teams. Together, the cited research suggests biased preference for ingroup information and expertise detracts from the psycho-social climate and performance of a cross-functional team.

Resistance to outside influence does not necessarily mean a refusal to interact with out-group members or even resistance towards the idea of cross-functional team being vocalised to superiors. Jassawalla and Sahittal (1998; 1999) reported even in internally hostile cross-functional teams all group members espouse support for both the implementation of, and participation in the group. The exclusion of internal out-group members may take a more insidious form in fitting with an organisational context such exclusion of out-group members from informal communications. Maltz and Kohli (1996) found perceived inter-functional competition reduced the perceived validity accorded to information exchanged across functional boundaries while contact between cross-functional team members was restricted to formal meetings. Phillips (2001) found almost half of the variance in team member withdrawal behaviours, such as lower task participation or absenteeism was attributed to exclusion from team decision making.

The idea member participation or withdrawal can have social psychological origins is supported by Karakowsky and McBey (2001). The researchers found member withdrawal behaviours were associated with the pre-existing ideas of their competence at a particular task. The expectation of competence was fundamentally social psychological in origin as the tasks were gender typed (negotiations designed to be male or female oriented in theme and style). Results revealed that when faced with a non-gender congruent task participants were less likely to be actively involved in the negotiation. This withdrawal behaviour was accompanied by the perception in participants that their contribution would not be valued by the group. The reason for this was the perception that a member of their gender would not be a respected source of help in a non-gender consistent task (Karakowsky & McBey, 2001).

A similar process was noted by Jassawall and Sashittal (1998; 1999). Specifically, the parent organisations were engineering and R&D focused environments. Representatives of R&D functions were observed to autocratically dominate problematic cross-functional teams. Justification for the autocratic behaviour was based in the perceived higher expertise compared to non-engineering functions. Similar to Karakowsky and McBey (2001) the non-valued cross-functional team members were seen by Jassawalla and Sashittal (1998; 1999) to withdraw in the form of expressing low commitment to the cross-functional team. In further corroboration of Jassawalla and Sashittal (1998; 1999), Li et al (1999) reported authoritarian and dismissive interaction styles on the part of a dominant faction lowered effort on the part of the minority task group members, as was observable in problematic cross-functional teams. Ironically, perceived expertise of a group member increases with the amount of participation in group tasks (Littlepage, Schmidt, Whistler, & Frost, 1995). As the value of a cross-functional team lies in the integration of the different knowledge, skill and abilities residing in different functional groups (Webber & Donahue, 2001) the tendency to equate

difference in perspective with low trustworthiness and incompetence can be seen as a significant hurdle.

The above research infers preferences for information that favour an ingroup function, coupled with socially prescribed expectations of task competency or cooperativeness can create a psychologically unsafe environment resulting in silent withdrawal of effective participation on the part of cross-functional team members. This is a problem for cross-functional team as it is the integration of differing perspectives that is the reason and strength of a cross-functional team (Webber & Donahue, 2001). The suggestion is attention needs to be paid to social integration between functions within a cross-functional team as an adjunct to assigning group members on the basis of complimentary technical competencies. The genesis of cross-functional team problems is cross-functional teams are instances of inter-group contact in an ostensibly intragroup situation. It can be suggested social psychology may offer some utility in informing the social integration of disparate functions while maintaining their own professional values, knowledge and place in the organisational milieu.

Social psychology: Does it belong in cross-functional teams?

The potential utility offered by social psychology is underscored with research demonstrating the impact of social influence in work groups. Mathieu, Goodwin, Heffner, Salas, and Cannon-Bowers (2000) examined the impact of shared mental models on team process factors (internal coordination, cooperation and communication) while attempting to adapt to a challenging novel environment. Shared mental models are conceptualised as knowledge structures held by team members that provide members with guidance in interpretation of stimuli and interaction within an environment (Mathieu et al, 2000). The researchers measured mental models related to task fulfilment (how to use equipment, how to do a job) and team relationship models (common values, attitudes, preferences, information flow) facets of teamwork. In support of this separation, task and team relationship models

did not correlate significantly with each other (Mathieu et al, 2000) suggesting technical competence or member ability is only part of the equation needed for a successful cross-functional team

Overall, Mathieu et al (2000) found the more a mental model is shared within a team, the higher team performance. Additionally, of the two types of mental model it was team relationship model agreement that best facilitated team performance. Task related mental model commonality had only an indirect relationship with team performance via the team process variables (Mathieu et al, 2000). It is notable that the direct and beneficial impact of the shared team relation model on performance was fully mediated by the team process factors (Mathieu, 2000). The importance of this finding is in the implication that groups will work better on tasks when they share, as a social unit, common values, attitudes and ideas of correct interaction within the group whereas disagreement over values is likely to engender harmful conflict (Jehn et al, 1999).

If it is accepted that shared mental models are analogous with what Jassawalla and Sashittal (1998) referred to as low perceptual distance then a number of implications can be drawn for cross-functional team from integrating Jassawalla and Sashittal (1998; 1999) with Mathieu et al (2000). Firstly, the quality of intragroup social interaction can be at least, if not more important in task groups as technical knowledge for increasing team performance. This is due to an improvement in how the team coordinates, communicates and cooperates. Secondly, the quality of the intragroup interaction will be higher if team members are socially integrated in terms of what are considered correct values, attitudes, preferences and intragroup roles (Mathieu et al, 2000). Thirdly, indirect association of collective task model acceptance with performance through team processes (Mathieu et al, 2000) indicates the presence of technical diversity does not mean that a cross-functional team will fail. However,

there needs to be a social connection within the team if the task related diversity is to be fully capitalised on (Jassawalla & Sashittal, 1999; Birkinshaw, Bresman, & Hakanson, 2000).

The social connection can be difficult to establish due to membership in organisational groups external to the cross-functional team. Functional group membership biases employees towards information that reinforces the functional in-group position (van Knippenberg et al, 1994). Cross-functional team members can resist recognising abilities of functional out-group members (Littlepage, Robinson, & Reddington, 1997; van Knippenberg et al, 2004). Evidence from Philips (2001) and Karakowsky and McBey (2001) demonstrates a lack of respect for member ability can cause psychological and behavioural withdrawal from the group. Pre-existing group loyalty may also decrease trust of cross-functional team members from rival functional groups (Webber, 2002). Trust of the cross-functional team is a sign of affective and cognitive connection between group members (Jassawalla & Sashittal, 1998; 1999) and therefore social psychological connection with the cross-functional team. The negative aspects of inter-functional interaction can be reversed if the cross-functional team is considered to be a shared social identity (Kane et al, 2005; van Der Vegt & Bunderson, 2005).

Taken as a whole, the research suggests differences in cognitive and affective connection distinguish problematic from effective cross-functional teams. Social psychological phenomena such as group identification play a part inside cross-functional teams. Therefore it is not illogical to adopt a social psychological knowledge base when attempting to manage cross-functional team. However, it may be possible to question this conclusion.

Alternative explanations.

One possible basis for questioning the idea social psychological knowledge will be useful in cross-functional team management is that of sampling. The majority of the field

based evidence cited in this discussion was published by Jassawalla and Sashittal (1998; 1999). These articles used a single sample of participants employed by high technology manufacturing firms. Therefore it may be possible to question the position that social psychological theory should be utilised to understand and improve cross-functional team on the basis of low generalisability, with attendant concerns regarding validity (Kazdin, 1995). However, this concern can be partially allayed on the basis of Huang and Newell (2003). These researchers reported, as did Jassawalla and Sashittal (1998), that higher quality collaboration in cross-functional team depended on intra cross-functional team trust founded in cognitive and affective connection. Unlike Jassawalla and Sashittal (1998; 1999), Huang and Newell (2003) used a sample of four different business areas with conclusions holding true across all participant groups. Additional research conducted in field settings (Zolin et al, 2004; Lovelace et al, 2001; Hansen et al, 2005; van Der Vegt & Bunderson, 2005) corroborates Huang and Newell (2003) and Jassawalla and Sashittal (1998; 1999) by finding a connection between inter-functional social integration and high quality collaboration. By extension, it can be suggested that the commonality of results between the aforementioned research lends support to the current authors argument.

Alternatively, it may be argued that instead of having a basis in intra-team social psychological connection, the outcomes noted above have a basis in the individual characteristics of the team members. For example, it may be that what appears to be identification with a cross-functional team is actually the result of compatible personality types facilitating interpersonal liking (Barrick, Stewart, Neubert & Mount, 1998). However, a number of studies furnish evidence that suggests individual idiosyncrasies may not be as potent within cross-functional team as socially based attributes.

One example is provided by LaBianca et al (1998). In this research it was reported that the positive impact of cross group friendships was less influential than negative

interpersonal interactions with an outgroup member in terms of guiding future intergroup interactions. Negative interpersonal interactions (personally experienced or third-party) were found to set up an expectation that all outgroup representatives, and intergroup interactions, were likely to be conflictual (Labianca et al, 1998). The suggestion is that interpersonal liking is not sufficiently powerful in comparison to group membership for explaining the positive or negative cross-functional team experiences noted by Jassawalla & Sashittal (1998; 1999).

Additional research supporting the idea social psychological processes, rather than interpersonal or intra-psychic processes, are important for understanding cross-functional team is Cadenhead and Richman (1996). These researchers examined a hypothesised link between the amount of interpersonal trust and aggressive behaviour between and within groups. Interpersonal trust was measured as the propensity to trust another person as reported by participants. Contrary to expectations, Cadenhead and Richman (1996) found that an individuals intrinsic willingness to trust another person did not lower the approval of aggression towards another individual whereas shared group membership did. Similarly, it was reported that participants were more likely to perform altruistic behaviours towards an ingroup member than an outgroup member, regardless of intrinsic willingness to trust. Finally, while the likelihood of performing prosocial behaviour was reported to increase linearly with trust, examination of means reveals those least inclined to trust reported a higher willingness to trust an ingroup member than those highest in propensity to trust were willing to trust an outgroup member (Cadenhead & Richman, 1996). The Cadenhead and Richman (1996) finding that helping, trust, and aggression increase or decrease towards individuals on the basis of ingroup or outgroup membership parallels observations recorded by Jassawalla and Sashittal (1999) that better cross-functional teams have a climate high in intra-group

trust. This high trust is accompanied by attendant intragroup (internal to cross-functional team) intergroup (across functional boundaries) prosocial behaviour.

Integration of Labianca et al (1998) with Cadenhead and Richman (1996) suggests that an idiosyncratic character trait such as 'tendency to trust' (Costa, Roe, & Taillieu, 2001) is not as potent as group membership in guiding interactions predicated on group membership within cross-functional team. Riketta and van Dick (2005) suggest participants are more likely to act in ways that favour the salient locum of social identity, for example the subgroup when the subgroup is salient. They also suggest an organisation would be more likely to achieve desired outcomes if the correct level of workplace identification is identified and worked with. The implication is promotion of trust and helping or hindering behaviour within a cross-functional team would be best served by managing inter-group relationships rather than interpersonal. Psychological issues relevant to group membership are the legitimate province of social psychology (Turner & Oakes, 1997). Therefore, it can be argued that application of social psychological theory to cross-functional team has legitimacy.

Summary

A number of implications can be drawn from a summary of the cited cross-functional team based research. Firstly, both quantitative and qualitative research demonstrates the quality of intergroup relations is important for the quality of the cross-functional team experience for employees and organisational outcomes. Secondly, management of intergroup relations should be managed at an early stage to account for pre-contact expectancies. Thirdly, management of a cross-functional team requires management of inter-group contact. The inter-group dimension suggests social psychological processes would be the logical focus of an intervention intended to manage inter-functional relationship within a cross-functional team. It can therefore be suggested that social psychological processes can best be

managed with reference to an established social psychological theory. Normally, cross-functional teams are implemented without cognisance of social psychological processes or an appropriate group level theory base. A number of researchers have advanced this contributes to the inconsistent success of cross-functional teams. The suggestion is there is a need for research examining intergroup processes from a social psychological theory base in a cross-functional team context. The merits of theory/practice integration will be the subject of the next section.

Chapter Three: Social Identity Theory and Self-Categorisation Theory

Overview

The broad aim in this chapter is to describe the basic principles of SIT and SCT. The intention is to provide sufficient theoretical background to facilitate the analysis of SIT/SCT principles as applied to organisational, and more specifically cross-functional team settings in later chapters. The author assumes that the development of organisational theory and practise should have a mutually beneficial relationship (see Appendix B for a discussion of the author's rationale). This chapter will review laboratory based social-psychological research concerned with the validity (or not) of SIT/SCT. The rationale is that argument for application of specific theories must be preceded by evidence of the validity of fundamental theoretical postulates. The first section will be a brief accounting of the historical background behind SIT/SCT. This will be followed by an overview of research pertaining to SIT. A final section considers SCT.

A Brief History of SIT & SCT.

According to Turner (1996) SIT was initially formulated by Henri Tajfel (1919-1982), a Polish Jew who travelled to France in order to study chemistry just prior to the Second World War. When Germany invaded France Tajfel served in the French army, spending 1940-1945 as a prisoner of war under an assumed French identity. After the war, Tajfel discovered that virtually no pre-war family or friends had survived German occupation. In this post-war period Tajfel worked with orphans, concentration camp survivors and disabled refugees, attempting ensure adequate education, work and rehabilitation (Turner, 1996). The theories of SIT/SCT can be considered to be Tajfel's attempt to explain the causes of behaviour that resulted in the miserable human circumstances of and after the Second World War

(Turner, 1996). Tajfel would illustrate the importance of group membership during lectures by relating how he survived prison camp by virtue of being thought to be French. If his true Jewish identity was known, the Germans would have killed him regardless of any distinguishing personal qualities or relationships with individual guards (Turner, 1996).

Initial development of SIT/SCT can be seen during the late 1950's and early 1960's. For example, Tajfel (1957) offered an explanation for frequently observed but difficult to interpret perceptual distortions. Based on an examination of research protocols of previous perceptual research, Tajfel (1957) proposed that overestimation of the difference in size between different objects would occur when there is a 'value' difference that could be connected to the explicit dimension of comparison. One experiment which supported this idea involved assignment of a weight to one of seven weight categories. Participants overestimated the difference between the heaviest and lightest weights in a condition where a bonus such as a book certificate accompanied presentation of weights. In conditions without a bonus, or in a condition where the 'bonus' was a valueless piece of paper, there was no overestimation. This experiment supported Tajfel's (1957) argument that accentuation was the result of extra adaptive information being used in judgement formation rather than the erroneous interpretation of objective reality. Tajfel (1957) proposed the same process applied when making a social judgement.

In a logical progression of Tajfel (1957), Tajfel and Wilkes (1963) demonstrated not only accentuation of inter-class difference, but also provided evidence that there would be an exaggeration of intra-class similarity. Further, the accentuation effect would apply when judging groups of similar stimuli as well as individual objects. Tajfel and Wilkes (1963) performed an experiment in which the

lengths of groups of diagonally drawn lines, whose size varied by a set degree, were estimated under three different conditions. In one condition groups of participants judged 4 lines that were labelled 'A' or 'B'. Lines labelled 'B' were the longer. In another condition the lines were represented without the labelling but the same systematic varying of length. In a final condition there was no constant relationship between the label and line length. Participants undertook the task twice at a one-week interval. The expected difference in intra-class similarity between conditions did not reach statistical significance. However, there was a strong trend in the hypothesised direction during the second experimental session (Tajfel & Wilkes, 1963). In contrast, there was an accentuation of interclass differences. Further, the accentuation effect occurred only when there was a relationship between the label and the line length. Specifically, the difference between lines labelled 'A' and 'B' were exaggerated so that the difference between the shortest 'A' and longest 'B' was more than double the objectively measurable length (Tajfel & Wilkes, 1963).

Tajfel (1957) and Tajfel and Wilkes (1963) laid the foundation of a program of research which examined the application of Tajfel's categorisation research to stereotyping. The central idea was that people could be classified and evaluated just as any other stimulus object with classification being based on social group instead of size or weight (Turner, 1996; Eiser, 1996). Development of this basic idea began in the early seventies. Working collaboratively, Tajfel, conducted research in various inter-group situations. Participant groups included migrants from Commonwealth countries, who although considering themselves part of a greater English family, found the natives of the 'mother country' were less than generous in accepting newcomers. In addition, there was research with children into the development of

nationalism, ethnocentrism, and the treatment of lower status minorities (not necessarily numerical) (Turner, 1996).

These lines of inquiry led Tajfel to consider the dominant explanation of social psychological judgments, based as it was in an assumption that social perception is limited by the perceptual limitations of the individual perceiver, to be overly reductionist (Billig, 1996; Turner, 1996). For example, a purely cognitive account of stereotyping, couched in terms of the cognitive miser, was rejected by Tajfel (Oakes, 1996). Although supporting the role of categorisation in prejudicial perception, the cognitive miser was deemed by Tajfel to offer an impoverished explanation for socially shared stereotypes (Hogg & Abrams, 1999). To Tajfel, it made more sense for social categorisation to increase the amount of information available for making social judgement (Turner, 2000). In other words, extending from the social to the individual was considered to provide a much richer, and more accurate understanding of self-definition as a social being and therefore of inter-group behaviour (Hogg & Abrams, 1999; Turner, 1996).

Development of the minimal group paradigm (MGP) allowed controlled experimental exploration of social categorisation and identification effects on inter-group behaviour. MGP research provided robust results which indicated that categorisation as a group member does have implications for inter-group behaviour (Turner, 2000). Tajfel worked on explaining the results from MGP research through the mid-seventies until his death in 1982. It was proposed that categorisation of self and others as group members facilitated a process of social identification (Hogg, 1996; Turner, 2000). Establishment and elaboration of the role social identification played in inter-group behaviour became the conceptual backbone of what would eventually be referred to by Turner & Brown (1978, cited in Turner, 2000) as SIT.

SCT, an extension of, and conceptual companion to SIT was proposed by Turner in the early eighties (Oakes, 1996; Hogg & Terry, 2000) but not presented as a distinct theory until 1985 (McGarty, 1999). The focus of SCT is on cognitive processes within the individual that underlie the adoption of a particular social identity (McGarty, 1999). Therefore SCT can be considered the intra-group component (Abrams, 1998) of the more comprehensive social psychological meta-theory formed by SCT and SIT. There has been some misinterpretation of SCT as firmly located within the social cognitivist tradition (Hogg, 1996). However, this ignores an important difference between social cognition and SCT.

Specifically, SCT does not propose a causal flow from the erroneous cognitive proclivities of an isolated individual to judgements of others (Hogg, 1996; Turner, 2000). Instead, judgements are made with reference to others as representative of social categories, and with reference to oneself as representative of a social category (Hogg & Abrams, 1999). SCT has found application in a number of traditional social psychological areas such as conformity and stereotyping (Hogg, 1996). Recently a number of SIT researchers have emphasised the SCT component as being particularly promising as a source of guidance for organisational psychology research and practice (Hogg & Terry, 2000; Haslam, 2001; Haslam, Powell, & Turner, 2000).

The next section will provide an overview of SIT. SIT will be described and critiqued through discussion of presentation of research both supportive and critical of the theory.

Description of SIT.

The social identity was defined by Tajfel (1978, cited in Otten & Mummendey, 1999) as *‘that part of an individuals self-concept that derives from his knowledge of his membership of a social group (or groups) together with the value*

and emotional significance attached to that membership'. Implicit in this definition is the idea that group membership is of psychological significance. From an SIT perspective, to deny the influence of group membership on the individuals social psychological life in intergroup contexts is to create an artificial being devoid of any meaningful involvement in a social system (Hogg & Abrams, 1999). To Tajfel, an intergroup context could be distinguished from an interpersonal situation due to three distinguishing features. The first feature is the presence of at least two explicitly separate social categories. The second feature is increased intra-group uniformity of behaviour and the third is homogeneity in judgements of group members (Brewer & Brown, 1998).

It should be noted that the above definition of social identification does not suggest group members do not possess a sense of themselves as individuals. Rather, there is a distinction between individual (identity based in awareness of idiosyncratic characteristics) and social identity (Turner, 2000). Within SIT the individual self and the social self represent opposite ends of a continuum (Haslam, 2001). Therefore there would be an observed discontinuity in behaviour when social identity is active compared to situations where individual identity was dominant (see Figure 1).



Figure 1. Discontinuity in behaviour as a function of social identity salience (adapted from Haslam, 2001)

Discontinuity between individualised and social behaviour is observable in Postmes and Spears (1998). The researchers conducted a meta-analysis of research

concerned with 'deindividuation effects' in crowd based anti-social behaviours illustrates this point. It was found that anti-normative behaviour was not due to an increased loss of individual identity so much as the adoption of behaviour consistent with the norms of an available crowd based social identity. Schopfler et al (1995) reported inter-group discussions were more likely to be uncooperative and marked by statements indicating distrust and greed than interpersonal discussions. This result is congruent with the consistent finding that people act more competitively in inter-group than interpersonal situations (Yzerbert, Castano, Leyens, & Paladino, 2000; Wildshut, Lodewijkx, & Insko, 2001). Another recent example of discontinuity is provided by Utz and Sassenberg (2002). These researchers found more ego-centric behaviour in common bond groups (based in interpersonal attraction). In common bond groups participants believed they should share in any profits made by group members, but only the group member responsible for incurring a 'loss' in a hypothetical investment should actually incur the loss. Common identity group participants displayed more altruistic behaviour. When an ingroup member was responsible for a loss other group members were willing to defray the cost to the 'responsible member' (rather than direct it away from themselves) by sharing profit equally. Therefore, there is an observable discontinuity in the tendency to be altruistic when participants are working from social identity compared to an individual identity.

A further aspect of Tajfel's definition of social identity is that social identification is multifaceted. Consistent with this multifaceted view of social identity Ellemers et al (1999) have identified three components of internalised social identification. These are 'affective commitment' (emotional involvement with the group), an evaluative component (positive or negative connotation from group membership reflected in self-esteem derived from group membership) and a cognitive

component (an awareness of group membership). Each of social identifications three elements are affected by different socio-contextual features and impact on different aspects of observable inter-group behaviours (Haslam, 2001). For example, Ellemers et al (1999) reported that only the evaluative aspect of social identification was affected by manipulations of relative group status. The manipulations of ‘self-selection’ or ‘imposed’ group membership had an effect on commitment. Of the three components, only emotional commitment mediated group favouring behaviour (points allocation and evaluation of personal qualities). In contrast cognitive awareness of group membership, while related to social identification, did not contribute to either of these behaviours. In more recent research Dimmock, Grove, and Eklund (2005) found cognitive, affective and evaluative components to identification, although the cognitive and affective dimensions formed part of the same scale. Bergami and Bagozzi (2000) conducted research in organisational settings. Their results were similar to Ellemers et al (1999) and Dimmock et al (2005) in finding affective (two factors: joy from membership and attachment to group), cognitive and evaluative facets of social identification. Further, each facet had a predictive relationship to different behaviours. Affective commitment and evaluative aspects predicted different organisational citizenship behaviours while cognitive identification mediated the impact of organisational prestige and stereotype on the affective and evaluative aspects of social identity. It is notable that both Dimmock et al (2005) and Bergami and Bagozzi (2000) used real groups to corroborate the results of the Ellemers et al (1999) laboratory research.

The interaction of these social identification facets with elements of the ‘real’ world, such as the antecedents of social identity (organisational prestige and stereotype of the organisation) used by Bergami and Bagozzi (2000), are assumed to

provide a description of in-group and out-group members attributes and evaluation of in-group and out-group members (Hogg, 1996). The evaluative aspect of perceiving self-as-group member motivates group members to act in ways that preserve the superiority and distinctiveness of the group compared to a relevant out-group (Ellemers et al, 1999; Hogg & Terry, 2000). For example, Verkuyten (1997) found that collective self-esteem (group based self-enhancement) was related to a favourable evaluation of the ingroup relative to the outgroup. Other SIT research has supported the motivational role of the 'positive distinctiveness' drive for emotional responses such as group loyalty, to underlie in-group favouring resource allocations, pride in the in-groups achievements, and out-group derogation in both attitude and behaviour (Hornsey & Hogg, 2000a; Haslam, 2001). Therefore, according to SIT theorists, to remove the 'group' from research in social situations, for example by proposing collective action to be constrained by cognitive processing power or meeting individual interests is overly reductionist (Turner & Oakes, 1997). It has been argued that such reductionism may represent an experimental confound through measuring phenomena at the interpersonal, and therefore an incorrect level (Turner, 2000). Much of the research supporting SIT was conducted using the minimal group paradigm (MGP) (Brown, 2000).

Minimal group research.

In research adopting the MGP, participants are assigned arbitrarily to different groups (with no prior existence outside the experiment) on the basis of trivial criteria such as preference for a particular artist by participants with no prior exposure to the stimuli (Mullin & Hogg, 1998). There is no interpersonal contact during the experiment and participants derive no personal benefit from their actions in the experiment (Otten & Moskowitz, 2000). Participants are not even aware of the

personal identity of any other participant (Turner, 1996). The MGP is considered an effective methodology for removing all possible explanations for inter-group behaviour other than a process of social identification with the minimal group (Turner, 2000; Brown, 2000).

MGP experiments were consistent with the idea that personal and social identity can be differentiated. Specifically, there was discontinuity between the manner in which people thought, felt, and acted when a social identity was salient compared to when a personal identity was salient (Haslam, 2001). When a social identity was salient in-group biases were observed. In-group biases were evident even though no obvious individual profit could be derived from favouring the experimentally imposed minimal group. It was observed that participants would rather discriminate and maximise group distinctiveness than employ a strategy that maximised joint gain (Brown, 2000). The benefit to the individual group member was assumed to be self-enhancement from positively differentiating the in-group relative to the out-group (De Cremer, van Vugt, & Sharp, 1999).

These results have been interpreted as evidence that merely being categorised as a member of a social group (Otten & Moskowitz, 2000) is sufficient to motivate individual behaviour towards actions that would benefit the in-group as a collective entity (positive distinctiveness). However, it should be noted that Tajfel (1982, cited in Turner, 1996) *did not believe* 'mere categorisation' by an experimenter was equivalent to the psychological acceptance and internalisation of the categorisation by the members of the group. Minimal group research by Platow, Mills, and Morrison (2000) illustrates supports this view.

Platow et al (2000) used the minimal group paradigm to study social influence and conformity to experimenter opinion as to the quality of Klandinsky v Klee

painting (artistic style was controlled as all paintings were by Joan Miro). The researchers reported an interaction between context, fairness of experimenter behaviour (in allocation of easy/fun or hard/boring computer tasks) and shared social categorisation. Specifically, participants were influenced only by the *opinions of experimenters with whom they psychologically perceived a shared psychological categorisation* and who provided some form of positive distinctiveness (indicated by an increase in collective self-esteem) by being fair in an intra-group context and unfair in an inter-group context. Perceived similarity between participant and experimenter did not influence participant judgement. This result is consistent with both the positive distinctiveness motivation proposed by SIT and the idea that social categorisation is psychologically distinct from placement in a category based in extrinsic similarity.

A two part study that combined natural groups (Study 2) with an MGP component (Study 1) indicates support for the idea of positive distinctiveness and its relation to evaluation of individuals on a valued personal characteristic was conducted by Jetten, Spears, Hogg and Manstead (2000). These researchers conducted research where in-group members rated the creativity (higher perceived level of creativity = higher in-group bias) as related to the degree of identification with an in-group of either high or low status. Consistent with the motivation for positive distinctiveness, high identifiers with a low status minimal group favoured the in-group over the high status out-group in terms of being more creative when the groups were seen as being heterogenous in character. There was a statistically non-significant trend for members of the high status group to increase in-group bias (Jetten et al, 2000*b*).

Although this statistically non-significant result for the high status group appears contrary the idea the idea of positive distinctiveness, it should be noted that in

the non-MGP natural group based Study 2 the high status group did display the expected group favouritism. This result is important as the validity MGP derived results has been questioned on the basis of it presenting a context which facilitates the expression of bias compared to natural groups through an artificial inflation of group salience (Branscombe, Ellemers, Spears, & Doosje, 1999). However, the occurrence of increased bias in the natural compared to the minimal groups (Jetten et al, 2000*b*) implies that the MGP may actually undermine the expression of in-group bias. It can then be inferred the MGP does, as intended, represent a stringent method for examining inter-group contact situations. If this is accepted as a logical proposition then Jetten et al (2000*b*) is consistent with a positive distinctiveness explanation as members of low status groups can be assumed to derive self-enhancement from redressing the lower status of the in-group by claiming superiority. Similarly, the in-group bias displayed by members of the high status natural group meets positive distinctiveness needs through maintenance of superiority on dimensions of intergroup comparison (Jetten et al, 2000*b*).

It should be noted that group variability (in-group heterogeneity or homogeneity) effected whether high or low status group members displayed discriminatory bias. When groups were seen as internally heterogenous the low-status group was more likely to discriminate. The high status group was more likely to discriminate when the groups were internally homogenous (Jetten et al, 2000*b*). An implication that can be drawn is that ingroup bias and self-enhancement processes are not automatic, as may be suggested if ingroup bias was displayed by both groups regardless of the social structure implied by the group variability manipulation. This is consistent with the SIT position that people are not unthinking, or insensitive to

elements signifying social reality, but are cognisant of contextual features that serve to diagnose reality (Turner,2000).

More specifically, when there was a clear distinction between groups (internally homogenous groups) the high status group were free to discriminate as the lack of overlap between groups could be interpreted as a sign the difference was truly due to creativity differentials between groups. The clear intergroup difference justified ingroup bias. Similarly, the low-status group displayed discriminatory behaviour when both groups were seen as internally heterogenous. These effects were contingent on the degree of social identification so that identification behaved as a moderator of in-group bias (Jetten et al, 2000*b*). Consistent with SIT, Jetten et al (2000*b*) argued that in-group heterogeneity reduced the distinctiveness of the groups through the lack of distinct group defining characteristics. Therefore the legitimacy of the high status groups superiority was questionable. Possible illegitimacy of outgroup superiority justified social competition in the form of appropriating a positive characteristic for the in-group. This argument was supported by partial mediation of bias by perceived legitimacy of the status differential (Jetten et al, 2000*b*).

The suggestion is that group members are aware of socio-structural variable such as relative status and act in awareness of the groups place in a wider social system. This can be interpreted as support for the SIT proposal that that membership in a social group has an impact on psychological functioning and behaviour. If this interpretation is accepted, then support is also indicated for the SIT account of intergroup status relationships and the likelihood of behaviours enacted to benefit the group as opposed to the individual. The SIT analysis of inter-group status differentials and social behaviour will be presented below.

SIT and relative intergroup status.

According to SIT it is the shared awareness of the nature of relative inter-group status differentials in interaction with positive distinctiveness needs that will contribute to an individual's position between an individual or social identity. In turn, the individual will perform acts that signify either a social mobility (see Figure 2) or a social change belief structure (Haslam, 2001). The importance of relative inter-group status for self-enhancement is supported by Roccas (2003) who found people will identify with the highest status group in situations where there are multiple possible choices. Scheepers and Ellemers (2005) reported being informed the ingroup was of lower status produced increased blood pressure. A similar effect was found when members of a high status group were faced with the prospect of losing their higher status. Doosje, Spears, and Ellemers (2002) found those with high initial levels of group identification would stay committed to the ingroup even when faced with a change in relative intergroup status. Those with low initial identification would not remain committed to the ingroup unless there was a chance of increased status. These studies show the connection between social identification and social behaviour.

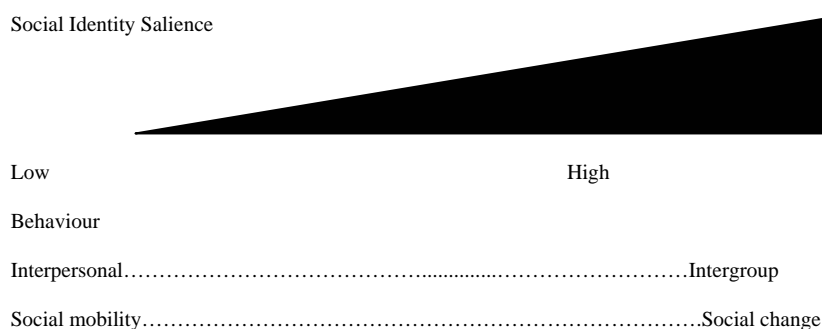


Figure 2. Identity saliency and choice of status enhancing behaviour (Adapted from Haslam, 2001)

A person is assumed to enact different strategies of identity enhancement (see Table 1.) depending on the permeability of inter-group boundaries and the security of the difference in relative status (Turner, 2000). Permeability refers to the likelihood

of passing from one group to the other and if the status differential is seen as secure (Haslam, 2001). Secure status differentials are stable (how likely is change) and legitimate (how deserving of higher status is either group) (Mummendey, Klink, Mielke, Wenzel, & Blanz, 1999).

Table 1.

Social structure and choice of self-enhancing behaviours

Status	Permeability	Security	Response
<i>Low</i>	Permeable	Secure	Individual mobility
<i>High</i>	Permeable	Secure	Allows individual mobility
<i>Low</i>	Impermeable	Secure	Social creativity
<i>High</i>	Impermeable	Secure	Social creativity
<i>Low</i>	Impermeable	Insecure	Social competition
<i>High</i>	Impermeable	Insecure	Social Competition Social Creativity

A meta-analysis by Bettencourt, Dorr, Charlton, and Hume (2001) supported SIT predictions of the effect stability, legitimacy, and ingroup bias with regards to issues relevant to the content of the ingroup social identity. Mummendey, et al (1999) found social identification mediated the impact of the perceived nature of intergroup status differences and the enactment of identity management strategies as predicted by SIT in post-unification East Germany.

One prediction is that when boundaries are perceived to be permeable and status differentials secure an individual may enact a social mobility strategy (moving from membership in low to high status group) that advantages the individual but not the relative standing of the group as a whole. Wright and Taylor (1999) reported that a 'token' from a low status group allowed to pass between groups adopted the attitudes of the high status group. For example, although recognising the unfairness of the status differential, these tokens shifted their attitudes to be equivalent with other

members of the high status group by supporting only those members of the low status group who accepted their status or followed high status group imposed rules for advancement. Tokens refused to support the actions of low status group members designed to advance the standing of the entire low status group (Wright & Taylor, 1999) or who engaged in status challenging behaviour of a kind not sanctioned by rules for advancement set by the high status group (Wright & Taylor, 1999).

When conditions are such that boundaries are impermeable yet secure, low status groups achieve identity enhancement through the use of 'social creativity'. Social creativity entails either changing the dimension of comparison, the meaning assigned to the in-group attribute, or comparing the in-group with an out-group that meets in-group positive distinctiveness needs (Haslam, 2001). Turner, Hogg, Turner, and Smith (1984) consider increased social identification with a group after a losing a competition to be a socially creative identity enhancement strategy. Members of higher status groups are also assumed to meet positive distinctiveness needs through social creativity. This may entail recognising out-group superiority on dimensions irrelevant to the in-groups self-definition. For example, Ellemers, Van Rijswijk, Roefs, and Simons (1997) reported that when an ingroup occupied a secure (recognised by in-group, out-group and 'neutral' participants) positive status differential ingroup members acknowledged outgroup superiority on traits of no relevance to ingroup self-definition. However, where comparative dimension was of in-group importance there was bias against the out-group. The recognition of the low status groups superiority in areas that do not challenge the in-groups higher social position serves self-enhancement needs of the high status group through an implication that they are fair-minded (Singh, Choo, & Poh, 1998). Being fair lends strength to the existing status quo as being an accurate representation of the

comparative worth inherent in each group. The logic of this idea is observable in Branscombe and Wann (1994) where derogation of a non-threatening out-group reduced perceived positive distinctiveness and Hornsey, Spears, Cremers and Hogg (2003) where derogation of the out-group was predominantly the practice of 'illegitimately' high powered groups. The lack of hostility on the part of those whose position was legitimate is functional in the sense that they had no reason to engage in hostile action against others (Hornsey et al, 2003).

The relationship between out-group derogation and illegitimacy reported by Hornsey et al (2003) is consistent with a third strategy that may be employed by a group to meet positive distinctiveness needs through changing the existing status difference. This strategy is to engage in social competition. Social competition is attempted when boundaries are impermeable and status insecure (Haslam, 2001). A low status group is expected to rely solely on social competition whereas a high status group is expected to rely on competition and social creativity (Haslam, 2001).

The role of boundary impermeability in social competition between power differentiated groups is found in Reynolds, Oakes, Haslam, Nolan, and Dolnik (2000a). These researchers examined the role of permeability on stereotype acceptance or challenge. The results were consistent with SIT status based predictions in that conditions of low permeability produced collective protest against negative out-group stereotypes, higher identification with the low powered out-group, and derogation of the high powered group. For example, rather than being seen as sophisticated the high powered group was perceived to be cold and rude (Reynolds et al, 2000a). However, as permeability was introduced in the form of a quota system the low power group decreased social competition. The lack of competition took the form of accepting the status quo accepting the stereotypes as valid and enactment of

social mobility behaviours on the part of low status group members (Reynolds et al, 2000a). The author recognises that power and status are different constructs (Guinot, Judd, & Brauer, 2002). However, as Brewer and Brown (1998) note, power and status in inter-group situations seem to be psychologically equivalent implying that Reynolds et al (2000a) is relevant to SIT and inter-group status.

Ouwerkerk, de Gilder, and de Vries (2000) indicate a role for legitimacy in encouraging socially challenging behaviour. It was reported strength of identification was related to increased effort to improve in-group status in a competitive inter-group context (psychology students v. other disciplines). This is consistent with SIT. However, initially, only male students in the low status condition conformed to the expected pattern. Counter to expectations, females reporting higher levels of social identification in the low status condition reduced their efforts. One possible explanation for this result is that social competition may be a male only strategy for resolving inter-group status issues. However, the researchers attributed the gender difference to the nature of the task.

Specifically, Ouwerkerk et al (2000) proposed that the task (computerised spatial recognition/manipulation) was one that may induce anxiety in the low status female students as it is counter-stereotypical for females to do well when compared to males. Therefore the status differential could be perceived as a legitimate. This idea was confirmed when the study was replicated with a slight modification. Students were informed that there are no gender differences on the performance of the task. Subsequently, the female students increased their efforts as originally hypothesised. Consistent with SIT, this can be interpreted as suggesting that once the legitimacy of the status differential (represented by the nature of the task) was removed the female participants willingly engaged in social competition. Similarly, social competition is

evident in the previously cited Jetten et al (2000b) research due to the insecurity of the status differential implied by the heterogeneity within the high status group.

Overall, the cited research supports SIT derived predictions. In inter-group contexts, members of involved groups pay attention to the socio-structural features of the environment. Behaviours enacted by individuals can be seen as congruent with the drive for positive distinctiveness. Satisfaction of positive distinctiveness may mean pursuing strategies serving either individual or collective mobility. The choice of strategy is made in awareness of shared views of social reality. However, it may be possible to question some of the research base for accepting an SIT view of inter-group relations. For example, it may be possible to argue that the Jetten et al (2000b) result, and all examples of in-group favouring behaviour using the MGP are not due to the psychological impact of being categorised as a member of a minimal group but to mutual dependence.

Critique of MGP based SIT support.

Rabbie, Schot, and Visser (1989) suggested support for SIT, based as it is in the MGP, represented a confounding of different levels of identification as minimal groups were categories comprised of similar individuals rather than social groups. Rabbie et al (1989) stated that what appears to be inter-group differentiation, and in-group favouring behaviour, is actually recognition each participant is in the position to reciprocate a favour in the form of a currency exchange. Rabbie et al (1989) proposed a conceptual alternative, the Behavioural Interaction Model (BIM), as a superior explanation for the results obtained using the MGP.

According to the BIM, it is outcome inter-dependence and self-interest rather than social identification that underlies in-group bias in the MGP (Rabbie et al, 1989). For example, when a participant allocates an in-group member more points for

creativity (or money as is often done) the participant is only doing so to maximise individual gain. In essence, Rabbie et al (1989) places interdependence in the causal role for behaviours SIT theorists reserve for the psychological process of social identification (Brewer, 1999a). If this is so then the consequences for SIT are serious as individual difference, for example, in cooperativeness versus selfishness (De Cremer & van Vugt, 1999) or willingness to trust another to reciprocate (Costa, Roe, & Taillieu, 2001) may actually drive what has been interpreted as in-group favouring behaviour. The reduction of in-group favouring behaviour to an intra-psychic variable is directly contradicts the SIT position that individual differences are secondary in importance to group identification and a resultant motivation for group based self-enhancement in inter-group contexts (Turner, 1996). Therefore, the psychological processes fundamental to SIT become at best an understandable error. The logical outcome is to question the adaptation of an SIT framework for the analysis and explanation of inter-group contexts.

Rabbie et al (1989) proposed the BIM on the basis of an observed variance in discriminatory behaviour that was dependent on the amount of interdependence between participants. Specifically, in-group members who depended entirely on the in-group displayed the highest measured in-group identification and in-group bias. In-group members who were dependent entirely on the out-group reversed the normal MGP finding by favouring outgroup over the ingroup. This can be interpreted to suggest common fate or mutual dependence may be a logical explanation for in-group bias in the MGP. However, a body of research questions the BIM and the criticisms of SIT expressed by Rabbie et al (1989).

MGP based research by Otten and Moskowitz (2000) found in-group favouritism using an implicit (trait inference) instead of an explicit measure such as

allocation of money. It should be noted that no interaction or interdependence occurred between participants. Logically, if Rabbie et al (1989) were correct, then the absence of an explicit unit of exchange and no interaction or interdependence between participants means there should be no in-group favouritism. However, in-group favouritism was reported as a function of social identification interacting with trait favourability and in-group relevance of the trait (Otten and Moscovitz, 2000). In research by Coats, Smith, Claypool, and Banner (2000) explicit and implicit measures of social identification were associated, suggesting that the implicit measures of self employed in Otten and Moskwitz (2000) can drive external behaviour in inter-group contexts.

Perrault and Bourhis (1998) who conducted MGP based research explicitly intended to compare the BIM with SIT. It was reported that a higher degree of identification with an in-group could be associated with more in-group bias. Self-esteem (measured as positive feelings about their social identity) was found to increase *after* discrimination, not before discrimination against an out-group member. Indices of affective commitment to the in-group (measured as 'quality of social identity) also rose after discrimination. These results are consistent with a positive distinctiveness explanation as both self-esteem and commitment rose *after* advantaging the in-group (Brown, 2000; Ellemers et al, 1999). Further, counter to the BIM, discriminatory behaviour was independent of interdependence with 'autonomous' participants displaying equivalent levels of in-group bias to those whose income was interdependent without regard for expectations of intra-group reciprocity. The implication, consistent with SIT but not the BIM, is social identification, independent of interdependence or resource exchange is a sufficient cause for group favouring behaviour. Recent findings corroborates the conclusion

that expected reciprocity was based in social identification rather than perceived trustworthiness of an individual (Tanis & Postmes, 2005).

Rabbie et al (1989) also suggested minimal groups in the MGP are actually categories, not social groups. According to Turner (1996) a category is an experimenter imposed aggregate of individuals based in similarity on an arbitrary dimension. In contrast, a social group arises from internalisation of a social category for purposes of self-definition as a social being (McGarty, 2001). In other words a category is not accepted, and therefore is not of psychological or behavioural significance whereas a social group is. In effect, Rabbie et al (1989) are suggesting the minimal group is a category and therefore psychologically insignificant. However, the previously cited MGP research of Platow et al (2000) found this is not the case as surface similarity did not have an effect on participants' deeper categorisation. The suggestion is that even in the MGP a mere category is not equivalent to a psychological reference group.

The results of both Platow et al (2000) and Perrault and Bourhis (1998) are consistent with SIT. People must psychologically identify with a group before in-group bias will manifest (discontinuity) and that positive distinctiveness needs can be met through in-group favouritism, even in the absence of a common fate. The suggestion is the MGP is a valid method for uncovering basic social psychological processes in an experimentally controlled intergroup context (Turner, 1996). However, more recent research by Gaertner and Insko (2000) may be used to question to this conclusion.

Gaertner and Insko (2000) conducted two studies based in the conceptual tradition of the BIM. The researchers reported a number of results the researchers suggest support interdependence as a superior explanation of ingroup bias in the MGP

than SIT. The first piece of evidence cited by Gaertner and Insko (2000) is only female participants behave as predicted by SIT in the MGP. Specifically, categorised female participants favoured the in-group regardless of dependence. In contrast, categorised males did not discriminate to a statistically significant degree unless interacting with 'dependence'. As Gaertner and Insko (2000) claimed their measure of category meaning was a measure of social identification it was concluded that 'social identification' is insufficient explanation for observed discriminatory behaviour in male participants (Gaertner & Insko, 2000). The second study was conducted with only male participants. The intent was to unconfound dependence on ingroup compared to outgroup participants as in the original study 'dependence' on ingroup members and outgroup members was treated as psychologically equivalent (Gaertner & Insko, 2000). It was reported categorised participants did display ingroup bias, but only towards ingroup members who could reciprocate. The researchers concluded this was evidence for a 'bounded' reciprocity process incompatible with SIT. However, there are contentious points with regards to conclusion of Gaertner and Insko (2000). The first point of contention relates to Study One.

The contentious issue is that if SIT is unsupported, then applying the same reasoning to the data also denies support to the BIM. This proposition is based in the observation that 'dependence', similar to 'categorisation', failed to elicit in-group bias from males independently of 'categorisation' or 'sex'. The only variable that had a significant main effect on all three possible in-group favouring strategies was participant 'sex' (Gaertner & Insko, 2000). The suggestion is that 'dependence' without social identification is insufficient to cause in-group bias among males in the MGP, disproving both BIM and SIT. However, it should be noted that SIT does not

claim interdependence does not play a role in affirming group membership in inter-group contexts (Turner, 1996). Therefore the claim by Gaertner and Insko (2000) that interdependence and reciprocity is inconsistent with SIT is inaccurate.

As Billig (1996) stresses, social identification was never conceived to be more than a complimentary process that would interact with other contextual features. These features could include any aspect of a situation, for example reward structures, that would render inter-group cooperation mutually beneficial (Turner, 1996). This implies SIT theorists consider social identification to be a fundamental psychological process which can facilitate acceptance of an interdependent relationship (Brewer, 1999a). Therefore the lack of a main effect of identification in the first study of Gaertner and Insko (2000) is inconsistent with the BIM. However it is consistent with SIT which allows for the interaction of a number of contextual features in driving social behaviours. This claim is bolstered by the finding the dependence manipulations had no main or interaction effect on 'category meaningfulness'. When it is considered how intergroup interdependence can increase intergroup conflict (Brewer, 1999a) it can be inferred social identification does not arise purely from interdependence, thereby questioning the causal order proposed by Rabbie et al (1989).

The previously mentioned second study of Gaertner and Insko (2000) lends further strength to this argument as there was no outgroup favouritism even when dependent on the out-group. This disproves the BIM through denying a causal role for interdependence without shared identification (Turner, 1996). As previously discussed, the fact that in-group members were more generous towards in-group members with whom they were reciprocally dependent does not invalidate SIT because categorisation had to present before reciprocation was observed. The data is

consistent with a causal role played by social identification, allowing reinterpretation of Gaertner and Insko (2000) to one more supportive of SIT than the BIM.

A further contentious point is Gaertner and Insko (2000) assert SIT claims positive distinctiveness needs can only be met through indiscriminate in-group favouring bias to the maximum available extent regardless of dependence or independence on out-group members. The researchers use this as justification for the rejection of a SIT interpretation of the results of study 2, (bounded reciprocity). However, there are two problems with this idea. Firstly, there is evidence suggesting biased behaviour is not as automatic or antagonistic as Gaertner and Insko (2000) appear to imply. In MGP research Granzow, Gaertner and Sedkides (2001) reported in-group members do not try and distance themselves from acknowledging the accuracy of unfavourable but group congruent traits and behaviours. Similarly, Reynolds, Turner and Haslam (2000*b*) found group members did not automatically attempt to maximise the difference between groups by denying unfavourable group characteristics. Negative traits that actually were possessed by the in-group were accepted as accurate. The honest self-ascription of negative traits of an in-group is difficult to reconcile with the Gaertner and Insko (2000) claim for unthinking automatic drive for positive distinctiveness.

Secondly, SIT theorists do not claim social identification will always cause an automatic drive to derogate the out-group (McGarty, 2001; Turner, 2000). The form positive distinctiveness will take depends on the nature of the contact. For example, acting in an aggressive fashion where there is no inter-group threat can lower in-group positive distinctiveness (Branscombe & Wann, 1994). In contrast, research shows that in the absence of conflictual intergroup relations, positive distinctiveness can be met by being fair-minded (Singh et al, 1998). Verkuyen (1997) found providing an

advantage to the in-group without resorting to extremely competitive or derogatory behaviour is sufficient for meeting positive distinctiveness needs. The result of the Verkuyten (1997) study is consistent with a conclusion by Brewer (1999b) whose review of research indicates social identification is not connected to hostile inter-group behaviour or attitudes, but is connected to extending some advantage to in-group members.

The relevance of cited evidence to the Gaertner and Insko (2000) is that the positive distinctiveness needs are observable in a form appropriate for the context created within the research methodology. Context is important as changes in contextual features can moderate the expression of negative behaviour towards out-groups (Kinket & Verkuyten, 1999; Mummendey et al, 1999). More specifically, the Gaertner and Insko (2000) studies were benign and cooperative. The situation was not overtly competitive and neither group was in a numerical minority. This is relevant as being in the minority can increase in-group favouritism as a function of ingroup salience even in cooperative interactions (Bettencourt, Miller, & Hume, 1999). Further there was no threat of out-group members breaching inter-group boundaries and therefore no threat to group distinctiveness which has been found to encourage inter-group hostility (Hornsey & Hogg, 2000a). The suggestion is that there were no hostile contextual features so there was little reason to expect social identification to cause an extreme act of inter-group differentiation (McGarty, 2001). Therefore contrary to the Gaertner and Insko (2000) assertion, but consistent with SIT derived research, there is little reason to expect a drive for positive distinctiveness to manifest itself through a competitive maximisation of differences in allocations between cooperative minimal groups. Application of this argument to Gaertner and

Insko (2000) is valid as the researchers based their conclusions on one of three possible in-group favouring strategies.

Specifically Gaertner and Insko (2000) based their pro-interdependence anti-SIT conclusion only on strategies that were consistent with maximum outgroup loss. However, the most popular strategy in study one for males was ‘max-joint profit’, a response in which a small in-group advantage is retained while still displaying some concern to a cooperative outsider. In study two, the most prevalent strategy was the equivalent to ‘max joint own’ which also preserves a small group advantage while showing concern for the out-group. These results are consistent with Verkuyten (1997) where positive distinctiveness could be achieved through advantaging the in-group while still showing some concern for fairness towards an out-group. In contrast, the lack of reciprocal out-group favouritism to out-group members, even when dependent is inconsistent with the BIM (Perreault & Bourhis, 1998). However, the presence of in-group favouritism when interacting with an in-group member who could reciprocate is consistent with the interactional view of social behaviour advocated by SIT (McGarty, 2001).

Overall, synthesis of the cited MGP research suggests support for SIT. Adoption of a social identity is psychologically significant, with the potential to impact on observable behaviour. In contrast, interdependence may be a contributing factor to social behaviour but is not of equal influence as social identification in terms of causing or explaining inter-group behaviour within the MGP (Turner, 1996; Brewer, 1999a). Therefore it is logical to accept MGP research does support SIT rather than the BIM.

Summary of SIT.

In summary, SIT states people will behave differently in inter-group situations when a social identity is salient compared to when an individual identity is salient in interpersonal situations. Social identification is a multi-faceted construct containing affective, cognitive and evaluative aspects. MGP research has indicated social identification with a minimal group can be sufficient to motivate differentiation along group boundaries. Group members are motivated by positive distinctiveness needs to favour the ingroup. Ingroup favouring does not mean an automatic and contextually inappropriate drive for outgroup derogation. Research supports SIT when finding positive distinctiveness needs can be met by different means depending on the nature of the contact situation, including being fair. An alternative explanation couched in terms of common fate does not appear to offer a valid alternative explanation when compared to evaluation and affective commitment to a social identity within the MGP. However, SIT, although providing a causal mechanism for inter-group behaviour, does not explain the mechanism through which an individual accepts a specific social identity within a specific inter-group context (Turner, 2000). The psychological processes that differentiate a social group from a category are the theoretical province of SCT (Haslam, et al, 2000). The next section will be an overview of SCT research.

Description of SCT.

SCT theory focuses on cognitive processes argued to provide underlying structure for humans as social beings. In relation to SIT, SCT is a separate but complimentary theory (see Figure 3.) sharing intellectual bloodlines yet accounting for separate but allied aspects of inter-group contact situations (Jetten, Spears, & Manstead, 1996). The cognitive processes detailed by SCT are held to facilitate the

transformation in identity structure from one based in individual idiosyncrasies to a social identity (Haslam, 2001).

SCT assumes that without self-categorisation as a member of a contextually salient social category there would be no discontinuity evident between inter-personal and intergroup situations. In other words, self-categorisation precedes social identification, although an existing social identity can increase perceiver readiness to use a self-category (McGarty, 1999). The underlying motivation for self-categorisation is hypothesised to be uncertainty reduction (Hogg & Terry, 2000) in both intra-group and inter-group contexts (Haslam, 2001).

According to SCT the self can be categorised at different levels of abstraction (McGarty, 1999). The idea of hierarchically arranged levels of self-perception replaces the original SIT idea of the bipolar interpersonal-inter-group continuum without changing the core belief that individual psychology is qualitatively different from the psychology of the same individual perceiving themselves as a member of a group (Turner, 2000).

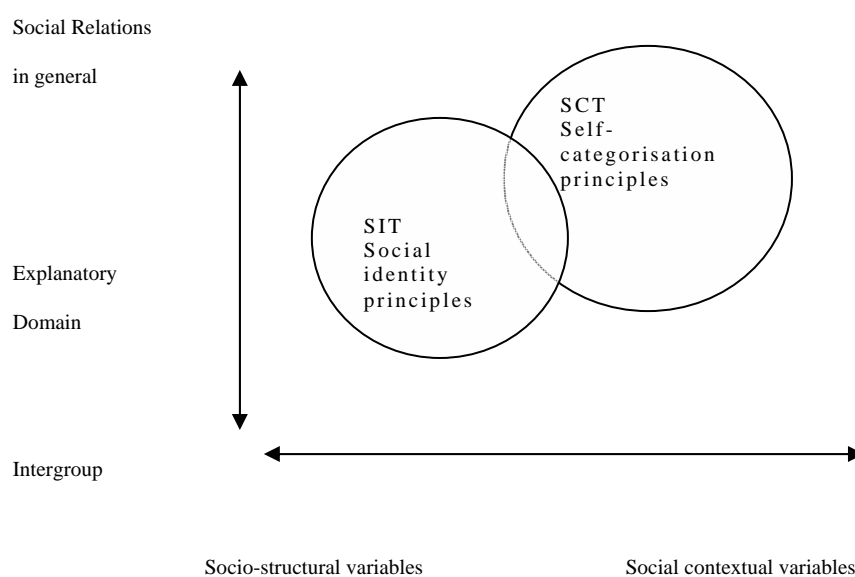


Figure 3. Explanatory profiles of SIT and SCT (adapted from Haslam, 2001).

Each level of abstraction is hierarchically arranged with levels of higher abstraction being more inclusive (see Figure 4). Placement in the category hierarchy is dependent on whether a particular category can include another category (Turner, 2000; McGarty, 1999). For example, the superordinate category ‘human’ is of higher abstraction than ‘psychologist’ or ‘employee of company x’ which in turn is higher than ‘personal’ identity (Haslam, 2001). No single category is seen as any more important than any other available level of categorisation in determining the ‘true’ self as self-definition depends on the relative salience of a particular self-category (Haslam, 2001).

Level of abstraction	Example content	Magnitude of inclusivity		
		Person ‘x’	Others in organisation	All humans
<i>Superordinate: Human</i>	Human being			
<i>Social: Specific group</i>	Member of organisation			Compared to members of other organisations
<i>Subordinate: Individual</i>	Person ‘X’			Interpersonal comparison

Figure 4. Example of possible self-categorical hierarchy.

Note: Darker areas signify those Included as equivalent with ‘self’ at the level of abstraction. Lighter areas are those who are ‘non-self’ but provide a contextually relevant standard of comparison for gauging who is or is not seen as equivalent with ‘self’ (adapted from Haslam, 2001)

SCT considers it possible for identity to be shared between levels of abstraction (Abrams, 1999) as ‘self’ is free to vary continuously between the extremes of superordinate and subordinate levels of abstraction (McGarty, 1999). For example, ‘Sally’ does not lose awareness of her personal identity at the same time as she can be operating from a self-category as employee of company ‘x’. However, SCT theorists do believe that individual and social identities exist in a ‘functional antagonism’

(McGarty, 1999) arising from the accentuation effect limiting the accuracy of high inclusivity for social judgement (Brewer & Brown, 1998).

According to the principle of functional antagonism, one identity will be more influential than other potential self-categorisations as increased salience of one identity is accompanied by a lowering of salience of other possible identities (Haslam, 2001). For example, as 'Sally' the personal self becomes dominant 'Sally' the employee of company 'x' self decreases in psychological influence in comparison to 'Sally' the person. Functional antagonism does not mean it is impossible for people to identify with multiple groups simultaneously if one identity is of a higher level of abstraction than other categories and if the content of this higher order identity requires a degree of differentiation at a lower level of abstraction (Haslam, 2001). Recent research using an implicit indicator of self-knowledge (reaction time on a lexical response task) illustrates cognitive processing consistent with 'functional antagonism'. Hugenberg and Bodenhausen (2004) found self-categorisation as 'fraternity member' inhibited accessibility of knowledge pertaining to membership with another potential self-category (university students). This effect was moderated by group membership. Fraternity members displayed the category inhibition-excitation whereas non-fraternity members from the same university did not. Familiarity with stereotype content did not differ between the groups and did not moderate cognitive processing. Therefore the researchers concluded the results were not attributable to simple priming or category knowledge but are a true reflection of the inhibition of one available self-category while a competing self-category becomes more representative of the 'self' (Hugenberg & Bodenhausen, 2004). This conclusion is strengthened by Coats et al (2000) who found a correspondence between implicit and explicit indices of social identification.

Movement from individual to social identification, and therefore individual to social behaviour is held to be the result of cognitive ‘depersonalisation’ of the self during the process of self-categorisation (Hogg, Hardie, & Reynolds, 1995).

Depersonalisation refers to a process through which cognition, perception, and behaviour is determined by standards prescribed by the salient social self (Hogg et al, 1995). Discontinuity in behaviour consistent with depersonalisation is evident in research by Verkuyten and Hagoort (1998) and Reynolds, Turner, Haslam, and Ryan (2001). In both studies participant prejudice was related to individual authoritarianism when an individual identity was prominent. Yet, in an inter-group condition, individual authoritarianism was not related to prejudice but to standards of the salient self-categorised group. Similarly, Bettencourt and Hume (1999) demonstrated cognitive representations of ‘self’ as a group member and ‘self’ as individual reflect different content in the form of different self-descriptors. Self-description in terms of personal traits was evident in the individual condition.

However, in the group condition, self-content descriptors were framed in terms of in-group consistent values, affiliations and emotions rather than personal traits. The results of these two studies are consistent with depersonalisation as adoption of an identity at a higher level of abstraction resulted in participant responses consistent with that of the more inclusive self-category but different from the less inclusive individual conditions.

Depersonalisation leads to the perception of self and others as interchangeable representatives of an inclusive social category. In effect, depersonalisation produces a self-stereotype as a group member and stereotypical ideas of out-groups (Hogg et al, 1995) which affects interpretation and behaviour within the social environment (see Figure 5) (Brewer & Brown, 1998; Turner, 2000). It should be noted

depersonalisation is not a loss of individual identity, but means a person is operating from the perspective of an identity at a higher level of abstraction than that of a purely personalised individual (McGarty, 1999; Hogg, 1996). A further point is the depersonalised stereotype is different from the concept of a stereotype proposed by conventional social cognitivists. Specifically, a depersonalised stereotype is not based in faulty, idiosyncratic information processing errors, but a drive to develop an accurate understanding of an inter-group context through self-other definition and intra-group reality checking (Reynolds et al, 2000b, Verkuyten and Hagendoorn, 1998). Recent research by Haslam et al (1998) provides evidence that supports this idea.

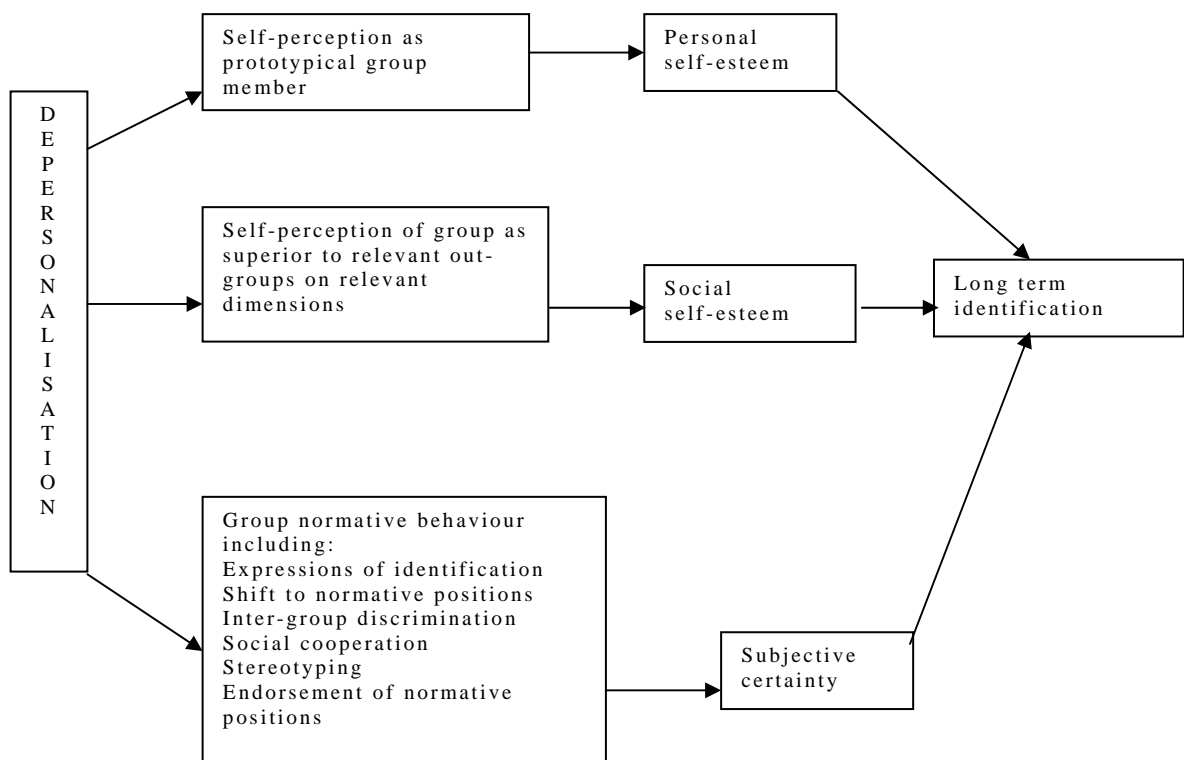


Figure 5. Consequences of depersonalisation (McGarty, 1999).

Consistent with SCT, Haslam et al (1998) reported on an inter-group situation where pre-existing stereotypes of the in-group (Australian) became more positive and

homogenous following intra-group contact. For example, in an individual condition 54% of participants rated Australians as 'sportsmanlike' but in the group condition 75% of participants described Australians as 'sportsmanlike'. Further, in an inter-group situation the in-group developed a consensual stereotype of an American out-group. For example 100% of the Australian in-group rated Americans as extremely nationalistic in a 'group' (discussion with in-group members) condition (61% individual condition) and developed a list of traits that characterised Australians but not Americans. For example, Australians were seen as sportsmanlike (75%), straight forward (75%) and happy-go-lucky (67%). None of these characteristics were considered descriptive of Americans. These results are consistent with depersonalisation as the intra-group discussion served to structure both self-stereotypes and out-group stereotypes in a way that accentuated inter-group differences (Haslam, Oakes, Turner, & McGarty, 1995).

It may be possible to argue the consensualisation effect in stereotype development observed in the Haslam et al (1998) research is not due to the psychological impact of group membership. An alternative explanation could be couched in terms of 'normative influence'. Normative influence is conformity to the majority due to fear for the consequences of deviating from the dominant position (Haslam, 2001). If this is the case then the consistent difference in stereotype consensus (higher in intra-group v. individual condition) across three phases of the Haslam et al (1998) research is not an internalisation of meaning based in social identification but avoidance of harm for nonconformity (Rugs & Kaplan, 1993).

Two considerations strengthen the plausibility of an explanation couched in terms of normative influence. Firstly, Haslam et al (1998) did not measure or manipulate either self-categorisation or social identification as Australian. Within

SCT social identification is held to impact on the accessibility of a self-category (Turner, 2000). Therefore measurement of categorisation or social identification, and the direction and size of any relationship with stereotype consensualisation would have served as a check on the accuracy of the authors conclusions. Failure to do so allows the possibility of stereotype consensualisation to be due to some process other than the psychological influence of self-categorisation. Secondly, the Haslam et al (1998) methodology suggests an alternate explanation to self-categorisation or social identification. Specifically, participants in the study worked directly with each other in small groups and therefore were identifiable. Being identifiable has been found to decrease competitiveness while increasing cooperativeness (Schopfler et al, 1995). A plausible argument is being identifiable artificially inflated consensualisation in Haslam et al (1998), which questions a causal role for self-categorisation. However, subsequent research by Haslam, Oakes, Reynolds and Turner (1999) reported the same pattern of stereotype consensus development as Haslam et al (1998) when social identification was manipulated, altering the content of the salient self-categorisation.

Specifically, in-group traits were more positive and consensual in content in an individual condition where social identification was primed compared to an individual condition where social identity was not primed. The highest magnitude of agreement and favourableness was observed in an intra-group condition (Haslam et al, 1999). The fact consensus varied systematically with the level of identity manipulated by the researchers supports the SCT idea that shared category membership facilitates development of self-definition as a group member (depersonalisation). For the normative influence position to be supported there should have been no difference in stereotype consensus between the purely individual

condition and the individual but identity primed condition (Haslam et al, 1999; Grieve & Hogg, 1999). The absence of this effect suggests support for SCT.

The predominance of a particular depersonalised stereotype representing a particular level of abstraction is dependent on the social context (Brewer & Brown, 1998). Sensitivity to contextual features has pragmatic value as different categories provide different lenses from which to interpret and navigate social stimuli within the context (Ellemers, Spears, & Doosje, 2002). The impact of context on depersonalisation is indicated by Oakes (1996) who found different self-perception in response to different comparative contexts. In one context participants (all female science students) compared themselves to each other as females. They claimed to differ from each other on the basis of possessing 'female' characteristics such as creativity and tolerance, but not being logical which was seen as a male trait. When the context was framed in on the basis of being scientists, participants differentiated themselves from each other by claiming attributes they did not accept when comparing themselves as women. For example, they claimed to be logical but not creative and tolerant. In other words self-perception changes in response to the prevailing context.

The impact of context on the content of a depersonalised stereotype may have consequences beyond self-perception to inter-group perception. Haslam, Turner, Oakes, McGarty, and Hayes (1992) reported Americans were seen as less similar to Australians with stereotypes of Americans becoming more negative as the Gulf war progressed. For example, Americans were increasingly seen as arrogant and less likely to be seen as straightforward compared the in-group (Australians). Haslam et al (1992) illustrates the SCT position that stereotyping reflects both self and other categorisation in terms of group membership in line with the salient social identity.

Change in the depersonalised stereotype is consistent with SCT in that participants strove to make sense of the environment, as opposed to reacting to the environment on the basis of immobile mental images that may or may not be contextually adaptive (Turner, 2000). Indeed, Voci (2006) found 'depersonalisation' mediated predictive relationship between comparative fit and ingroup bias, but only when the social category was highly accessible and meaningful within the immediate context.

The inherent pragmatism in adaptability in the face of socially contextual features is underscored in more recent research by Pittinsky, Shih, and Ambady (1999). These researchers examined whether participants would report different affect and category related memories in response to changes in the contextual utility of the specific category. It was found that when gender was the most contextually useful category more positive affect and generated more memories consistent with the gender category than with the category of 'race'. Similarly, when 'race;' was the most useful category there was more positive affect towards, and recall of information consistent with racial identification than the gender category. When neither category was particularly contextually useful, similar affect and recall rates were reported for each category (Pittinsky et al, 1999). This cognitive and affective fluidity is consistent with the SCT position that people actively strive to adapt intelligently to the environment (Turner, 2000). However there has been debate as to the relevance of context for changes in self-definition.

Gaertner et al (1999a) has offered a challenge to the idea that self-definition moves from the less inclusive personal to a more inclusive group based self-definition due to contextual variation. These researchers manipulated the accessibility of personal and group based identification with the explicit aim of discrediting SCT. Participants were insulted with reference to their understanding of a 'pay-off matrix'.

Participants reported more anger subsequent to insults against the 'individual' self than after insults against the 'group' self. As contextual accessibility of the 'group' self did not arouse the most anger Gaertner et al (1999a) concluded the 'individual' self is always the basis for self-definition. This challenges one of the fundamental assumptions of SCT. However, such a conclusion represents an incomplete accounting of SCT prescribed variables as SCT does not claim identity accessibility alone is sufficient for self-categorisation with a social identity (McGarty, 2001).

A complete reading of SCT would reveal contextual salience, and therefore depersonalised ascription to a particular social category (see Figure 6.) depends upon the interaction of category accessibility and fit (Haslam, 2001). In Study three Gaertner et al (1999a) did not report measures of 'fit' for understanding of a pay-off matrix to group based definition and therefore did not test SCT. That this is a relevant concern to raise can be found in Gaertner et al (1999a) Study two. In Study two it was found that the importance of understanding of pay-off matrixes was more important to individuals than participants in groups (Gaertner et al, 1999a). The implication is that insults based in failure to understand 'pay-off' matrixes' is more important for the self-definition of individuals than for the experimental group. Therefore it is not surprising that more anger was reported from individuals as the lesser importance/poor fit of matrix understanding for group based self-definition meant there was actually less reason to feel insulted (Voci, 2006). Rather than challenging SCT, Gaertner et al (1999) may actually constitute unintended support for SCT by demonstrating the role of 'fit' for self-categorisation. The interaction of fit and accessibility will be the focus of the next section.

SCT: Comparative and normative fit.

According to SCT 'fit' has both 'comparative' or 'normative' aspects, judgements of which are made in order to gauge the meta-contrast ratio (see Figure 6). According to the meta-contrast ratio a social group will be recognised as such is a function of a comparison between mean inter-class differences to mean intra-class differences on group defining dimensions (McGarty, 1999). It is this assessment of relative difference and similarity within and between people that allows for the adaptive contextual fluidity in self-categorisation (Haslam, 2001).

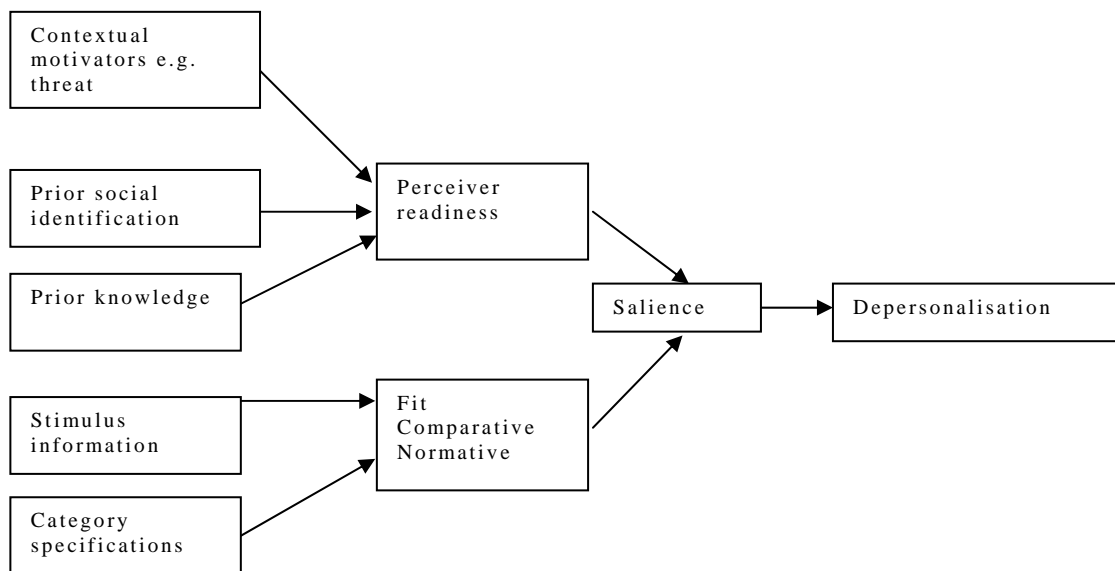


Figure 6. Determinants of depersonalisation (Adapted from McGarty, 1999).

In other words, an in-group will be formed with those of greater contextual similarity than difference when compared to an alternate set of targets within the social field. These alternate targets form a contextual out-group as long as they are sufficiently different from the in-group and similar to each other to be considered a psychologically meaningful social category (McGarty, 1999; Turner, 2000). For example, in a context including both genders a male would not be expected to categorise as female. The reason is the observable differences *between* males and females and the *similarity* within female-females pairings and male-male pairings.

Judgements are made quickly, so it possible to make online judgments of what fits unfamiliar social categories from integrating expectations with what is being experienced (Brown & Turner, 2002).

Comparative fit is determined by judging the degree to which a category accurately encapsulates observable similarities and differences (Hogg & Williams, 2000). So a person with coarse facial hair, a deep voice and wearing trousers would normally be categorised as a male because these characteristics are different from normal females but like those of other males. The other type of 'fit' proposed to impact on self-categorisation by SCT is 'normative fit' (Blanz, 1999).

Normative fit is concerned with observable behaviour of a target and the degree to which observations match the stereotypical expectations for the salient social category ostensibly represented by the target (McGarty, 2001; Hogg & Williams, 2000). In other words, a male should not only differ more from females than from other males (comparative fit) but should be observably consistent with normative expectations for the category 'male'. For example, a male who prefers to watch the Bruce Lee movie 'Enter the Dragon' over 'How to Make an American Quilt' is displaying good normative fit.

Accessibility refers to the perceiver's readiness to self categorise as a member of a social category (Voci, 2006). Readiness depends on a number of factors including sustained identification (McGarty, 1999), contributors to social identification such as group commitment, evaluation, (Ellemers et al, 1999) goals, needs, threat (McGarty, 1999; Reynolds et al, 2000) and experientially gained knowledge (Haslam, 2001). Research by Blanz (1999) examined precursors of self-categorisation and demonstrated support for the SCT proposal that category

accessibility interacting with 'fit' impacts on social categorisation and social interaction.

Blanz (1999) reported a social category with higher chronic accessibility (gender) was more important to participants for inferring the out-group attitude than another available categorisation of low chronic accessibility such as 'student' or 'home town'. This result is congruent with SCT as participants differentiated between in-group and out-group on the basis of an accessible self-categorisation. In addition, Blanz (1999) lends further support to SCT when observing accessibility in isolation provides an inadequate explanation for category salience. Consistent with predictions derived from SCT manipulations of 'fit' interacted with 'accessibility' such that categories that were initially of low accessibility became more salient when comparative fit was highest. Normative fit is indicated in Blanz (1999) when social categorisation of self and others into in-group and out-group served as the basis for forming expectations of in-group and out-group attitude.

In Reynolds et al (2000*b*) the relative importance of 'normative fit' and category salience was compared to stimulus valence (positive or negative) for accepting various traits as being accurate markers of in-group versus out-group definition. Across three studies it was consistently found that variance in normative fit of traits led to assignment of traits to either group. In contrast, stimulus valence had no statistically significant main effect on acceptance of a trait for purposes of self-other distinction. A similar relationship was found between normative fit and inter-group discrimination as accuracy was more important than valence for rating the favourability of in-group or out-group traits. These results were interpreted by Reynolds et al (2000*b*) as being consistent with the role of 'normative fit' with regards to category salience prescribed by SCT.

Beyond demonstrating ‘comparative’ and ‘normative fit’ the results of Blanz (1999) and Reynolds et al (2000*b*) supports the proposal that intra-group definition, as well as inter-group differentiation, can be attributed to cognitive processes specified by SCT. The intra-group aspect of self-categorisation is also suggested by research examining poor perceived fit to a social category. For example, in Barreto and Ellemers (2002) participants were assigned to groups that were either in accordance with or inconsistent to their self-concept. Self-categorisation, group loyalty, cooperation, social identification, and behavioural compliance to group norms was significantly lower on the part of participants ‘forced’ into a social category that the participant felt to be an invalid self-categorisation. The implication is poor fit to a category may result in problematic intra-group interactions.

The intra-group aspect of depersonalised perception and ‘fit’ imply the need for a socially derived standard against which depersonalised judgements of fit can be made. The need for a category benchmark is catered for with the concept of the prototype. The prototype contains the norms values, attitudes, and behaviours consistent with membership in a social category (Turner & Haslam, 2001). The prototype is constructed by the in-group, using the available information, to represent the exemplary group member (Hogg et al, 1995).

This developmental process is observable in the Haslam et al (1998) research on stereotype consensus as the consensually developed stereotype represents the coalescence of individual group members perception into a single central concept (Turner, 2000). Specifically, the information immediately available to the participants in the form of checklist of traits presented by the researchers and exposure to information outside of the laboratory was used by participants to develop in-group and out-group stereotypes (Haslam et al, 1998). From the intra and inter group

stereotypes a picture of the prototypical Australian and American can be derived. For example, the prototypical Australian was straightforward, sportsmanlike, and happy-go-lucky. The prototypical American was perceived to be extremely nationalistic, materialistic, and ostentatious (Haslam et al, 1998).

Congruent with the meta-contrast principle of comparative fit group members can vary in magnitude of prototypicality while still sharing a social identity (Turner,2000). However, those more representative of the prototype will be evaluated more positively than the less representative of the relative prototype. For example Hogg et al (1995) reported prototypical similarity was positively related with measures of how 'self' would fit into a group, how well another would fit the group and with positive attitudes towards others. Further, an alternative explanation, that positive evaluations of targets were attributable to attraction based in interpersonal rather than prototypical similarity, was able to be discounted as group based attraction was found to be independent of, and more indicative of liking socially similar than interpersonally similar targets (Hogg et al, 1995).

The pattern of results in Hogg et al (1995) suggests two conclusions. Firstly, in social situations, group based attraction offers a better explanation for liking than interpersonal attraction based in idiosyncratic similarity. Secondly, as more prototypical in-group members are liked more than less prototypical members it is possible to support the idea that depersonalisation and fit as defined by SCT play an active role in psychological functioning of individuals in social situations.

Moving beyond intra-group social attraction, research by Weber, Mummendey and Waldzus (2002) shows the influence prototypicality may have in inter-group contact situations. These researchers examined situations where there was a superordinate category that encompassed two groups. For example, in study one the

superordinate category was 'students' and the two sub-groups were 'university students' and 'polytechnic b.a. students'. It was reported that higher perceived sub-group prototypicality, in terms of the inclusive 'student' category, was predictive of the level of legitimacy accorded to higher perceived in-group status. Further, path analysis revealed increased similarity of the sub-group to the superordinate prototype preceded increased legitimacy of higher in-group status. This in turn was associated with less favourable attitudes toward the out-group, more threat from the idea that the out-group constituted a genuine source of competition and less guilt from feeling superior to the out-group. The Webber et al (2002) results are consistent with SCT, as status legitimacy flowed from better comparative fit of the in-group to the contextually relevant prototype.

Uncertainty reduction hypothesis.

SCT states the fundamental role of the prototype is to reduce subjective uncertainty (Hogg & Terry, 2000). According to the uncertainty reduction hypothesis, displaying good fit with the contextually salient depersonalised prototype reduces uncertainty. The reason is that the prototype prescribes 'correct' thought, feeling, values and behaviour in a particular situation (Grieve & Hogg, 1999). Intra-group homogeneity allows for development of 'self'-'other' certainty through social identification (Hogg & Grieve, 1999). SCT theorists considered it impossible for an individual in an intergroup context to be completely certain about the correctness of values, beliefs, and behaviours unless they are consensually developed with similar others (Hogg & Terry, 2000; Haslam, 2001). The presence of intra-group disagreement creates uncertainty which motivates group members to actively try and reach agreement thereby reducing anxiety based in uncertainty (Grieve & Hogg,

1999; Turner, 2000). Initial support for the validity of this hypothesis can be found in social influence research.

Consistent with the drive to reach agreement with in-group members, research into social influence has found that group members are treated preferentially as sources of information when compared to out-group sources. For example, Van Knippenberg and Wilkes (1992) reported individuals respond more favourably to information from an in-group member than an out-group member. Van Knippenberg, et al (1994) reported participants were more supportive of messages that were more extremely representative of the normative ingroup position from a prototypical source than a message with the same characteristics from a non-prototypical source. The higher validity given to prototype consistent in-group messages reported by Van Knippenberg and Wilkes (1992) and Van Knippenberg et al (1994) supports the proposal that categorically similar targets are treated as more accurate sources of information than dissimilar others (Turner, 2000). Further, Van Knippenberg et al (1994) reported more cognitive effort was expended in processing messages from a prototypical source than a non-prototypical source when the position of the message sender ('for' versus 'against' entrance exams into university) was unknown before argument evaluation. The greatest amount of cognitive effort was expended when the prototypical source was mounting an argument that was counter-normative (in favour of entrance exams) to the in-group position. Van Knippenberg et al (1994) offered an interpretation of this result is consistent with uncertainty reduction. Specifically, an individual encountering disagreement from a source of influence where agreement was expected raises doubts about the correctness of the individual's opinion. The increased cognitive effort is to be expected as self-categorisation is an active sense-making process intended to gain the maximum amount of information available from

which to gauge reality (Hogg, 1996; Oakes, 1996). Additionally, uncertainty implied through presentation of non-prototype consistent messages from an in-group member supports the SCT hypothesis that shared social identity motivates a desire to reach consensus with in-group members about reality (Haslam, 2001).

Failure to reach agreement creates uncertainty and will give rise to efforts that restore certainty. Tactics for reducing uncertainty include modification of the prototype or assigning a different prototype with better 'fit' to self or deviant other (Turner, 2000; Grieve & Hogg, 1999). For example, Marques, Abrams and Serodio (2001) found that deviant in-group members were more tolerant of out-group members than of in-group members who expressed counter-normative opinions. Consistent with a drive to reduce intra-group uncertainty through restoring homogeneity (Hogg, 1996) more effort was invested in attempting to convince the atypical in-group member to change their position to one which fit the ingroup than was spent trying to convince the outgroup representative.

If the deviant refuses to rescind a non-prototypical, position there will be efforts to psychologically distance the deviant from the in-group (Castano, Paladino, Coull, & Yzerbert, 2002). The connection between group social identification and uncertainty is suggested by Coull, Yzerbert, Paladino, and Leemans (2001) who found higher social identification led to greater expenditure of cognitive energy protecting the depersonalised stereotype from modification. Prevention of modification reflects the intragroup perception of stereotype correctness (Turner, 2000). Therefore the prevention of modification recorded by (Coull et al, 2001) is consistent with a connection between social identification and uncertainty reduction. Further, in Coull et al (2001) intra-group exclusion was based in poor normative fit displayed by the target. Normative fit to the group stereotype is consistent with an SCT analysis of

group inclusion-exclusion (McGarty, 2001). The suggestion is that the poor fit of a non-conformist challenges the correct content of the depersonalised in-group stereotype motivating intra-group exclusion as a function of uncertainty reduction (Hogg & Grieve, 1999).

Overall, the cited research is supportive of the proposal that the fundamental reason for self-categorisation is to reduce subjective uncertainty. However, this social influence research was not explicitly intended to test the validity of the uncertainty reduction hypothesis. Therefore it did not examine relationships between variables that would allow for definite conclusions to be drawn about the validity of the uncertainty reduction hypothesis. For example, Knippenberg et al (1994) did not measure the relationship between group membership and self-esteem prior and subsequent to confirmation or dis-confirmation of the prototypical in-group attitude. Grieve and Hogg (1999) conducted research explicitly concerned with the validity of the uncertainty reduction hypothesis.

Grieve and Hogg (1999) conducted MGP based social discrimination experiments in which subjective uncertainty and categorisation were manipulated. A number of results are consistent with the uncertainty reduction hypothesis. For example, participants who were categorised under conditions of high uncertainty showed more in-group bias than all other comparison groups. The interplay of uncertainty and self-categorisation is observable in the finding there was no ingroup bias displayed by uncategorised participants, regardless of 'uncertainty' condition. Participants who were categorised reported higher identification with the minimal group than uncategorised participants. Categorised participants had higher self-esteem than uncategorised. Statistically significant interactions between

categorisation and uncertainty underpinned all these main effects in a manner consistent with the SCT uncertainty reduction hypothesis.

Specifically, participants categorised under high uncertainty reported higher social identification, in-group bias, and self-esteem than all other groups.

Uncategorised participants under high uncertainty conditions reported the lowest levels of social identification, in-group bias and self-esteem than all other comparison groups. The possibility in-group bias was a result of normative influence can be discounted as the researchers measure of social influence (awareness of pressure to conform) was not related to bias (Grieve & Hogg, 1999).

In addition to supporting the uncertainty reduction hypothesis Grieve and Hogg (1999) displays the interplay between cognitive and evaluative components of social identification (Ellemers et al, 1999). For example, finding uncategorised participants reported the lowest social identification, self esteem, and in-group bias suggests that categorisation is necessary before an individual would adopt a social identity and act to meet positive distinctiveness needs through in-group bias as prescribed by SIT (Branscombe, Ellemers, Spears, & Doosje, 1999). Further, meeting positive distinctiveness needs led to more positive evaluation of the in-group, reflected in higher self-esteem. This pattern of results would be consistent with both the SCT proposal that self-categorisation restructures the self from an individual to a group identity (Haslam, 2001) and a multi-faceted definition of social identity (Ellemers et al, 1999).

Summary of SCT research.

In summary, empirical research has demonstrated support for the basic assumptions of SCT. Depersonalised perception of self and others relative to a contextually sensitive category prototype allows for the development of a shared

social identity. The specific social identity that will become salient is determined by an interaction of category accessibility and fit. Those who demonstrate better fit (relative distance from the relevant prototype) will be seen as more attractive and more accurate as sources of information. Self-categorisation is necessary before actions and consequences prescribed by SIT will be observable. This is consistent with the idea that self-categorisation is necessary to restructure the self as social rather than individual. There is evidence to suggest the motivation for self-categorisation is to reduce subjective uncertainty.

Summary

Overall, it is possible to conclude from the cited research that SIT/SCT offer a logical account of social psychological processes underlying intergroup behaviour. There appears to be discontinuity between individualised and socially identified behaviour. People have been found to try and achieve or maintain positive distinctiveness for the ingroup by strategies judged appropriate for the socio-structural relations between groups. Self-categorisation involves a judgement of fit to an accessible social category. Depersonalised self-perception means different characteristics are accepted in response to different social frames. Subjective uncertainty can be reduced through self-categorisation. Group membership does appear to be an important influence on psychological functioning relative to idiosyncratic individual characteristics while in a social context. However, it should be noted that the validity of SIT/SCT is not universally accepted. Importantly for the current work, one of the major challenges centres on a perceived lack of validity outside of the controlled setting of the social psychology laboratory (Brown, 2000). The next chapter will therefore examine research that challenges the ecological validity of SIT/SCT. Consistent with the stated purpose of the present research,

attention will be paid to research conducted in the organisational domain as well as the broader environment.

Chapter Four: SIT and SCT in Organisational Settings

Overview

In this chapter it will be argued SIT/SCT can be successfully moved from the laboratory of experimental social psychologists into the management of cross-functional teams. In application of SIT/SCT to applied settings the author is consistent with the intent of Tajfel who, although a believer in theory driven experimentation, never intended for SIT to become moribund within the laboratory (Turner, 1996). In saying this, it is acknowledged Tajfel was not specifically concerned with applying SIT in organisations so much as in understanding when and how people will attempt to redress societal inequities (Reicher, 1996a; Ellemers, Haslam, Platow, & van Knippenberg, 2003). The position taken in the current thesis, as previously articulated in Chapter Two, is that the application of SIT/SCT to cross-functional teams is logical given that intergroup contact addressed by SIT/SCT appears to fit an organisational context in general (Ellemers et al, 2003) and cross-functional teams in particular (Cunningham & Chelladurai, 2004).

The reasoning is the broader organisational context can be conceptualised as complex social structure within which interdependent smaller groups must interact. This creates a climate reflective of the timbre of intergroup relations (Hogg & Terry, 2000). Both the quality of social interaction within the cross-functional team and outcomes from use of cross-functional teams have a basis in intergroup relationships within the wider organisational environment (Schneider & Northcraft, 1999; Jassawalla & Sashittal, 1998). SIT/SCT were formulated to provide an explanation for processes underlying, and outcomes of, intergroup contact (Turner, 2000), suggesting a degree of overlap between theoretical concepts and the specific organisational context of a cross-functional team. However, using SIT/SCT as a guide to improving the experience within and outcomes from cross-functional teams is not as yet an established practice (Haslam, Eggins, & Reynolds, 2003; van Knippenberg et al, 2004;

Schneider & Northcraft, 1999). Therefore it becomes logical and timely to examine whether these theories can actually be applied to cross-functional team management.

A second reason for examining the utility of SIT/SCT in organisational contexts is that theory practice integration is potentially beneficial to all stakeholders (see Appendix B). Consistent with this idea, researchers of the SIT/SCT school have begun arguing for the application of SIT/SCT principles from the inter-group relations aspect of social psychology into organisational settings (Hogg & Terry, 2000; Haslam, 2001; Turner & Haslam, 2001; Lembke & Wilson, 1998; Ellemers et al, 2003). Initial support for the integration of SIT/SCT theory into organisational practice can be derived from the influence SIT/SCT has acquired among social psychologists. This influence has been garnered through the large amount of supportive research (Haslam et al, 2003), making it possible to suggest that SIT/SCT are sound in their fundamental assumptions.

Ironically, however, the nature of the MGP, upon which SIT/SCT established its validity is an experimental environment open to charges of sacrificing ecological validity for experimental control (Branscombe et al, 2000). This proposal is supported as a number of frequently cited studies that challenge SIT have been conducted in organisational settings (Turner, 2000). A potential conclusion is that SIT may not be applicable to organisations. However, the position taken by the present author is that concerns expressed about a perceived lack of ecological validity of SIT/SCT are a function of experimenter error and that criticisms of the ecological validity of SIT/SCT are at best overstated. However, given the recent push for use of SIT/SCT in organisations, the issue of low ecological validity warrants serious consideration.

In this chapter it is intended to show organisations are a logical domain for the application of the precepts of SIT/SCT. The current researcher's proposal will be supported through a critique of research purporting to question SIT/SCT. This critique will be

complimented by field studies that illustrate the presence of SIT/SCT processes outside of the laboratory. The review will begin with a critique of research conducted in organisational settings that has been used to query the validity of the social identity approach. This will be followed by reviews of field research from the broader social domain and organisational settings where SIT/SCT processes have been observed in organisational settings. The chapter will conclude with research indicative SIT/SCT principles impacting on cross-functional team relationships and outcomes.

Critique of Field Based Anti SIT/SCT Research

Anti-SIT organisational research.

Researchers have noted a discernible pattern whereby research supportive of SIT has largely been MGP based wherein identification is experimentally manipulated (Brown, 2000; Turner, 2000). However, in research where social identification is a measured variable in natural settings, results have been less supportive (Ellemers et al, 1999; Hennesy & West, 1999). Inconsistent validation of SIT principles outside the ideal conditions provided by a laboratory has led to the suggestion that support for SIT/SCT is only a methodological artefact (Turner, 2000). At a theoretical level, this has been interpreted as evidence that SIT as it currently stands is flawed and requires major reconceptualisation (Hinkle, Taylor, Fox-Cardamone, & Crook, 1989; Jetten, Spears, & Manstead, 1997). If the theories are flawed then it would be reasonable to question the use of SIT/SCT by a practitioner wishing to integrate research into practise.

The idea that the MGP is a flawed paradigm from which to generalise beyond a laboratory to the real social world does appear to have some credibility. In essence, it has been suggested that a minimal group may be so minimal (in terms of no identity content, no interpersonal contact and no material gain or loss from favouring the in-group) (Otten &

Mummendey, 1999) that there is little opportunity to adopt any social identity other than that provided by the experimenter (Branscombe et al, 1999).

This differs from natural settings where any number of possible social identities that can be adopted (Brown, 2000). For example, a member of an organisation may choose to adopt a social identity as a member of the host organisation, a member of a specific branch office (van Knippenberg & van Schie, 2000), a profession based identity (Schnieder & Northcraft, 1999), or possibly a wider social category such as gender or race (Day et al, 1999). Another possible problem with the reliance on experimental manipulation of social identity in the typical MGP experiment is identity threat may be artificially heightened (Branscombe et al, 2000). A possible result is a higher likelihood of an aggressive inter-group stance than would occur if a participant spontaneously decided the groups are similar (Hornsey & Hogg, 2000*b*). This can be interpreted as support for the idea that SCT uncertainty reduction processes stimulate the need to adopt a social identification (Grieve & Hogg, 1999). However, it also suggests the MGP environment may actually produce research of limited ecological validity.

The evidence for much of the criticism levelled at SIT in natural settings derives from research that failed to find a positive correlation between social identification and in-group bias (Turner, 2000). The use of correlational techniques in natural settings is justified as social identification is measured at the natural magnitude and locus without being artificially heightened as is possible using the MGP (Hornsey & Hogg, 2000*a*). Brown (2000) cites a review by Hinkle and Brown (1990) that presents evidence SIT is may be less than robust in natural settings with regards to the correlation between social identification and in-group bias.

In the 14 studies reviewed by Hinkle and Brown (1990; cited in Brown, 2000), it was reported that the correlation between identification and bias was only 0.08. Although 64% of

the correlations were positive there was disparity between studies in terms of size and direction of association. The implication that was drawn from this review is that a revision of SIT is justified. Research by Brown and Williams (1984) provides an organisational example that would appear to validate the criticisms of SIT.

Brown and Williams (1984) conducted research using semi-structured interviews in a large bakery that had recently been the site of industrial action. The researchers were interested in testing the hypothesis that social identification is positively associated with inter-group discrimination. The sample was divided into occupational groups (bakers, wholesale, maintenance, and office staff). The dimensions of inter-group discrimination were 'friendliness' and 'who contributed most to running the factory'. 'Perceived conflict' was used as a control variable (Brown & Williams, 1984). If degree of social identification were the best predictor of inter-group discrimination then SIT would be supported. However, if conflict was the best predictor then the position advocated by 'realistic conflict theory' (RCT) would be supported. The reason being that RCT assumes there will always be a positive relationship between perceptions of conflict around areas of interdependence and in-group bias (Brewer & Brown, 1998).

Subsequent to analysis by multiple regression Brown and Williams (1984) reported there was inconsistency with SIT as ingroup identification was not consistently positively related to intergroup discrimination. For example, identification with the 'office' group was negatively related (non-significant) to the perception that the in-group contributed more to the running of the factory compared to other out-groups. In contrast, identification as a baker was positively and significantly associated with the idea the ingroup contributed most to the running of the factory. Further, it was noted 'conflict' was a stronger and more consistent positive predictor of ingroup bias, suggesting RCT provided a better explanation for in-group

bias than SIT. However, it may be possible to question the validity of the Brown and Williams (1984) result on methodological grounds.

Specifically, magnitude of identification was measured with a single unspecified open ended question using a single 7 point rating scale. This practice maybe questioned as the combination of an open-ended interview format combined with the use of a single item to measure a multifaceted construct may combine to lower the reliability of the identity measure (Riordan & Weatherley, 1999). The possibility that use of open ended questions to gather data may have inadvertently confounded results is supported with comments by Brown and Williams (1984) themselves. For example, it was noted some participants had problems responding to open ended questions relative to more focused questions. Similarly, the researchers acknowledged the measure of identification was less reliable than was actually needed. Therefore it may be possible to legitimately question Brown and Williams' (1984) conclusion that the inconsistent association between social identification and in-group bias, coupled with the superior explanatory power of 'conflict' is grounds to suggest that SIT was in need of modification if applied outside the MGP. The above notwithstanding, research by Brown, Condor, Mathews, Wade, and Williams (1986) would appear to support the conclusions of Brown and Williams (1984).

Brown et al (1986) used multiple regression to examine the degree and direction of the association between social identification 'estimated contribution to the company'. Perceived conflict and amount of contact with out-group members were also used as independent variables to allow for the judgement of the relative efficacy of SIT, RCT, and the 'contact hypothesis'. The results were consistent with Brown and Williams (1984) in that conflict was consistently the strongest predictor of ingroup bias in terms of claiming to make the largest contribution to the company. Group identification was a weak and inconsistent (though generally positive) predictor variable.

It may be possible to claim the use of a factory setting in both Brown et al (1986) and Brown and Williams (1984) represents a context specific effect in much the same way that the MGP is argued to favour SIT. For example, it was noted in both studies that elaboration of interview questions was often necessary before participants could give answers regarding intergroup attitudes. In Brown et al (1986) a quarter of the sample could not answer the question at all, regardless of interviewers' best attempts at rewording. In contrast, Oaker and Brown (1986) conducted research using a sample population of nurses. There was no reported difficulty in accessing the same type of information. One possible implication is that the appropriateness of a qualitative methodology in social psychological research may vary with the level of education typical of the participants.

Consistent with this view Bartholomew, Henderson, and Marcia (2000) have noted that participant responses in interview based research may be limited by a number of characteristics. One of these is the degree to which the participant has had opportunity to think about a psychological construct. Another is the ability to verbally articulate knowledge pertaining to their intra-psychic processes. In terms of the cited research it is possible tertiary educated professionals may have had more encouragement to consider 'identity' as a psychological construct and more need to express understanding than a factory worker. However, even if this idea is accepted, it should be noted Oaker and Brown (1986) reported a negative association between identification and ingroup bias. For example, both nursing groups rated members of the outgroup as more friendly than ingroup members and 'easier to get on with' than an in-group member. This result would suggest SIT may not be well supported in natural organisational settings even in tertiary educated samples.

The pattern observable in the cited research suggests magnitude of social identification is not always the dominant source of in-group bias. Further, identification was not positively related to in-group bias in all cases. Brown (2000) concludes the inconsistent

relationship between magnitude of identification and ingroup bias is problematic for SIT. Specifically, if social identification is motivated by positive distinctiveness there should always be a positive correlation between social identification and in-group bias (Brown, 2000). However, Turner (2000) argues this conclusion is unjustified given generic shortcomings with much of the research critical of SIT. Turner (2000) argues that these shortcomings outweigh the strengths of individual studies.

Problems with anti-SIT research in organisational settings.

As stated above, much of the research critical of SIT is not immune to criticism. To the extent that the criticism is valid it may be possible to suggest calls for a major revision of SIT/SCT are misplaced. One of the problems is that research criticising SIT tends to be based in correlational analysis. Therefore, it may be that the characteristics of correlational research may be such that SIT is unlikely to be supported. One characteristic of correlational research is that unambiguous interpretations of causality are difficult to obtain due to the presence of unobserved variables which may effect whether identification was more or less potent as a predictor of bias (Hornsey & Hogg, 2000b). For example, Jetten et al (1997) reported the relation between in-group bias and social identification was moderated by norms of 'fairness'. In caring professionals such as the nurses of Oaker and Brown (1986) it is possible that such a norm precluded the in-group labelling the out-group as 'unfriendly'. In addition, Oaker and Brown (1986) ignored task competence as a basis of ingroup bias in favour of friendliness. Terry, Carey, and Callan (2001) found groups may display outgroup bias on social dimensions but still claim ingroup superiority on task related dimensions. Although there is insufficient evidence to state this unequivocally, the correlational analysis of Oaker and Brown (1986) means the influence of latent variables, such as professional norms or dimension of bias, as confounds cannot be discounted.

A further confound noted by Turner (2000) is that the organisational divisions selected by the experimenters as 'groups' were not often the divisions participants spontaneously mentioned. For example, in Brown et al (1986) only 30.5% mentioned the five groups (paper makers, conversion, finishing, salle, wharf) used by the researchers. The next most prevalent response was in terms of smaller sub-divisions (29%) with a variety of other possible categorisations being provided. Not all available social identities are equivalent in their effects in eliciting a variety of outcomes (Riketta & van Dick, 2005) including those consistent with the drive for positive distinctiveness (Ellemers et al, 2003). So it may be a mistake for Brown et al (1986) to assume their imposed organisational categories constitute a fair test of SIT. Another possible source of error in research critical to SIT is suggested by the nature of the measures used in the various studies (Turner, 2000).

More specifically, the measures used in the cited critical research employ social identity measures that refer to the participant in the first person. Some sample items used in Brown et al (1986) and Oaker and Brown (1986) are 'I am a person who considers the ----- group important', 'I am a person who identifies with the -----group', and 'I am a person who tries to hide belonging to the ----- group' (reversed scored). Turner (2000) suggests that these types of items may be accessing personal identity rather than collective identity. In order to assess a collective identity in a manner consistent with SIT, Turner (2000) suggests items should contain wording implying inter-group comparisons. Items that have been successfully used in research that exemplify this collective approach to social identification are 'How well do you fit in with group x?', 'How similar are you to other members of group x?', and 'How well do you match the representative position of the group?' (Hains, Hogg, & Duck, 1997; Hornsey & Hogg, 2000a). The logic of Turner's (2000) assertion, that items reflecting an individual rather than a collective identity (in ignorance of the principle of

discontinuity) will affect the validity of research conclusions, is supported by research into the self-esteem hypothesis.

Self-esteem hypothesis.

The self-esteem hypothesis states that the drive for positive distinctiveness motivates demarcation of intergroup boundaries in a way that increases or preserves existing levels of self-esteem (De Cremer, 2001). Two corollaries are often advanced as representing the SIT view of self-esteem. According to De Cremer (2001) the first corollary states increased self-esteem is an outcome of manifesting positive distinctiveness. The second corollary is that inadequate or insecure self-esteem causes ingroup biases. The expected positive association between in-group bias and self-esteem has not been consistently supported (Brown, 2000).

Brown (2000) suggests inconsistent support for the self-esteem hypothesis is one of the major flaws of SIT. There are three reasons why this idea is potentially overstated. The first reason is that the developers of SIT did not actually posit a simple main effect relationship between identification and in-group bias (Turner, 2000). SIT theorists actually say intergroup separation arises from the interaction of a number of socio-structural features. Magnitude of social identification is one of these features. An example of another would be the specific outgroup must constitute a relevant comparison standard within a given context (McGarty, 2001). Further, as demonstrated in Chapter Three, ingroup bias is not inevitable (Singh et al, 1998; Hornsey et al, 2003a) or even necessarily a contributor to positive distinctiveness (Branscombe & Wann, 1994). An extreme example of the alternative position is to suggest that those who identify strongly with the social category 'mother' would rather care for another 'mother' (ingroup member) than her own children (outgroup member).

A second reason to question the anti-SIT argument is methodological. Specifically, self-esteem was measured as a global, stable intra-psychic variable (Turner, 2000). A SIT/SCT consistent measure of self-esteem would reflect 'state' rather than 'trait' with 'state'

dependent on the contextual meaning of membership in salient social groups (Ellemers et al, 2003). The correct level of self-esteem for use in SIT/SCT research is known as collective self-esteem (CSE) (De Cremer, 2001). CSE reflects favourable evaluation based in social identification (Ellemers et al, 1999), not favourable evaluations of self as an individual (De Cremer, 2001). CSE can be private (personal view of the in-group) or public (based in regard for in-group shown by outsiders) (Luhtanen & Crocker, 1992).

Research evidence suggests personal self-esteem is not equivalent to CSE. For example, Long and Spears (1998) report high personal self-esteem and low public CSE (participants who strongly considered the in-group was under-valued) displayed an equivalent pattern of in-group bias. In contrast, participants with high CSE, although favouring the in-group, did not display statistically significant bias against an out-group. Similarly Tyler and Blader (2002) reported personal self-esteem and CSE were related to different aspects of group membership. CSE was related to pride in the group while personal self-esteem related to feeling respected within the group. These results suggest self-esteem measured as an individual level construct cannot be assumed to be equivalent to CSE.

Studies that have used instruments measuring CSE rather than personal self-esteem have supported the self-esteem hypothesis. For example, Houston and Andreopoulou (2003) found Greek participants CSE rose after positively distinguishing Greek from American or Turkish participants. Houston and Andreopoulou (2003) did not find support for a causal role of low CSE (corollary two) thereby questioning part of the self-esteem hypothesis. However, corollary two is specific to those with either low CSE or feeling that a valued social identity is under threat (Luhtanen & Crocker, 1992). There is no mention in Houston and Andreopoulou (2003) of mean levels of CSE prior to intergroup differentiation. Nor is there any suggestion the sample was split into low and high CSE groupings. Therefore it can be assumed that a sample high in CSE could not be expected to support the second corollary of

the self-esteem hypothesis. Further, as acknowledged by the researchers, the dimensions of comparison within the research context may not actually threaten social identification as a Greek. If this is the case then SIT/SCT is supported as participants did not produce an unthinking aggression simply because there was another group present (Turner, 2000).

This line of thought is supported by Branscombe and Wann (1994) who found support for corollary two as those lower in CSE were particularly likely to engage in out-group derogation when feeling threatened. Further, consistent with corollary one, higher CSE was reported subsequent to outgroup derogation. Verkuyten (1997) conducted research in which both corollaries are supported. In an experiment in which Dutch participants compared themselves to Moroccans, Verkuyten (1997) reported participants with lower CSE reported increased CSE after derogating the out-group. In contrast, those high in CSE felt better about themselves after making ingroup evaluations. High CSE did not require out-group derogation, contradicting those who suggest ingroup bias is unavoidably part of establishing positive distinctiveness.

It is notable that Long and Spears (1998), Verkuyten (1997), Branscombe and Wann (1994), and Houston and Andreopoulou (2003) used natural categories (nationality) for the basis of their research and utilised correlational analysis yet still supported SIT derived hypothesis. This can be interpreted as support for the idea that SIT is not just an artefact of a specific statistical technique or methodology.

In addition to supporting the self-esteem hypothesis, the pattern of results observable in the fore-mentioned studies suggest the level of identification an instrument measures (individual or social) can impact on the interpretation of results in SIT research. If this position is accepted, it becomes reasonable to suggest inconsistency in the relationship between identification and bias is related to the use of instruments that focus on the incorrect (in SIT terms) level of (individual) of identity. If this is so, it becomes *illogical* to conclude

SIT needs revision as the research cited as supporting revision has not actually measured theory consistent variables. A further measurement issue crucial to interpretation of research challenging to SIT is the uni-dimensionality, or otherwise of the measure of social identity.

Unidimensionality of measures.

The issue of dimensionality is important as an incorrect measure of a theoretically derived psychological construct detracts from the structural validity of a measure. Consequentially, conclusions regarding a specific theoretical view of a given construct based on scale of a atheoretical structure can be assumed lower validity than would be the case if measures had higher structural validity (John & Benet-Martinez, 2000). The multi-dimensionality of SIT has been demonstrated by the previously cited Ellemers et al (1999), Bergami and Bagozzi (2000) and Dimmock et al (2005). Each of whom found emotional commitment, evaluative and cognitive components of global social identity. Each of these facets are effected by different contextual features and predict different behaviours (Bergami & Bagozzi, 2000; Dimmock et al, 2005; Ellemers et al, 1999).

The issue of structural validity is relevant within the context of the current discussion as studies critical of SIT have used unidimensional rather than multi-dimensional measures. For example, both Oaker and Brown (1986) and Brown et al (1986) used the same one-dimensional measure of group identity. The suggestion this group identification scale is unidimensional is supported by a Cronbachs alpha level of .71, representing a substantial item inter-correlation (Brown et al, 1986). The researchers cited this level of inter-correlation as justification for basing calculations, and therefore conclusions, on a *uni-dimensional treatment of social identity*. This decision was made in spite of Brown et al (1986) explicitly recognising Tajfel's definition of social identity is multi-dimensional.

Brown et al (1986) identified three aspects of social identity claimed to be incorporated in their group identification measure. These are a cognitive dimension indicated

by an awareness of group membership, evaluative dimension that relates to the self-esteem hypothesis, and an affective component representing commitment to the social identity (Brown et al, 1986). The researchers claimed all three dimensions were represented in the 'group identification' measure. If this is so it would call into question both the logic of the decision to treat social identification as a unitary construct and the intrinsic construct validity of the group identification measure as the inter-correlation suggests a unitary rather than a multi-dimensional instrument. However, on the basis of Hinkle, et al (1989) it may be possible to challenge the proposal that the Brown et al (1986) measure is uni-dimensional.

Hinkle et al (1989) examined the factor structure of the Brown et al (1986) group identification measure. It was reported that three scales, representing affect, cognitive aspects of identification and individual/group interdependence were identified. Notably, there is no mention of evaluative aspects of group membership as would be necessary to capture the value aspects of social identification (Ellemers et al, 1999). In addition, the cognitive sub-scale does not appear to be consistent with the cognitive aspects of social identification as represented in SCT. The two 'cognitive' items are 'I do not consider the group to be important' and 'I feel strong ties to the group'. It is difficult to see how these two items capture aspects of prototypicality, depersonalisation, or social uncertainty. Therefore the cognitive sub-scale in the group identification measure may be inconsistent with SIT/SCT as self-categorisation depends on an awareness of similarity and difference through comparison to the contextually salient prototype (Haslam, 2001). The atheoretical interpretation of cognitive aspects of social identification may underlie the failure of the cognitive sub-scale to relate to ratings of either the in-group or the out-group at a statistically significant level in a SIT/SCT. Therefore it is plausible to suggest the group identification scale used in much research critical of SIT represents a less than ideal operationalisation of social identification as specified by social identity theorists (Ellemers et al, 1999).

A broad conclusion that can be drawn from the preceding discussion on the measurement of SIT/SCT processes is that calls to reconceptualise SIT may not be justified on the basis of current evidence. The next issue of concern concerns the assumption that a simple linear relationship between social identification and in-group bias is necessary to validate SIT/SCT.

Linear relationship between social identification and bias.

Brown (2000) claims that SIT predicts there will inevitably be a positive, linear relationship between levels of social identification and the amount of in-group bias (see Figure 7). In line with this position, Brown (2000) notes group identification in Brown et al (1986) and Oaker and Brown (1986) was consistently high and therefore concludes that a failure to find a correspondingly high level of bias signifies problems with SIT in natural contexts. However, Turner (2000) states the expectation that a high level of social identification will always be strongly and positively associated with in-group bias represents an overly simplistic understanding of both SIT and natural settings.

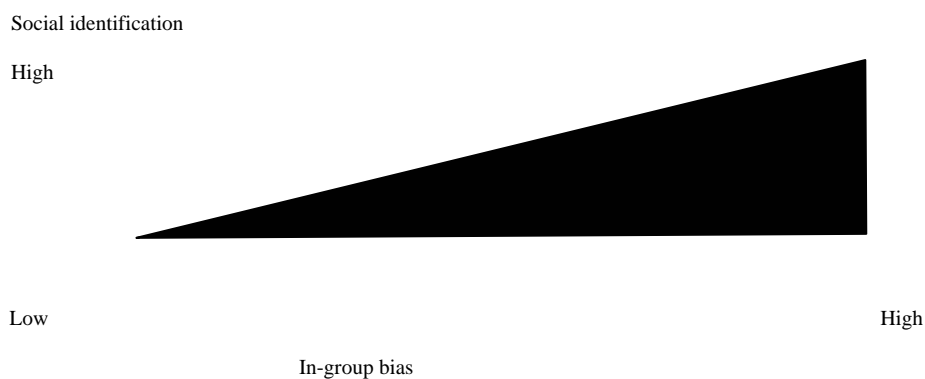


Figure 7. Linear conceptualisation of in-group bias as a function of magnitude of social identification

Further, to assume a simple linear relationship between bias and social identification implies discrimination is an automatic and inevitable consequence of inter-group interaction (Turner, 2000). This is inconsistent with the social identity approach which considers identification and self-categorisation to be an intelligent adaptation to contextual variables

such as relative status or dimension of comparison. For example, DeCremer (2001) found self-stereotyping moderated the relationship between social identification and in-group bias. Reynolds et al (2000b) reported ingroup favouritism occurred on positive traits that 'fit' the in-group comparatively and normatively, but favoured the out-group on positive traits that displayed good 'fit' to the out-group social category. When dimensions of comparison were not typical of either group (TAFE student and university student) then a rule of 'fairness' was observed in that in-group and out-group were as likely to be assigned positive or negative traits. Reynolds et al's (2000b) research supports the idea ingroup bias is not an automatic consequence of social identification, otherwise the in-group would always have been rated more positively than the out-group regardless of comparative dimension. That this did not occur suggests ingroup bias is more likely to be observed when discrimination represents an accurate reflection of social reality. Further evidence there may not be a simple linear relationship between social identification and ingroup bias is observable in research by Jetten Spears and Manstead (1998).

Jetten et al (1998) conducted research concerned with the idea that the relationship between social identification and in-group bias is *curvilinear* rather than linear. The reasoning is inter-group behaviour relies on an interaction between inter-group similarity and the need for positive distinctiveness prescribed by SIT and inter-group difference, dependent on group variability and the meta-contrast, that is a focus of SCT. Therefore, research into in-group bias and social identity requires measurement of variability within groups in addition to measures of the relative distance between groups on the dimensions of comparison.

The idea that the interplay between SCT and SIT is important for the expression of in-group bias is lent support by the moderation effect of self-stereotyping and social identification on ingroup bias reported by DeCremer (2001). Further suggestions of a curvilinear relationship between bias and the interplay of SIT and SCT processes is alluded to

in Jetten et al (1997). In the MGP based Study one it was found that intra-group variability contributes ingroup bias as prototypical group members evaluated ingroup products more favourably than out-group products when distinctiveness threat was high. Peripheral group members did not display ingroup bias regardless of distinctiveness threat. In Study two natural groups were used in place of minimal groups. Decreasing the intergroup distance was found to constitute a distinctiveness threat that motivated ingroup bias, but only on the part of more prototypical ingroup members (Jetten et al, 1997).

Jetten et al (1998) argued curvilinearity in the relationship between bias and identification would result in a higher level of in-group bias when groups were moderately distinct rather than highly distinct. Moderate distinctiveness was operationalised as a high degree of inter-group similarity coupled with large intra-group variability or when the groups were internally homogenous with low inter-group distinctiveness (see Table 2). This was considered by the researchers to represent the optimal amount of similarity threat and inter-group difference to allow for a meaningful self-categorisation along inter-group boundaries. High distinctiveness was operationalised as internally homogenous but dissimilar groups. In this condition there would be little distinctiveness threat or uncertainty as there is a clear delineation between groups and therefore less bias was expected under this condition. Low distinctiveness was represented by highly similar, internally heterogenous groups where there would be little reason to categorise along inter-group boundaries as a single superordinate category would acknowledge social reality.

Consistent with the curvilinear conceptualisation of the social identification/bias relationship there was a significant interaction between group variability (SCT), inter-group distance (SIT), and target group. In both natural and minimal groups the greatest amount of in-group bias occurred under conditions of moderate distinctiveness. For example, in the MGP based Study one homogenous groups with low inter-group distance rated their product

as more artistic ($M = 11.46, p < .05$) compared to those in low distinctiveness ($M = 5.90, p < .05$) or high distinctiveness ($M = 4.75, p < .05$) conditions (Jetten et al 1998). There was no simple main effect for either 'inter-group similarity' or 'intra-group variability' in either natural or minimal groups. It was the interaction between the two variables representing different levels of distinctiveness threat that predicted ingroup bias (Jetten et al, 1998).

Table 2.

Curvilinearity and intergroup differentiation (adapted from Jetten et al, 1998)

Group variability	Intergroup distance	
	<i>Low</i>	<i>High</i>
<i>Homogeneous</i>	Moderate distinctiveness (high differentiation)	High distinctiveness (low differentiation)
<i>Heterogeneous</i>	Low distinctiveness (low differentiation)	Moderate distinctiveness (high differentiation)

On the basis of the Jetten et al's (1998) research it is possible to suggest that assuming a linear relationship between social identification and ingroup bias may be overly simplistic. Further, the interaction between group variability and inter-group distance suggests research concerned with in-group bias may benefit from the incorporation of group variability and relative distance measures in addition to measuring magnitude of identification. The reason for this suggestion is that magnitude alone may not provide a comprehensive coverage of the social psychological processes at work in a given context (Jetten et al, 1998). For example, the Brown and Williams (1984) baker and office worker groups may have been too distinctive due to the low overlap between tasks to motivate inter-group derogation. Therefore the contention that SIT/SCT needs major reworking due to inconsistent positive correlation between bias and identification may be overstated.

It may be possible to argue Jetten et al (1998) did not explicitly measure of the amount of social identification, relying instead on inter-group distance and similarity manipulations. This means the results may not be directly comparable with research that did measure the level of association such as Brown et al (1986), Oaker and Brown, 1986, or Brown and Williams (1984). Therefore Jetten et al (1998) does not invalidate the contention of Brown (2000) that bias and social identification should be have a linear relationship. However, in more recent research (Jetten et al, 2000*b*), the level of social identification was measured. It was reported that the association between in-group bias and identification was effected differentially depending on group variability, inter-group status, and level of identification. Further, consistent with the SIT prediction that socio-structural characteristics will impact on the type of inter-group behaviour, the perceived legitimacy of inter-group status partially mediated discrimination (Jetten et al, 2000*b*). The pattern of results suggests there may be a positive association between social identification and in-group bias. However, the display of bias will not be an unreasoning automatic response, but will be made in light of the constraints imposed by reality such as the legitimacy of relative status on the dimensions of comparison (Jetten et al, 2000*b*).

A methodological implication, congruent with a multi-dimensional conceptualisation of SIT (Ellemers et al, 1999; Bergami & Bagozzi, 2000) is that both SIT and SCT processes should be incorporated into research relevant to intergroup discrimination. This practice may reduce inconsistency in intergroup relations research (Jetten et al, 1998; Ellemers et al, 1999).

It should be noted that both Jetten et al (1998) and Jetten et al (2000*b*) employed an MGP methodology. Therefore it is still possible that the control afforded by the MGP increased the likelihood of supporting SIT. This may be challenged as both experiments used two studies, one using strictly minimal groups and a second using natural groups, these being gender (Jetten et al, 1998) and University of Amsterdam or Free University (Jetten et al,

2000b). Nonetheless, the possibility remains that in field settings conditions would be less supportive of SIT or SCT. There is, however, a body of research that indicates that SIT principles do fit the natural world. The next section will be an overview of research in non-organisational settings supportive of SIT/SCT.

SIT in non organisational natural settings.

The intent in this section is to address concerns SIT/SCT principles may not be observable in field settings (as opposed to using minimal groups or 'natural' groups within the confines of a laboratory based experiment). For example, Brown (2000) notes there are conventionally only two experimental groups. This artificially constrains the choice of self-referent group whereas in the world beyond the laboratory there may be any number of groups with which a person may identify. This concern is relevant to the current research as cross-functional teams contain a number of possible loci of identification.

As previously noted, in the SIT/SCT research tradition the two groups are often 'minimal' (Bergami & Bagozzi, 2000). Minimal equates to a lack of central group defining attributes whereas real groups do have important self-defining identity content (Branscombe et al, 2000). Commonly used natural groups are nationality and membership of a university or university course (Bergami & Bagozzi, 2000). These groups cannot be considered to be void of identity relevant content. However, experimenters may impose content on the participants rather than generating a list of traits from the participants that reflect in-group ideas of identity relevant content. For example, in Eidelman and Biernat (2003) in-group or out-group membership of a target depended on whether participants believed the target worked in Kansas (in-group) or Colorado. However, the target was evaluated on the quality of an argument in favour of 'evolution' compared to 'creationism'. The question becomes; 'Is belief in 'evolution' or 'creation' an accurate reflection of the content associated with working in a particular state?' Logically, it would make more sense for religious affiliation

to serve as the locus of social identification if the content under discussion reflects religious belief.

The issue of content being consistent with a social identity is important as notions of 'fit' are fundamental to SCT. If the experimenter supplied dimensions represent a poor fit to the group, participants' readiness to act in terms of the social identity will be attenuated (McGarty, 1999). If this is the case, then the use of 'natural' groups inside a laboratory may actually underestimate the extent to which SIT/SCT processes hold for 'natural' groups outside of the laboratory. Therefore, the present author needs to establish SIT/SCT holds in field settings where there are no artificial constraints be it on locus of identification, imposed identity content or any other experimenter control.

Mummendey et al (1999) conducted a field study in the reunified Germany. The aim of the field study was to examine the fit of SIT predictions relevant to socio-structural characteristics (permeability, stability, and legitimacy of inter-group status relationships), intergroup relations, and identity management strategies (social mobility, social conflict, social creativity). Path analysis supported the predictions of SIT. For example, stable and impermeable intergroup boundaries promoted identification with the original in-group (East German). According to SIT theorists, social identification tends to increase support for inter-group competition and reduces the likelihood of adopting a social mobility strategy. However, Brown (2000), although recognising that Mummendey et al (1999) is generally supportive of SIT, notes that stability and permeability were negatively, not positively related to social mobility and therefore contradict SIT. However, further reading of Mummendey et al (1999) reveals the negative association between social mobility, stability and permeability cannot be interpreted so simply.

The reason is social identification operates as both a mediator and a moderator of the association between boundary permeability and social mobility. Specifically, the researchers

found a social mobility orientation was adopted by high identifiers (not low identifiers) and only when the boundaries are perceived to be impermeable. This appears counter-intuitive, until it is considered that what appears to be social mobility is consistent with a strategy of social competition. In other words, East Germans who believe that West Germans wish them to 'defect' are actually refusing to do so even where the way is clear. Mummendey et al (1999) suggest, and are supported by Wenzel (2000), the reason for this is a perception that East Germans and West Germans belong to the same ethnic group. Therefore there is no perceived justification for either the status differential or for 'recategorisation'. Wenzel (2000) also found a positive association between the belief that east and west shared a superordinate categorisation and willingness to engage in social protest. The suggestion is that SIT predictions are supported as impermeability and stability are expected to increase social competition (Haslam, 2001). In the case of Wenzel (2000) the competition is in the form of protest.

Given that the researchers employed a correlational design in a natural setting, the research of Mummendey et al (1999) questions the validity of the view that SIT is restricted to experimental MGP contexts. Further, contrary to a suggestion by Brown (2000), there were multiple possible social identities available yet SIT was generally supported. One possible deficit in the Mummendey et al (1999) study is 'legitimacy' had very small, if SIT consistent effects on behaviour (illegitimacy predicted competition and legitimacy predicted social mobility). This may suggest that SIT was not fully supported within a natural context, lending credence to critics of SIT. However, Wenzel (2000) found perceived injustice, and therefore, presumably, the illegitimacy of the status differential between East and West Germans did contribute to social competition.

The difference in results between Wenzel (2000) and Mummendey et al (1999) in the same research population may be explained by methodological, rather than theoretical issues.

The continuous reference by Mummendey et al (1999) to contextual features of German unification suggests SCT variables, for example perceived group variability, may have contributed to the effects of legitimacy on behaviour. This idea is supported as there is often a lack of group variability measurement in research critical to SIT (Jetten et al, 1998; Jetten et al, 2000*b*), as there was in Mummendey et al (1999).

Furthermore, contextual aspects of intergroup contact are the province of SCT rather than SIT. That the measurement of variables consistent with the social psychological processes encompassed within SCT may have been appropriate within Mummendey et al (1999) is implied in the researchers use of re-categorisation as 'German' to represent social mobility on the part of East Germans. That context plays an active role in inter-group contact is suggested by Kinket and Verkuyen (1999). These researchers examined multi-racial classrooms (Dutch and Turkish children) and found 'contextual' features, such as being in the numerical minority, or teachers response to racial discrimination, have different effects depending on the target of evaluation.

Contextual features had a direct effect on outgroup evaluation and a moderating effect on the relationship between social identification in-group evaluation. For example, a more positive out-group evaluation and less in-group bias is found in contexts where teachers educated students about multi-cultural issues. Group size interacted with social identification and in-group bias so that being in the numerical minority increased in-group identification and in-group favouritism.

A suggestion that may be derived from the research of Kinket and Verkuyten (1999) is that contextual features interact with social identification. It is then possible to suggest that social psychological processes prescribed by SCT should be considered in tandem with processes contained within SIT in field research. This idea is lent credence by a field study conducted by Verkuyten and Nekuee (1999). These researchers found self-stereotyping and social

identification, although statistically discrete, interacted to produce in-group bias when the context was perceived to be hostile in terms of limited access to economic resources. The interaction of 'self-stereotyping' and social identification reported by Verkuyten and Nekuee (1999) suggests measurement of group variability should be incorporated into SIT based field research like before concluding SIT does not hold without excessive experimental control.

Within SCT, measures of variability reflect the extent to which a group member 'fits' the in-group prototype (McGarty, 2001). Therefore, if measures of 'fit' to a prototype can be associated with 'legitimacy' it can be concluded that criticisms of SIT in field settings may have a basis in measuring only one part of the greater meta-theory represented by SIT/SCT as joint conceptual entity. This would be conditional on the relationship being consistent with the prediction of SIT. A number of recent field studies indicate the validity of this position.

One of these studies is Wenzel (2001) where social identification (as German) was related to perceived relative prototypicality of Germans (compared to Turks fitting the superordinate category of Europeans) which predicted the belief exclusion of Turkey from the European Union was fair and just. In a similar vein, Waldzus, Mummendey, Wenzel, and Weber (2003) conducted two studies in which Germans evaluated an outgroup (Polish). Evaluation of the outgroup became more positive as the difference between the prototypicality of each group to the superordinate category (European) decreased. Weber, Mummendey, and Waldzus (2002) conducted experiments intended to examine whether relative prototypicality to a superordinate social entity could affect the perceived legitimacy of a status differential. The results of two studies (in natural contexts) indicated the perceived legitimacy of a status differential does vary as a function of relative prototypicality. Specifically, status differences were seen to be more legitimate if the in-group was seen to be more prototypical in relation to a superordinate category.

Considered together, Webber et al (2002), Waldzus et al (2003) and Wenzel (2001) suggest SIT and SCT processes interact in field settings. Therefore, measuring variables representing either SIT or SCT in isolation, or representing only part of either SIT or SCT, does not constitute evidence that SIT/SCT are incompatible with natural settings.

It should be noted that in Study 2 of Waldzus et al (2003) participants provided their own category content rather than having content imposed from the researchers. In adopting this practice, Waldzus et al (2003) joins other recent SIT/SCT research including Jetten et al (2000*b*), Reynolds et al (2001), Ellemers et al (1997) and Haslam et al (1999). In each of these studies SIT/SCT principles were supported. The suggestion is SIT/SCT processes do occur when identity content is uncontrolled by an experimenter. Therefore the ecological validity of SIT/SCT cannot be challenged from the position that experimenters artificially inflate the likelihood of supporting SIT/SCT by controlling identity content.

However, it may be possible to challenge this position as the supportive evidence cited by the current author does share the common context of inter-group relations (based in ethnicity) within the large geo-political sphere of continental Europe. As the author is arguing for an application of SIT/SCT to the much smaller context of an organisation it may be appropriate to bridge such a contextual gap by demonstrating that social psychological processes consistent with SIT/SCT also occur within the micro-climate (compared to continental Europe) of a single social system (note that the micro-contextual research below shares ethnicity as the basis for inter-group division with the macro-contextual research cited above). Holding the basis of the inter-group contact constant allows a more convincing demonstration of the application of SIT/SCT to micro as well as macro contexts than would be allowed by changing both context and source of inter-group differentiation.

SIT/SCT in small scale systems.

The idea that SIT/SCT is appropriate for both macro and micro contexts is evidenced in research by Waldzus, Mummendey, Wenzel and Boettcher (2004). These researchers examined relative prototypicality on outgroup evaluation in three different samples. One was motorcyclists (sports bike versus choppers), another was teachers (primary school versus high school) while the third was Germans (East versus West). In each sample participants believed their subgroup was more prototypical for the shared superordinate group than the other subgroup. The idea of a group defining prototype is part of SCT. Therefore finding the same result in groups differing in the level of inclusiveness suggests SCT is not restricted to the macro-level.

Guimond (2000) examined the transmission of prejudicial attitudes within the Canadian military. More specifically, attitudes and beliefs regarding the legitimacy of the economic gap between the majority (Anglophones) and the minority (Francophones) were examined longitudinally. SCT was compared to 'social dominance theory' and 'social justification theory'. These two theories were employed to operationalise a social dominance hypothesis that the social status quo will be accepted as legitimate even by minority group members over a period of time (Guimond, 2000). Consistent with the social dominance hypothesis, it was reported that Anglophones developed increasingly negative attitudes towards out-groups and were more likely to internalise beliefs that justified the existing economic status differential. For example Anglophones became less inclined to blame systemic factors and more likely to attribute the status differential to intrinsic characteristics of Francophones. However, contrary to the social dominance hypothesis, Francophones did not evaluate their low status in-group more negatively over time. Further, although there was a trend for Francophones to blame the system less, there was no evidence that Anglophones were rated more favourably than Francophones or that negative stereotypes of Francophones became internalised.

In support of SCT, recruit attitudes and beliefs were more likely to be predicted by identification as a 'Canadian' on initial entry into the military. In contrast, identification with the Canadian military was a non-significant predictor of attitudes when measured in this first year of research. However, over time identification with the military moderated the attitudes and beliefs of the cadets. The change in self-categorisation from Canadian to military and corresponding change in attitudes and beliefs is consistent with the idea that social identification can be related to changes in inter-group attitudes and beliefs in natural settings (Guimond, 2000). It should be noted that exposure to a homogenous set of experiences and information did not homogenise attitudes towards Francophones. Rather, it was the locus of identification that determined participant attitude so that those who strongly identified with the Canadian Military became less positive towards Francophones. Similarly, Francophones became more negative towards Anglophones (Guimond, 2000).

The support for SIT/SCT in Guimond (2000) is evidence that these theories hold in the micro climate of a single closed social system as well as the broader macro climate represented by research such as Waldzus et al (2003) or Mummndey et al (1999). The suggestion is SIT/SCT are not lacking in ecological validity. However, the studies cited above are all qualitative. The author will now present ethnographic research that demonstrates the fit of SIT/SCT principles to applied settings. The reason for doing so is that convergence of different research methodologies towards a common conclusion increases the apparent validity of the construct and therefore arguments based in a particular construct (Brewer, 2000). One example of ethnographic research supportive of SIT/SCT is Reicher (1996*b*).

Reicher, (1996*b*) interviewed students and police involved in a peaceful demonstration over changes to student loans that degenerated into a violent conflict between police and students. The majority of students initially considered the police as neutral and

having a legitimate role to play as '*neutral guardians of law and order*' (Reicher, 1996b). These small groups of students had no explicit plans for engaging in conflict with the police. Although some groups of students believed that confrontation would be justifiable. It was noted that these 'confrontational' students were derogated by the peaceful majority as making all students look like 'raving lefties'. Further, the numerous small groups felt little super-ordinate identification as 'protestors' or 'students'. However, mounted police charged a group of students, sparking a conflict between all students (as opposed to radicals only) and all police (as opposed to just mounted officers).

The change in inter-group relations from peaceful to conflictual motivated a broadening of social categorisations such that the initially heterogenous student groups adopted a homogenous super-ordinate categorisation. Consistent with SCT, the formerly peaceful majority adopted the prototypical radical student view and perceived the police to be biased defenders of the government rather than neutral. Further, once a shared social identity as 'student' was established, formerly peaceful majority students actively engaged in conflict with the police, assisting those with whom they had no interpersonal connection and had initially derogated (Reicher, 1996b).

The changes in perception of an out-group, whether police or student, and the change in perceived legitimacy of conflictual behaviour subsequent to recategorisation, support the SCT idea that context and social categorisation interact to promote social identification (McGarty, 1999). However, the ethnographic method, although free from charges of excessive artificiality due to excessive experimental control, may be considered to suffer from a lack of control that may leave conclusion open to a number of biases. For example, Reicher (1996b) acknowledges reliance on retrospective interviews to gather information about perceptions and beliefs may be open to bias on the part of interviewees who may not

necessarily possess enough insight to provide accurate data. However, this concern may be partly alleviated by ethnographic research by Stott and Drury (2000).

Stott and Drury (2000) accessed a number of data sources, including legal documents in addition to interviews. Further, the data was collected before, during and after a peaceful student protest turned into police/student violence. Stott and Drury (2000) noted similar patterns of behaviour and participant perception as Reicher (1996b). The Stott and Drury (2000) corroboration of Reicher's (1996b) observations under similar conditions with a more rigorous data collection process supports the possibility SIT/ SCT do present a valid explanatory account in natural settings. It should be noted that in both of these studies those involved chose to identify with particular groups without prompting by the researchers. Therefore suggestions that typical SIT/SCT research may not hold when there are more than two groups available (Brown, 2000) are overstated.

In the preceding section it was argued that SIT/SCT are not restricted to the artificial world of the social psychology laboratory. Both qualitative and quantitative evidence suggests that SIT and SCT processes are observable and interpretable outside of social psychology laboratories. The evidence suggests that research critical of SIT/SCT suffers from a number of methodological and theoretical inadequacies. These include the use of scales that access individual rather than social identity, the use of unitary measures instead of multi-dimensional measures, and overly simplistic interpretations of SIT. For example, assuming social identification should always create out-group derogation, that individual self-esteem is psychologically equivalent with self evaluation based in membership in a social group and assuming bias and social identification will have a simple linear relationship. The evidence presented in favour of SIT/SCT has been based in ethnic divisions in both macro and micro contexts. In the next section it will be shown that SIT/SCT processes are present

in commercial organisations with divisions based in departmental or occupational group memberships as in cross-functional teams.

SIT/SCT in organisations.

In this section the application of SIT/SCT to organisational contexts will be supported through presentation of previous research. The evidence presented will serve two functions. The first is to demonstrate the presence of psychological processes consistent with SIT/SCT in organisational contexts. The second is to strengthen the case for use of SIT/SCT as the basis of an intervention by illustrating behavioural consequences from social identification within organisational contexts. The author's assumption is that both organisational management and practitioners, lend more credence to 'outcomes' than the presence of concept consistent variables (Amabile et al, 2001; Anderson et al, 2001). The intent in this section is to support the author's proposition that SIT/SCT present a pragmatic conceptual base from which to derive interventions in cross-functional teams by working simultaneously at both intra-group and intergroup levels of identification.

Evidence of SIT/SCT processes in organisational settings is provided by Terry and Callan (1998). Within the context of the planned merging of two hospitals Terry and Callan (1998) found both low and high status groups exhibited behaviour consistent with a drive for positive distinctiveness in the form of in-group biases. High status groups proclaimed superiority on dimensions relevant to status as a health care provider, for example 'variety of patient type'. The low status group claimed higher status on irrelevant dimensions such as 'relaxed work environment'. The groups agreed on the areas of out-group superiority, which the researchers suggest signifies acknowledgment of reality rather than out-group derogation as the source of inter-group evaluations. Similar results were reported by Terry et al (2001) who conducted research in the context of an airline merger. The pre-merger organisations were an international carrier and a domestic carrier. Members of both groups recognised the

higher status of the international carrier) in the post merger organisation with the domestic carrier group reporting their status as being significantly lower than the mid-point on a 7 point scale.

Consistent with the SIT analysis of relative status as a socio-structural variable members of the high status group reported higher identification with the post-merger organisation than the low status group who were also less committed to the post-merger organisation. Inter-group permeability was positively related to identification with the post-merger organisation on the part of low status group members (Terry et al, 2001). However, inter-group permeability had different effects depending on group membership. For example, high status group members reported lower self-esteem due to inter-group permeability. The opposite pattern was reported for the low status group. Further, low status employees were more likely to display in-group bias, consistent with an identity threat response (Branscombe et al, 2000; Terry & Callan, 1998). It should be noted ingroup bias on the part of the low status group was displayed primarily on dimensions irrelevant to the status differential such as being friendly and cooperative or helpful (Terry et al, 2001).

In both Terry and Callan (1998) and Terry et al (2000) the low status groups shifted the dimension of comparison. This practice is consistent with the SIT idea that low status groups can exhibit socially creative strategies in order to preserve positive distinctiveness (Haslam, 2001). In contrast, the high status group displayed bias on status relevant dimensions. This is consistent with SIT as an attempt by dominant groups to legitimise the status quo (Terry et al, 2001).

More evidence that the social identity theory approach is relevant to organisations is observable in Riketta and van Dick (2005). Their meta-analysis revealed employees feel greater identification with their workgroup than the organisation. Employees derived more satisfaction, performed more extra-role behaviour and felt more comfortable with the climate

of the work group than the organisation. This was attributed to the greater attachment of employees to the work group social identity relative to the organisation based identity. In other words the locus of social identification most salient to employees is more likely to receive employee attention. SCT can be seen to apply in organisations as Voci (2006) reported intention to leave an organisation was dependent on comparative fit and depersonalisation. Van Knippenberg and van Schie (2000) examined the impact of social identification on employee well-being. Among their results was a negative association between identification with a work group and turnover intention and positive correlations between work-group identification and job-involvement job satisfaction and motivation. This study suggests higher levels of social identification within an organisation can have benefits for individual employees. Further, the direction of the relationships can be assumed to be desirable for an organisation in relation to these variables. For example, it is safe to assume an organisation would prefer to have satisfied rather than dissatisfied staff. Additionally, van Knippenberg (2000) notes that the measure of 'job involvement' used in van Knippenberg and van Schie (2000) contained questions that suggestive of a willingness to exert effort on behalf of the group. The implication is that social identification with an organisation will motivate staff to exert effort towards organizational goals.

Explicit evidence that social identification and self-categorisation can be associated with a willingness to exert effort towards the organisation's goals does exist. Laboratory research by Worchel et al (1998) found participants increased their individual productivity when working towards a group based incentive rather than individual reward. Further, increasing self-categorisation (through uniforms and an out-group competitor) motivated employees to increase their work out-put relative to an individual identity condition where social loafing was observable. Worchel et al (1998) found no indication the increased productivity could be attributed to increased visibility of individual participants, as may be

expected if fear of punishment motivated increased effort. The results of Worchel et al (1998) can be considered consistent with SIT and suggest that promotion of social identity may have organisational benefits. However, although the task was similar to blue-collar work and the research was not MGP based, it may be possible to question the generalisability of Worchel et al (1998) to a work place (Brown 2000). The research below should alleviate this concern.

Bergami and Bagozzi (2000) showed SIT/SCT processes be observed within organisations and behavioural consequences arising from SIT/SCT processes. As previously noted Bergami and Bagozzi (2000) research is consistent with the original multi-dimensional concept of social identification advanced by Tajfel (Ouwerkerk et al, 1999). Specifically, Bergami and Bagozzi (2000) found dimensions reflecting 'affective commitment' (divided into two sub-factors relating to attachment and towards the organisation and positive feelings from the organisation), 'organisation based self-esteem', and 'cognitive organisational identification' which represents the SCT component of social identification. Bergami and Bagozzi (2000) each factor was primarily responsible for different aspects of behaviour. For example, organisation based self-esteem predicted levels of conscientiousness while affective commitment predicted altruism. Cognitive awareness, consistent with SCT, mediated between antecedents of identification, social identification and organisational citizenship behaviours. Organisational citizenship behaviours are discretionary extra-role behaviours enacted for the benefit of the organisation (Ouwerkerk et al, 1999), supporting the idea that being able to manage SIT/SCT processes may be of organisational benefit.

This idea is reinforced by Haslam et al (2000) who also found increased organisational identification encouraged extra-role behaviour, loyalty, and expenditure of effort towards the organisations goals. It may be possible to argue that what appeared to be group serving behaviour was actually an individual seeking personal gain. However, loyalty

to the group was negatively related to satisfaction of individual needs (Haslam et al, 2000). Neither did meeting of individual needs predict extra-role behaviour or conformity to rules (Haslam et al, 2000). By reporting increased social identification contributes to the performance of organisational citizenship behaviours Bergami and Bagozzi (2000) and Haslam et al (2000) support the contention that there are organisational benefits to be realised through an awareness of SIT/SCT principles.

There is also evidence that knowledge of SIT/SCT could be more valuable for increasing effort towards collective interests than meeting the wants of an individual. Tyler and Blader (2001) compared the effects of social identification with predictions of the social exchange model. The social exchange model proposes that individuals will work towards group goals as long as the effort is adequately compensated by individual rewards from those who control resources (Smith, Tyler, & Huo, 2003). Results were strongly in favour of SIT as social identification was found to be a more potent motivator of effort than individual gain. The difference between identification and resource exchange was particularly pronounced in the performance of voluntary extra-role behaviour, accounting for an extra 15% of the variance (Tyler & Blader, 2001). More evidence that social identification encourages exertion towards collective goals is provided Veenstra and Haslam (2000)..

Veenstra and Haslam (2000) found willingness to participate in industrial action depended not only on the level of identification, but also on the contextual meaning industrial for union members. More specifically, Veenstra and Haslam (2000) reported that those who identified strongly with a union were willing to protest against industrial relations reforms when the potential for inter-group conflict was made salient. In contrast, low identifiers exposed to the conflict manipulation showed less willingness to protest than either high identifiers or a control group. In other words, low identifiers psychologically distanced themselves from the union (Veenstra & Haslam, 2000). However, when the context was

manipulated to heighten the level of 'threat' posed by the government to the union, there was an interaction between social identification and context. The effect of this interaction was to reverse the earlier disassociation of low identifiers and increased willingness to engage in protest.

It may be possible to argue increased willingness to protest on the part of low identifiers was due to a concern for their own fate (Gaertner & Insko, 2000). However, there was no overt pressure to conform to any outside expectations, for example in the form of making responses public. The absence of intragroup accountability is relevant as being visible can artificially inflate conformity, despite private disagreement (Noel, Wann, & Branscombe, 1995; Barreto & Ellemers, 2000). The question then becomes 'Why not reduce willingness to participate to even lower levels given the absence of negative consequences from non-participation and increased danger for participation?' That people will not only withdraw from group activity, but actively and publicly oppose the in-group, is indicated by Hornsey, Maijkut, Terry, & McKimmie (2003) who found group members will publicly defy their ingroup if they have a strong ethical sense that the ingroup is incorrect. Veenstra and Haslam (2000) reported the opposite behaviour. That a contextual change increased motivation to work towards the unions interest, rather than individual safety, is consistent with SCT. The implication is that 'threat' plus 'conflict' increased the accessibility and fit to the union identity (Veenstra & Haslam, 2000) thereby increasing the willingness to engage in effort on behalf of the union (Bergami & Bagozzi, 2000).

Overall, the cited research would indicate support for SIT/SCT is not restricted to the MGP under strict laboratory conditions. The processes and prediction prescribed by SIT/SCT fit a number of natural contexts including organisations. If it is accepted that SIT/SCT principles can be observed in a broader organisational context, it becomes possible

to suggest that SIT/SCT are in operation within the specific confines of cross-functional teams.

Research evidence for SIT/SCT processes in cross-functional teams.

In this section research indicative of SIT/SCT within cross-functional teams will be reviewed. Initial evidence will be based in research demonstrating the impact SIT/SCT consistent processes can have in contact between organisational sub-groups. Research undertaken in cross-functional teams will illustrate the potential for positive or negative experiences to have their genesis in social identification. This section will begin by outlining how SIT/SCT are assumed to impact on a cross-functional team.

The underlying assumption in applying SIT/SCT to cross-functional teams is that a cross-functional team is by nature an instance of inter-group contact. As an instance of inter-group contact a cross-functional team will be subject to the social cognitive processes prescribed by SCT and the drive for positive distinctiveness prescribed by SIT (Northcraft et al, 1996). Consistent with SCT, organisational sub-unit identity is assumed to be more accessible than categorisation as a member of the cross-functional team (Riketta & van Dick, 2005). A possible reason is more time is spent as a member of the functional sub-group which increases the accessibility of a particular social category. (van Knippenberg & Ellemers, 2003; McGarty, 1999). Accessibility is also increased through anticipation and experience of intergroup contact within the cross-functional team (van Knippenberg & Ellemers, 2003). Further, there is a tendency for functional groups to possess their own distinct values, attitudes, and knowledge bases (Hitt, Hoskisson, & Nixon, 1993; Webber, 2002). These real differences form the basis for judgements of comparative and normative fit (am I more like my functional unit or am I more like the cross-functional team?) made towards fellow cross-functional team members.

In accordance with the principle of meta-contrast (see Figure 8) the level of difference inside a cross-functional team are exaggerated while the perceived similarity with members of the ingroup subgroup is increased (Haslam et al, 2003). The interaction of ‘accessibility’ and ‘fit’ renders the original sub-unit identity more salient than the cross-functional team therefore more relevant for defining the self and the social frame (Onorato & Turner, 2004; Haslam et al, 2003). Judging reality from the subgroup position is consistent with the uncertainty reduction hypothesis of SCT, as is the inclination of to disregard input from outgroup based cross-functional team members differing from the input of the ingroup (Husted & Michailova, 2002; Wegge & Haslam, 2003).

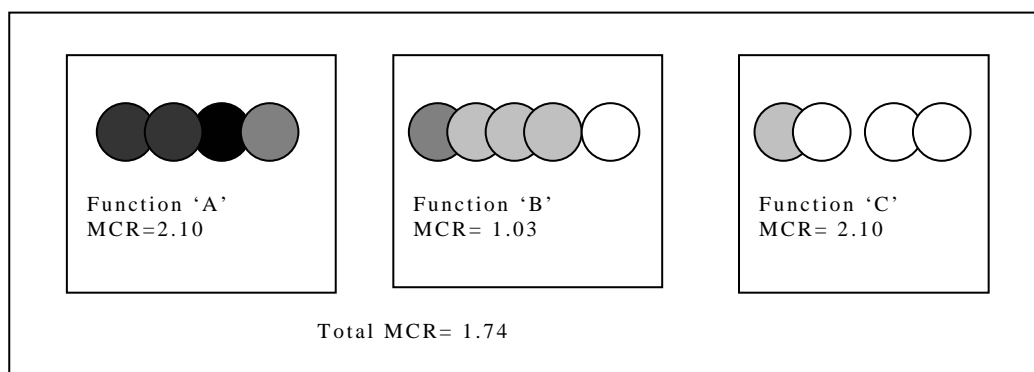


Figure 8. Meta-contrast in a cross-functional team. In this example Function ‘B’ would fit a cross-functional team better than other subgroups. Members of function ‘B’ would regard themselves as more prototypical for the cross-functional team compared to other subgroups.. (Adapted from Haslam et al, 2003)

Research into the effects of ingroup projection on composite social entities suggests each subgroup would tend to see themselves as most prototypical for the cross-functional team (Waldzus et al, 2004). More prototypical groups tend to expect higher status within the team (Waldzus et al, 2003) and to feel disparagement of other subgroups is justifiable (Waldzus, Mummendey, & Wenzel, 2005). Disagreements as to who is more prototypical, and therefore of higher status can cause intergroup conflict (Waldzus et al, 2004; Wenzel, 2000). Integration of Jassawalla & Sashittal (1998; 1999) with the ingroup projection

research cited above suggests SCT processes have the potential to create problems in cross-functional teams.

The process noted above makes a social identity as a member of the original functional unit 'salient', engaging motivational process of SIT (van Knippenberg, 2000). According to SIT, social identification motivates the drive for positive differentiation (Haslam et al, 2003). If the drive for positive differentiation is in the interests of the organisational sub-unit rather than the cross-functional team (see Figure 9) then internal competition is a possibility (Jassawalla & Sashittal, 1999). Intragroup competition, with its basis in normal psychological responses to intergroup contact is therefore likely to discourage the mutual influence and collaboration necessary for cross-functional team to be effective (Northcraft et al, 1996).

The idea that locus of social identification is implicated in poor intra-organisational relations is reinforced by van Knippenberg and van Schie (2000) who compared identification at the level of 'work-group' and 'organisation'. Hierarchical regression analysis revealed that work-group identification accounted for small increments in variance over organisational identification in all dependent variables. Van Knippenberg and van Schie (2000) suggest a number of counter-productive consequences that may have a basis in an over identification with a particular work-group. For example, staff may be unwilling to move between branches. The result may be a concentration of experienced staff rather than a diffusion of this experience through the organisation. Another possible outcome may be demotivation of employees forced out of one workgroup and into for another. Alternatively, branch specific workgroup norms may be the opposite of organisations requirements (Guimond, 2000; Jetten et al, 1997).

Field research by Hennesy and West (1999) suggest that van Knippenberg and van Schie (2000) were not being alarmist when warning of negative effects of social

identification. The Hennesy and West (1999) organisation was recently formed through merging three smaller medical organisations. Results indicated that work-group identification was the strongest predictor of in-group bias compared to organisational identification (statistically non-significant) or perceived competition (statistically non-significant). It was also reported in-group members (those who shared employment in a pre-merger entity) were rated more favourably on organisationally valued competencies than out-group members and discriminated in favour of the in-group in allotment of monetary resources. Similarly, Lipponen, Helkama, and Juslin (2003) reported sub-group identification within a shipyard predicted negative attitudes towards other sub-groups. For example other groups were seen as incompetent and mercenary. Labianca et al (1998) found unpleasant inter-group interactions, as accusations of incompetence can be assumed to represent, tend to be given more importance than positive contact when interacting with other out-group members. The attendant conflict may then amplify over time, generalising beyond the original protagonists to include other group members (Labianca et al, 1998).

The pattern of higher work-group identification (relative to organisational identification) observable in van Knippenberg and van Schie (2000), and more recently Riketta and van Dick (2005), can be combined with the finding that higher work-group identification (relative to an organisational identification) may be related to workgroup favouring bias that may be detrimental to relations with organisational out-groups (Lipponen et al, 2003; Hennesy & West, 1999; Labianca et al, 1998). The research suggests work-group identification may benefit the organisation but not if the interests of the work-group are placed above the interests of the organisation. There is evidence that cross-functional team, as a specific organisational context, are subject to the same social psychological processes.

McDonald (1995) used management students who had been working in the same small groups for 10 weeks as the research population. The researcher examined whether pre-

existing group loyalties would affect the attribution made for conflict within cross-functional team. There were two results of interest. Firstly, cooperation was less likely following a perceived demonstration of incompetence (McDonald, 1995). Secondly, ‘outgroup’ members of the cross-functional team were blamed more often for errors made within the cross-functional team (McDonald, 1995). The results met experimenter expectation in that out-group members were seen to be at fault more often than in-group members. Further, problems caused by an in-group member were more likely to be overlooked (McDonald, 1995).

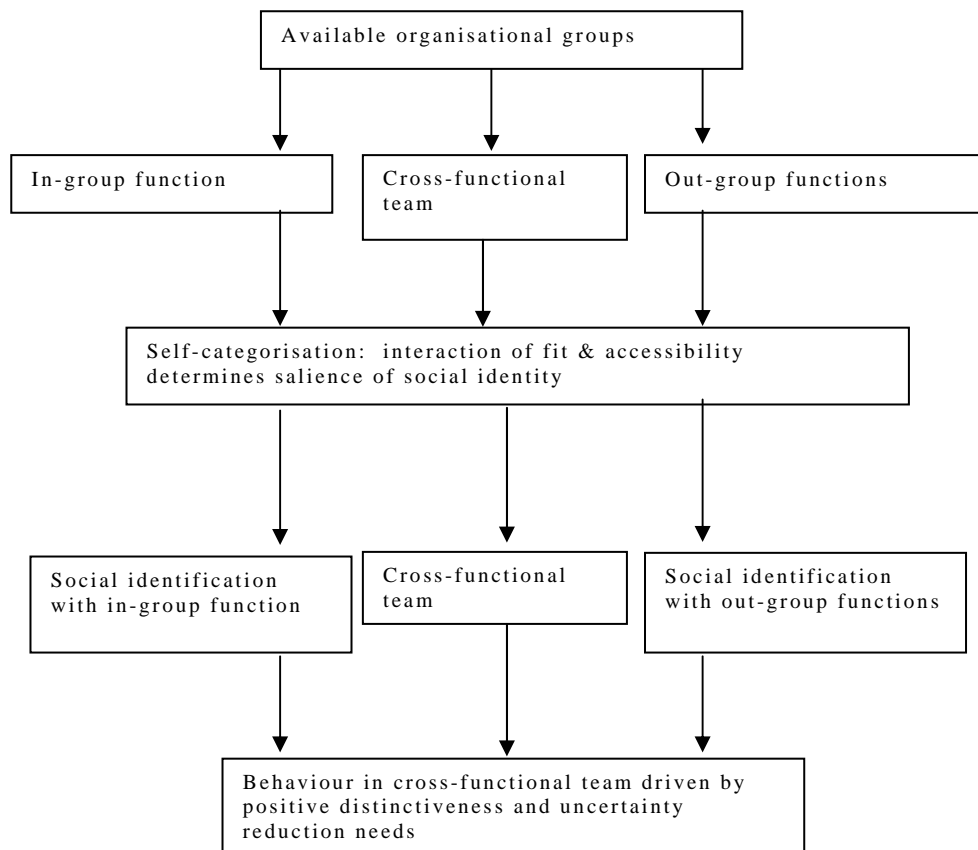


Figure 9. SIT/SCT in cross-functional teams

De Cremer (2000) found similar results to McDonald (1995) where those with higher social identification were found to make more group serving attributions. For example, in-group success was due to the quality of the group whereas failure was attributed to conditions

beyond control of the in-group. More recent lab based research by Cunningham and Chelladurai (2004) found establishment of the cross-functional team as a shared social identity improved affective reactions to members of outgroup functions. For example, there was less resistance to the idea of working with other subgroups when identification with the cross-functional team was higher. However, the perception of the other subgroup as being less capable than the ingroup detracted from the willingness to accept the cross-functional team as a common social identity. These studies indicate social identification is a variable with the potential to improve or detract from cross-functional team functioning.

It may be possible to discount the generalisability of the laboratory research cited above. For example, in McDonald (1995) groups were homogenous in terms of gender and age whereas organisational diversity is increasing on these attributes (Brickson, 2000). However, field research by Jehn et al (1999) and Pelled, Eisenhardt and Xin, (1999) found functional diversity was more important than demographic diversity for stimulating task related conflict. This suggests that McDonald (1995) did not sacrifice ecological validity for control. This point is underscored by similarities with Vonk and Konst (1998) whose organisational research demonstrates the presence of SIT/SCT consistent processes in the making of group serving attribution of competence.

Vonk and Konst (1998) hypothesised managers and subordinates would tend to display in-group favouritism when judging the competence of in-group relative to out-group and in the causal attribution for less competent behaviour. The researchers reported the ingroup was rated as more competent than the outgroup, ingroup incompetence was treated more leniently than outgroup incompetence and that ingroup incompetence was attributed to situational causes while out-group behaviour was attributed to intrinsic incompetence of the target.

The relevance of perceived level of competence in a cross-functional team was demonstrated in Cunningham and Chelladurai (2004) where more competent subgroups resisted social identification with cross-functional teams if another subgroup was less competent. Being perceived to be incompetent lowers task participation on the part of those perceived to be incompetent (Karakowsky & McBey, 2001). Perceptions of incompetence can be used to legitimise dismissal of team member contribution (Li et al, 1999) and to exclude cross-functional team members from intragroup communications (Jassawalla & Sashittal, 1998; 1999). Perceived incompetence of intra cross-functional team outgroup members lowers the level of intragroup safety, trust, respect (Webber, 2002), knowledge sharing (West, 2002; Jassawalla & Sashittal, 1998) and commitment to group discussion derived decisions (Dooley & Fryxell, 1999). Cross-functional teams characterised by such intra-group hostility perform worse than those with more acceptance of functional diversity (Jassawalla & Sashittal, 1998; 1999). The reason for lower performance suggested by Edmondson (1999) is that low level of psychological safety interferes with intra-team learning and team performance (Edmondson, 1999). This is lent credence through contrast with Tsai and Ghoshal (1998) who observed that positive inter-group contact fostered trust and shared vision between organisational units. Positive inter-group interactions manifested in practical behaviour such as sharing of resources and ideas. The organisationally valued outcome of 'product innovation' was directly related to these positive intra-firm relationships. Furthermore, field research in cross-functional teams compliments the cited laboratory research.

Maltz and Kohli (1996) conducted research in between marketing and non-marketing functional groups. Cross-functional information exchanges were less likely when there was an undercurrent of inter-functional rivalry due to a lack of trust. Further, where information was exchanged, it was only through formal channels, less likely to be considered accurate and

not factored into decision making. In contrast, 'organisational commitment', similar to the 'affective commitment' facet of social identification (Ouwerkerk et al, 1999) were found to increase the amount information exchanged across functional boundaries (Maltz & Kohli, 1996). Hansen et al (2005) echoes Maltz and Kohli (1996) when reporting inter-functional competition reduces openness to sharing knowledge between organisational subgroups.

Huang and Newell (2003) indicate the importance of the cognitive aspect of social identification with a cross-functional team. These researchers examined the determinants of cross-functional team effectiveness in four different industries. 'Social capital' was the most important determinant of cross-functional team effectiveness through increased or decreased cross-functional team connectivity. Huang and Newell (2003) noted the quality of an organisations 'social capital' depended on both cognitive and emotional bonds to the cross-functional team. These are two aspects of the triadic conceptualisation of social identification (Bergami & Bagozzi, 2000; Dimmock et al 2005; Ellemers et al, 1999).

The cognitive component of 'social capital' reflects shared ideas as to what is correct or incorrect within a social system (Tsai & Ghoshal, 1998). In other words, social certainty derived from functional group membership. Huang and Newell (2003) noted the cognitive component of 'social capital' detracted from the quality of cross-functional team interaction when there was a clash of sub-group values. For example, neither sub-group was willing to be exposed to the out-group knowledge base. It should be noted that the effect of the cognitive component of 'social capital' on cross-functional team interactions is consistent with a process of uncertainty reduction through restriction of social influence and therefore consistent with SCT (Haslam et al, 2003).

Further, Huang and Newell (2003) noted cognitive integration was more likely if cross-functional teams had been used by the organisation in the past. This observation is consistent with SCT for two reasons. Firstly, cross-functional team membership that is

organisationally normative will increase a social perceivers initial readiness to adopt a cross-functional team as a meaningful self-category. Secondly, there is an existing knowledge base developed from past experience that serves to reduce uncertainty (McGarty, 1999). Further, consistent with the multi-dimensional conceptualisation of the social identification process, Huang and Newell (2003) noted neither the cognitive or emotional aspects of social capital were sufficient of themselves for optimal cross-functional team outcomes, rather one paved the way for development of the other in a mutually reciprocal process. This is consistent with Bergami and Bagozzi's (2000) path analysis which showed cognitive acceptance of identification preceded the development of affective aspects of identification.

Consideration of Maltz and Kohli (1996) together with Huang and Newell (2003) suggests not only that SIT/SCT processes are present in cross-functional teams, but also optimising the value of a firms social capital requires knowledge of self-categorisation and social identification processes (Haslam et al, 2003). However, neither of these studies worked from an explicit social identification framework. That willingness to accept input from outgroup subgroups can be related to shared social identification is observable in laboratory research by Kane et al (2005). These researchers found acceptance of a superordinate identity was necessary before participants would accept input from members of other subgroups. This occurred even when the knowledge being presented by the outgroup was superior to existing ingroup knowledge. Field research by van Der Vegt and Bunderson (2005) is consistent with Kane et al (2005). The researchers examined the impact of informational or expertise diversity on team learning and group performance. They found team member willingness to learn from each other could be associated with either the highest or lowest level of performance. Moderate levels of expertise diversity could also result in either the highest or lowest level of performance. The key to gaining the most performance

from learning and expertise diversity was to increase collective identification with the composite group.

Sethi (2000*b*) conducted field research with expectations based in social identity research. The researcher examined the impact of adopting a superordinate social identity as member of the cross-functional team on the outcome of 'product performance'. Identification was compared to other potential predictors of group performance such as physical proximity between team members and interdependence (task and outcome). If factors such as 'proximity' or 'interdependence' were to have a larger positive relationship with 'product performance' then it could be concluded, given the complexity of SIT/SCT (Ellemers et al, 2003) that cross-functional teams can be best managed through comparatively more simple means than applying SIT/SCT. For example, matching performance of a collective task with a collective reward (Wageman, 2001). However, results confirmed the importance of social identity processes within cross-functional teams. Specifically, Sethi (2000*b*) concluded that neither physical proximity nor task interdependence made a meaningful contribution to product performance. Further, although playing a role in developing identification with a cross-functional team, the relationship of 'outcome interdependence' with product performance were fully mediated by the development of a shared social identification with the cross-functional team. In other words, alignment of outcome interdependencies by itself will not increase cross-functional team effectiveness. It is the internalisation of the cross-functional team as a psychologically meaningful identity that will encourage in the service of the cross-functional team (Lembke & Wilson, 1998; van Knippenberg, 2000; Haslam et al, 2003; van Dick, 2004).

It has been shown that SIT/SCT processes are not only observable in organisations but may influence behaviours within organisations (Terry & Callam, 2000; van Knippenberg & van Schie, 2000). In terms of cross-functional teams, intra-group blame for poor

performance can occur along pre-existing inter-group boundaries (McDonald, 1995; Jehn et al, 1999). Hyper-sensitivity to out-group member performance deficits is consistent with the desire to differentiate outgroup members of the cross-functional team from ingroup members in a way that reflects more positively on ingroup members (Vonk & Knost, 1998; Labianca et al, 1998). This behaviour is consistent with the drive for positive distinctiveness, held by SIT theorists to be an important motivator of inter-group behaviour (Haslam, 2001). Judgement of out-group members as incompetent also has an element of uncertainty reduction, a fundamental motivator for self-categorisation according to SCT. Perceived incompetence of the out-group is used as an excuse for restriction of communication, an avenue of social influence, to those who share the same occupational categorisation (Haslam, 2001) and therefore to those who reinforce the correctness of ingroup values and ideas of task performance (Mathieu et al, 2000). A logical inference is that conflictual interdepartmental relations can be based in needs for positive distinctiveness and uncertainty reduction which lowers performance of the cross-functional team. However, the processes contributing to social identification can also increase the effectiveness of cross-functional teams (Huang & Newell, 2003; Sethi, 2000b). Therefore there is an argument not only for the presence of SIT/SCT in intra-organisational inter-group contact but also that cross-functional team outcome can be varied through application of SIT/SCT.

Summary

In summary, the research cited in this chapter supports the contention that SIT/SCT can be observed in natural settings. Criticisms that SIT/SCT may be valid only in the laboratory using the MGP have been found to be based in research flawed in methodology or conceptualisation. For example an overly simple interpretation of SIT predictions regarding displays of in-group bias, using surveys that capture individual self-esteem rather than CSE and treating social identity as uni-dimensional rather than multi-dimensional. Further,

correlational analyses characteristic of studies critical of SIT/SCT make it impossible to rule out contributions of uncontrolled variables. This can be contrasted with evidence supportive of SIT/SCT which is not tied to any particular method of analysis. SIT/SCT has been found to be conceptually sound in varied applied intergroup contexts. Importantly for the current work, the cited research suggests SIT/SCT can provide a legitimate theoretical perspective for use in both the broader organisational context and cross-functional teams. A possible suggestion that may be taken from the preceding chapter is knowledge of SIT/SCT congruent processes may be useful for the design of interventions in cross-functional team. The next chapter will examine this issue. Various methods for the improvement of inter-group relations within cross-functional team will be presented. All methods will be discussed with reference to the theoretical base of SIT/SCT.

Chapter 5: SIT/SCT and Improved Intergroup Relationships

Overview

The aim in this chapter, given the intergroup nature of cross-functional team relationships, is to discuss and compare different SIT/SCT derived methods for improving inter-group relations. It is argued that cross-functional team participation is predicated on membership in pre-existing function subgroups which are more importance for self-definition than the cross-functional team or the organisation. The cited evidence suggests success or failure of a cross-functional team is influenced by the quality of intergroup relationships within the cross-functional team.

Three strategies derived from SIT/SCT principles are commonly advocated as effective means of improving inter-group contact: ‘decategorisation’, recategorisation’, and ‘multiple identification’ (Hewstone et al, 2002). The researcher will argue multiple identification offers the most benefits to a cross-functional team. An identity management strategy intended for use in cross-functional teams will be suggested. The identity management strategy is intended to allow participants to consider a cross-functional team as a locum of multiple identification. The identity management strategy will include three safeguards intended to increase effectiveness of multiple identity: establishing pre-contact acceptance of the cross-functional team as a social identity, drawing attention to the social complexity within the team, and creating the experience of an intergroup competition on behalf of the cross-functional team.

SIT/SCT and inter-group conflict reduction

The contact hypothesis

Initial evidence that SIT/SCT has the potential to offer a step forward compared to alternate theories comes from a comparison with the contact hypothesis. The contact hypothesis provides a valid standard of comparison to SIT/SCT derived relationship

improvement strategies for two reasons. Firstly, the contact hypothesis is widely researched and applied (Pettigrew, 1998). Secondly the contact hypothesis was an important point of genesis for research into developing models of intergroup conflict reduction. Subsequent models were developed in response to problems research had identified with the contact hypothesis (Gaertner et al, 1996).

The contact hypothesis, in the most fundamental form, assumes people are antagonistic towards what they don't understand. To reduce antagonism people need to become aware of interpersonal similarities and make the unfamiliar more common place (Brewer & Gaertner, 2001; Hewstone, 1996). Those guided by the contact hypothesis attempt to establish as much interpersonal liking and friendship between as many individuals as possible as quickly as possible (Pettigrew, 1998; Hewstone, 1996). Problems have been identified with the contact hypothesis (Brewer, 1996; Pettigrew, 1998).

One problem is that contact relies on the presence of specific features within the contact setting (social and institutional support, acquaintance potential, equal status and cooperative interaction) if inter-group relations are to improve (Allport, 1954, cited in Brewer & Gaertner, 2001). A complex array of 'extra conditions' deemed necessary for optimal contact has since been specified (Pettigrew, 1998). Allport, (1954/1979, cited in Hewstone & Brown, 1986) devised a taxonomy listing six factors that contribute to the tone of the contact (such as status differences) under which were another 28 separate sub-factors proposed to improve contact. Research continues to identify additional features that must be present if contact is to improve intergroup relationships (Pettigrew, 1998). The inherent problem with this expanding list of qualifying conditions is that very few social situations possess all the specific 'necessary' features, particularly when there is a history of conflict or very real differences in values and ideology in which case contact can reconfirm the basis for intolerance and antagonism (Brown et al, 1999; Brewer, 2001; Hewstone, 1996; Brewer &

Gaertner, 2001; Gaertner et al, 1999*b*). Pettigrew (1998) suggested that the key to capitalising on inter-group contact was to differentiate the most important mediators of the success or failure of contact from those that merely aid the conflict reduction process. A recent meta-analysis revealed that contact structured to include the four basic 'essential' features of optimal conflict originally specified was associated with improved intergroup relationships (Pettigrew & Tropp, 2006). This suggests Pettigrew (1998) was correct in asserting that researchers confuse 'essential' with 'facilitating' conditions of contact. Pettigrew and Tropp (2006) also found that contact managed to include the four essential conditions of optimal contact were related to greater improvement in intergroup interactions than contact without these four conditions. However, it was also reported that the positive influence of contact on prejudice differed depending on the context surrounding the contact (largest effect in experimental research and recreational settings) and the specific type of group being studied. Furthermore, contact without the essential conditions for optimal contact could also be associated with prejudice reduction (Pettigrew & Tropp, 2006), suggesting that the conditions of optimal contact specified by Allport (cited in Pettigrew, 1998) are only potential facilitators of prejudice reduction in certain circumstances (Pettigrew & Tropp, 2006). This highlights a second problem with the contact hypothesis.

This second problem is that the contact hypothesis is not concerned with the social psychological processes which underpin overt behavioural changes signifying improved intergroup relations (Pettigrew, 1998). This means it is difficult to specify the underlying process through which change is enacted which in turn makes it more difficult to explain how and why contact can sometimes lead to an increase in conflict, rather than a reduction (Pettigrew, 1998; Brewer, 1996).

Brewer and Gaertner (2001) suggest that SIT/SCT addressed both of the issues referred to above by explaining the contextually specific impact of cognitive and motivational

processes present in intergroup contact situations. Indeed, as early as 1966, Tajfel suggested collaborative intra-group behaviour was based in the trust of similar others to provide accurate information, and acceptance of the evaluations of these similar others as valid. Dissimilarity was proposed to cause dehumanised perception that rationalised inter-group hostility. In other words, if intergroup contact was to lead to improvements in intergroup relations there needs to be a basis for trust that can be provided through provision of social psychological bridge between 'us-them' to an expanded idea of who is 'us' within the context surrounding the contact (Brewer, 2001; Gaertner et al, 1996). Pettigrew and Tropp (2006), although not explicitly suggesting SIT or SCT should be used to inform models of intergroup conflict reduction, did note that the salience of intergroup boundaries (SIT) and the need to reduce anxiety through uncertainty reduction (SCT) were variables that needed to be considered when attempting to employ contact based relationship improvement strategies. The models of intergroup conflict reduction discussed below (de-categorisation, recategorisation, multiple identification) represent different rationales for accounting for the influence of social identity boundary salience and socio-cognitive responses to complex social situations as either potential agonists of conflict, or the source of improved intergroup relationships subsequent to contact (Ellers & Abrams, 2004; Gaertner et al, 1996). The effects of social identification with self-categorisation on intergroup relations can be seen in SIT/SCT research presented below.

Self-categorisation and inter-group conflict.

Egins, Reynolds, and Haslam (2003) suggest problematic relations between work groups originate in the definition of self and other. Definition of self and other is the most basic result of self-categorisation. In SIT/SCT terms cognitive transformation from individual to part of a social group normally precedes social identification (although social identification may also increase perceiver readiness to self-categorise) (McGarty, 1999).

This proposition is intergroup cooperation or conflict will flow from self-categorisation to social identification. Brewer (1999; 2001) suggests that the likelihood of inter-group conflict or cooperation will vary as a function of intergroup trust. Shared social categorisation allows trust to be depersonalised (Brewer, 1999*b*; 2001). The rationale being that shared self-categorisation reduces uncertainty as to the motives of others, thereby lowering the perceived risk of trusting another, and increasing the expectation that the trust will be reciprocated (Kramer, Brewer, & Hanna, 1996; Tanis & Postmes, 2005). A lack of depersonalised intergroup trust creates anxiety when faced with intergroup contact which helps initiate and maintain conflict (Brewer, 2001; Greenland & Brown, 1999).

Trust and social influence within cross-functional teams has been discussed in previous chapters. To avoid repetition social norms will be discussed as an example of how self-categorisation can contribute to inter-group conflict. The use of social norms as a proxy for group derived trust or distrust is predicated in the following two assumptions. First, conformity to group norms signals the group member is genuinely 'of the group' (Marques & Paez, 1994). Second, conformity functions as an overt sign that ingroup defining content is correct and thereby meets needs for intragroup certainty and distinctiveness (Abrams, Marques, Bown, & Henson, 2000). The other side of this coin is that intra-organisational intergroup conflict can be maintained as those outside of the self-categorised boundary are seen as untrustworthy (Kramer et al, 1996). For example, research into the SCT derived relational model of authority has shown employees are more willing to resolve a dispute, even if this means accepting instrumental losses, if they share a dimension of social identity with those resolving the dispute (Tyler et al, 1996). This is dependent on the authority figure acting fairly and respectfully. In other words, being trustworthy. However, when a solution is presented from an outgroup authority figure there is no shared identity derived trust to lend legitimacy to a decision. Instead, cessation of intra-organisational hostility depends on the

material favourability of the prescribed outcomes. In these situations organisational conflict can be prolonged as there is less reason to trust in the benevolence of the authority (Smith et al, 2003).

In SCT terms organisations contain many potential self-categories which differ in their level of abstraction. At the highest, most inclusive level of abstraction is the organisation. However, employees tend to identify more with subgroups than the organisation as a whole (Riketta & van Dick, 2005). The salient level of self-categorisation is an important determinant of 'correct' attitudes or behaviours. Conformity to subgroup norms represents the assimilation of the prototypical sub-group view of reality into the social self-concept (McAuliffe, Jetten, Hornsey, & Hogg, 2003).

Within organisations, sub-group norms are not necessarily uniform or complimentary, despite sharing a common organisational identity (Eggins et al, 2003). Group norms can be rendered more salient at the prospect of inter-functional contact (van Knippenberg, 2000). Furthermore, the process of self-categorising with a subgroup makes them inherently less inclusive than the organisational identity (Haslam, 2001). Specifically, organisational subgroups develop from comparative judgements of similarity or dissimilarity (based in the interaction of accessibility and fit) (McGarty, 1999; Brewer, 2001). These social comparisons are made along dimensions that distinguish between groups at the same level of inclusiveness (Eggins et al, 2003). For example, a department might compare itself with another departmental outgroup but not an entire organisation. This means members of the outgroup department cannot be included within the ingroup department when the subgroup level of identity is most contextually salient.

When incompatible subgroup norms 'collide', as is possible in a cross-functional team (Husted, & Michailova, 2002), lower quality inter-group relationships can be the result (Brewer, 2001; LaBianca et al, 1998). This is an outcome of increased pressure to legitimise

the normative position of the salient in-group (Matheson, Cole, & Majka, 2003).

Legitimising a group norm can manifest in derogation of both outgroup and deviant ingroup members (Marques, Abrams, Paez, & Maritina-Taboada, 1998). Negative evaluation can escalate into ostracism if the deviant strays too far from prototypical standards (Jetten et al, 1996; Abrams et al, 2000). Derogation of an outgroup can escalate from intergroup competition to outright aggression (Brewer, 2001).

Research by Yzerbyt, Dumont, Wigboldus, and Gordjin (2003) illustrates the potential for different levels of categorisation to impact on social behaviour. These researchers found that different levels of self-categorisation could be associated with more or less endorsement of aggression. When the victim of an aggressive act shared membership in a common social category participants endorsed reciprocal aggression to protect the victim. However, when the victim was a member of a different sub-group contained within a larger common category, the endorsement of aggression was lower. Participants with low awareness of a shared social categorisation preferred to distance themselves from, rather than defend, the victim.

It may be sufficient for norms to be incompatible, rather than having two groups with norms conducive to intergroup conflict. For example McAuliffe et al (2003) conducted organisational simulation research resembling a cross-functional team. The sample contained groups with individualistic or collectivist norms. Individualistic groups favoured meeting personal goals and interests through individual effort. Collectivists endorsed meeting the production needs of their department by working together. De Dreu, Weingart, and Kwon (2000) found individualists to be more interested in initiating competition achievement of their own goals than the joint problem solving required by cross-functional teamwork. The intuitive suggestion is collectivists would be an asset in a cross-functional team by not contributing to conflict. However McAuliffe et al (2003) reported each group evaluated the

behaviour of the ingroup as superior. Further, although all participants felt there would be more tolerance of collectivism, it was found each group had lower tolerance for the outgroup norm. For example, collectivist group members reported a low tolerance level for individualistic behaviour (McAuliffe et al, 2003).

Intolerance from collectivists, being true to the normative standards of their in-group may not take the form of active inter-group competition. Externally, the lack of overt disagreement may give the appearance of inter-group peace. However, Tjosvold, Hui, Ding, and Hu, (2003) conducted research in China, conventionally considered a collectivist culture. The researchers found avoidance of conflict was associated with increased levels of covert competitiveness but reduced team effectiveness and intra-team courtesy. Brewer (2001) suggests that avoidance of the out-group fuels distrust and feelings of moral superiority may lie below the calm surface. Jassawalla and Sashittal (1998; 1999) noted distrust of the dominant group and conflict by contact avoidance was also typical of ineffective, non-cooperative cross-functional teams which had the outwards appearance of being collaborative.

The above research suggests even if group norms prohibit the expression of out-group hostility, avoidance of conflict may maintain dysfunctional relationships. Similarly, individualistic groups may initiate conflict as this the ingroup idea of correct behaviour. If this is considered in light of the Labianca et al (1998) observation that negative inter-group contact is accorded more weight than positive it becomes reasonable to suggest self-categorisation processes can contribute to intergroup conflict in cross-functional teams. However, as Brewer (2001) notes, self-categorisation may not be sufficient to motivate negative actions towards an out-group. True to the triarchic view of SIT, awareness of group membership must be accompanied by some affective commitment and meet self-evaluative

needs there will be action on behalf of the group (Ellemers et al, 1999; Dimmock et al, 2005; Mackie, Devos, & Smith, 2000).

Social identification and inter-group conflict.

As noted previously, identification with a social group does not always lead to out-group derogation or conflict as self-enhancement motives are more pervasive (Hodson, Dovidio, & Esses, 2003). In some circumstances there may even be out-group favouritism (Reynolds et al, 2000*b*). Social identification research does support the idea that groups tend to positively differentiate themselves from out-groups. Even out-group favouritism can be motivated by positive distinctiveness needs if the content of a social identity renders out-group favouritism a positively distinguishing feature of the in-group (Brewer, 2001). Yet, despite the prevalence of self-enhancement motive over uninhibited aggression as the drive for differentiation, inter-group conflict is not unusual. The suggestion is there must be a contextual feature that increases the likelihood of conflict (Brewer, 2001; Eggins et al, 2003).

Eggins et al (2003) notes three conditions (related to needs for positive identity) which SIT predicts will precipitate intergroup conflict. The first is when contents of a social identity can intimidate an outgroup (social identification with the Klu Klux Klan may be seen as a threat to Jews, Catholics, and African Americans). The second possible conflict scenario occurs if one social identity is framed within a superordinate identity considered undesirable by another group. For example, there may be two groups of medical practitioners. Although both groups consider provision of health care to be a noble calling, one group believes doctors should go where the need is greatest and work for a charitable organisation amongst starving orphans in Calcutta slums. The other group of doctors may believe they can do the most good where the resources are greatest, thereby successfully treating more people. Finally, conflict can be aroused if outgroup actions make it difficult for the ingroup to establish or maintain positive differentiation. It is this condition which represents the most

direct application of SIT to cross-functional workgroups. For example, if one cross-functional team subgroup is made to look incompetent due to the acts of another subgroup there is likely to be conflict between the subgroups.

Positive distinctiveness and conflict between merger partners.

The author assumes previous chapters have provided an adequate overview of research demonstrating the validity of SIT. In line with this assumption, the role of positive distinctiveness and social identification in promoting inter-group conflict will be limited to an illustrative research based example. The example will serve to illustrate how the need for positive distinctiveness can lead to bias against, resistance to integration with another task group. The research example is based in a merger situation rather than a cross-functional team. Merger based research is generalisable to cross-functional teams as both are situations where separate groups, often representing different skill and knowledge sets are brought together within a superordinate organisational categorisation. It is recognised that mergers differ from cross-functional teams as formation of a cross-functional team does not carry the same likelihood of subgroup destruction as an organisational merger (van Knippenberg, van Knippenberg, Monden, & de Lima, 2002; Jetten, O'Brien, & Trindall, 2002). However, a cross-functional team can represent a context where subgroup identity is temporarily invalidated if it is not acknowledged or if contributions are devalued (Eggins et al, 2002; Jassawalla & Sashittal, 1998).

Research by Haunschild, Moreland and Murrell (1994) illustrates the effect the 'evaluative' aspect of positive distinctiveness may have in a merger situation. In the Haunschild et al (1994) study, problem-solving dyads were merged with other pre-existing dyad to form problem-solving groups. Pre-merger analysis showed initial resistance to merging occurred when one dyad thought it outperformed the merger partner. The researchers found this could be attributed to an expectation that the merged groups'

performance would be lower than the pre-merger dyads due to the relative lack of ability of the merger partner. Post-merger analyses revealed a number of results consistent with problems noted in cross-functional team research that can be attributed to the motivation for positive distinctiveness.

Haunschild et al (1994) found merged dyads performed no better than a control group of merged individuals. This result signifies under-performance on the part of dyads that had previously outperformed the control group. Cohesion within merger groups dropped to that of the control group despite being higher pre-merger. Furthermore, merger partners with higher pre-merger performance than their partners were more negative in their evaluation of the out-group partners both pre and post merger. Ingroup bias was particularly strong where there was a post-merger performance drop. Ingroup bias was reciprocated, indicating that the higher performing groups superior attitude was noticed by the lower performing partner (Haunschild et al, 1994). Ingroup serving attribution on the part of both sub-groups is consistent with the efforts of a group wishing to preserve the positive distinctiveness of a social identity perceived to be under threat (Dietz-Uhler & Murrell, 1998). The social identification aspect is further emphasised by the reported impact of social identity salience on post-merger intragroup relationships.

Identity salience was higher in merged than control groups (Haunschild et al, 1994), suggesting intergroup contact increased awareness of a pre-existing identity with the pre-merger dyad (van Knippenberg, 2000). Subgroup identity salience contributed to the exchange of information as participants spent more time talking to their pre-merger partner than the out-group component of the group. Further, Haunschild et al (1994) noted conversation in merged groups was concerned with arguing for the superiority of the pre-merger dyads solution. Control groups were more open to group member input.

In other words, Haunschild et al (1994) demonstrates that social identification with a pre-existing sub-group can lower the quality of the inter-group contact within a superordinate group. Rather than being open to mutual influence, participants were more concerned with presenting the subgroup position. Although this behaviour may meet positive distinctiveness needs of intra-group sub-groups, performance of the composite group to decreased. Unidirectional social influence (imposing ingroup preference on the outgroup) accompanying reduced levels of performance is consistent with past cross-functional team research (Hitt et al, 1993; Huang & Newell, 2003).

In addition, post-merger group members liking of each other (with the pre-merger outgroup liked less than the pre-merger ingroup) was linked to the salience of the pre-merger social identity (Haunschild et al, 1994). This is consistent a multi-dimensional interpretation of SIT as antagonism between salient sub-groups has been found to have some basis in emotional attachment to a group (Yzerbert et al, 2003; Mackie et al, 2000). Brewer (2001) suggests it is the emotional attachment aspect of social identification that promotes inter-group aggression from normal social comparison. There is some research supporting this contention. For example, Mackie et al (2000) reported that levels of social identification corresponded with specific emotional and intentional responses towards an outgroup. A specific example comes from Study Three of Mackie et al (2000). Those who identified strongly with a dominant in-group, such as the higher performing dyad in the Haunschild et al (1994) study, expressed anger and contempt (which were statistically indistinguishable) towards the out-group, and were more likely to endorse aggression.

Fiske, Cuddy, Glick, and Xu (2002) have found low warmth in conjunction with perceived competitiveness between groups can create jealousy and resentment on the part of the low status group. In the context of Haunschild et al (1994), the reciprocal antagonism from the lower performing merger partner would be consistent with acts of a group feeling

resentment at the higher performance of the merger partner (Fiske et al, 2002). According to Fiske et al (2002), resistance to the merger on the part of those with higher pre-merger performance would be based in resentment of carrying lower performing 'free loaders' accompanied by feelings of moral superiority. Brewer (2001) suggests feelings of moral superiority meet positive distinctiveness needs while justifying negative emotional reactions such as contempt of the out-group. Further, Fiske et al (2002) noted that the perceived level of competence and warmth between groups contributed to the content of an outgroup stereotype. If this is considered together with the Haunschild et al (1994) observation that subgroups enter the merger with a negative out-group evaluation it is feasible to suggest emotional aspects of social identification can pre-dispose a cross-functional team to be susceptible to internal strife (Brewer, 1996b).

The argument for this is that 'content' of a group stereotype is central to the social comparison that informs the cognitive component social identity (Ellemers, Spears, & Doosje, 2000). In turn, this contributes to the evaluation of the outgroup in a manner that best maintains a positive evaluation of the ingroup, which determines the tone of the inter-group relationship (Eggins et al, 2003). For example, in Haunschild et al (1994) negative evaluation of the out-group (less intelligent, less hardworking, less cooperative) was noticed and reciprocated *before* the groups actually worked together. This result is similar to Cunningham and Chelladurai (2004) where difference in perceived performance levels increased resistance to cross-functional teamwork on the part of higher performing subgroups.

Jehn and Mannix (2001) provide evidence suggesting the tone of initial inter-group evaluations is important for managing a cross-functional team. More specifically, higher initial levels of intra-group competitiveness predicted increasing levels of intra-group conflict over time. Where intra-group competitiveness was maintained there was a decrease in trust,

low intra-group respect and the lowest level of performance at the end of the research. These results would support the idea that the positivity or negativity of initial contact is important for the later proliferation of intra-group conflict. Zolin et al (2001) reported initial levels of cross-functional trust determined the positive or negative evaluation of outgroup functions behaviour trustworthiness and commitment over time. Similarly, Jetten et al (2002), conducting research with cross-functional teams in the Australian Government, found that higher pre-restructure sub-group identification was associated with a more negative pre-structure appraisal of the change, lower post-restructure organisational identification and lower ratings of performance.

Synthesis of the research suggests inter-functional conflict can be attributed to threats to the distinctiveness of their social identity (van Leeuwen & van Knippenberg, 2003). Threats to the positive self-evaluation of the sub-group can give rise to negative inter-group affect, which can serve to justify intergroup aggression. If initial contact is marred by intergroup conflict then it is likely to be perpetuated. Maintenance of low levels of post-merger social identification is potentially damaging to the superordinate organisation. For example, those who maintain low levels of social identification are less likely to exert effort on behalf of the organisation (Tyler & Blader, 2001). The suggestion is that issues of sub-group identity distinctiveness are worthy of attention if the goal is to have a successful cross-functional team.

It should be noted that the author is not advocating the elimination of all conflict within a cross-functional team, or indeed organisations or society at large. The author's position is some conflict is necessary for the generation of innovative thought and action (Dooley & Fryxell, 1999). Without inter-functional disagreement a cross-functional team may be peaceful, but it will also be cognitively and behaviourally stagnant (Turner & Pratkanis, 2000). While the author's position is that not all conflict is negative, there is

however a qualitative difference between conflict which is harmful and conflict which with proper management can become an asset.

Managing conflict for organisational benefit.

Amason & Schweiger (2000) suggests conflict can be cognitive or affective.

Cognitive conflict is task centred and conventionally considered to improve the effectiveness of a team. Affective conflict is centred in personal relationships and value differences. The socially destructive influence of affective conflict is stronger than the constructive power of task related conflict (Amason & Schweiger, 2000; Jehn, 1995). Unfortunately, conflict based in social psychological differences, for example, difference in social norms, are likely to take the form of a difference between in-group values (Jetten, Branscombe, Schmitt, & Spears, 2001) which are more likely to be emotion and relationship based than cognitive or task based (Jehn, 2000).

The negative impact of value based conflict is indicated by Jehn et al (1999) who found values based conflict decreased task performance, decreased intent to remain in the group and lowered group commitment. Value based conflict did, however, increase relationship based conflict (Jehn et al, 1999). Relationship conflict triggers an emotional response in the form of counter-attack that moves conflict away from the cognitive to the affective level (Amason & Schweiger, 2000). An undesirable consequence of increasing affective intragroup distance is lower task performance and trust (Jehn, 2000) while serving to maintain and justify an upwards spiral of inter-group aggression (Amason & Schwieger, 2000; Brewer et al, 2001).

In contrast, Pelled et al (1999) reported conflict based in functional diversity was positively associated with task based conflict, which, in turn, increased group performance on a cognitive task. Similarly, Jehn and Manix (2001) found groups with the highest performance at the end of a longitudinal study were not conflict free. Instead, there was a

larger proportion of task based conflict rather than the relationship based conflict that characterised the lower performing groups. The suggestion is that different types of conflict exist and have differential effects on performance.

A logical interpretation of the cited research is that conflict needs to be managed so that the value of task conflict can be capitalised on while minimising the negative impact of affective conflict (Amason & Schweiger, 2000). It could be argued that emotional conflict, even if it does not increase performance, does not always detract from performance (Pelled et al, 1999; Jehn, 1995). Therefore employees could be left to manage for themselves.

However, Jehn (1995) noted that the preferred strategy for individuals wishing to lessen emotional conflict was avoidance of contact. Even though this will remove outward signs of conflict, negativity will fester unattended, eventually finding expression when a 'legitimate' reason for antagonism presents itself (Donnellon & Kolb, 2000). In addition, avoidance of contact may not be a pragmatic option for members of a cross-functional team as intragroup interaction is inevitable. Further, conflict avoidance, in the form of withholding dissenting voices is one of the signatures of a sub-optimal cross-functional team (Jassawalla & Sashittal, 1998; 1999).

Two suggestions can be made from the cited research. Firstly, relational conflict should be avoided. Secondly, task centred conflict should be encouraged. However, meta-analysis by De Dreu and Weingart (2003) indicates task conflict is also consistently associated with lower team performance and team member satisfaction in the type of complex tasks where informational diversity is most likely to be needed. This negative relationship was lessened when there was a weak association between relationship and task conflict. Research consistent with this idea has found higher levels of trust are necessary if the benefits of task conflict will be realised rather than the detrimental effects of relationship conflict (Porter & Lilly, 1996; Edmondson, 1999; Simons & Peterson, 2000; De Dreu &

Weingart, 2003). In an example specific to cross-functional teams Lovelace et al (2001) found it was whether people were free to express doubts, and whether task related disagreement was perceived to be contention or collaboration that led to a positive or negative outcome. Hansen et al (2005) found sharing across subgroup boundaries was unlikely if subgroups were in a competitive relationship. The implication is task conflict may be of benefit if the climate is sufficiently safe for conflict to be interpreted as a collaborative, rather than a competitive act.

The author suggests one means of increasing trust and safety, thereby maximising the likelihood task related conflict will be seen as a collaborative act, is to work with the social psychological processes that govern the tension between social inclusion and social exclusion (van Knippenberg et al, 2004; Turner & Horvitz, 2001). For example, Eggins, Haslam, and Reynolds (2002) found one way to avoid to conflict was to allow subgroup representation while simultaneously emphasising the shared loci of identification between subgroups. Acceptance of a shared superordinate identity can increase openness to knowledge from other subgroups (Kane et al, 2005; van Der Vegt & Bunderson, 2005). The suggestion is that subgroup representation detracts from any threat to sub-group distinctiveness. Retention of positive distinctiveness detracts from the motivation to initiate negative out-group evaluation or in-group enhancing biases. The extension of social psychological inclusion, in the form of a shared social identity, facilitates the development of depersonalised trust. Mutual intragroup trust allows the expression of task focused disagreement to be interpreted not emotionally, as a threat, but as a valid contribution (Simons & Peterson, 2000) motivated by a common affective commitment to a shared social identity (Brewer, 2001).

There are three methods of conflict reduction that have been developed in cognisance of SIT/SCT (decategorisation, recategorisation, multiple identification). Each strategy prescribes a different manner of accounting for the psychological impact of inter-group

boundaries when attempting to promote profitable interactions. Decategorisation, will be examined below.

Methods of conflict reduction

Decategorisation.

The decategorisation approach to inter-group conflict (see Figure 10) predicts that inter-group relations will improve if contact can be established at an interpersonal level rather than at an inter-group level (Brewer & Miller, 1996). In essence, this is very similar to the original contact hypothesis in that the goal is to build friendly interpersonal relationships (Brewer & Gaertner, 2001). The thinking behind the decategorisation approach is that salience of a social identity creates conditions which allow for the depersonalised perception of self and others. Depersonalised perception has two effects that contribute to inter-group conflict. Firstly, in accordance with the accentuation principle, similarity within and differences between groups is exaggerated, consequently encouraging differentiation. Secondly, the actors will treat each other as de-individuated exemplars of a social category (Hewstone et al, 2002). Subsequent interaction between ingroup and outgroup members is likely to be determined by the elements judged to fit the typical ingroup or outgroup member. When this is combined with the need for positive distinctiveness, intergroup conflict is a possible outcome (van Leeuwen & van Knippenberg, 2003). Whether conflict takes the form of overt violence or competition in some other form will depend on the contextual features (Brewer & Gaertner, 2001).

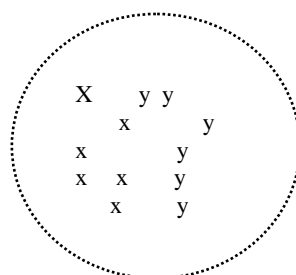


Figure 10. Decategorisation approach to intergroup conflict reduction (adapted from Brewer & Miller, 1996)

In light of the contribution of the cognitive and motivational processes outlined above, the decategorisation model predicts de-emphasising the salience of social identity in favour of personal identity will reduce inter-group conflict. This will be due to attenuation of the effects of depersonalisation allowing personalised contact (Brewer & Miller, 1996). The logic is that contact at an interpersonal level will simultaneously move the ingroup member away from the ingroup prototype (therefore closer to the out-group) while breaking down the perception that all outgroup members are interchangeable (Hewstone et al, 2002). For example, instead of interacting as a member of department 'A' and department 'B' interaction would be between person 'A' and person 'B'.

Interaction with the explicitly 'personalised' individual, by virtue of possessing individual characteristics non-stereotypical for the out-group constitutes out-group stereotype dis-confirming information. Due to the role of stereotypes in imparting meaning, exposure to dis-confirming information allows for the modification of negative out-group stereotypes (Moreno & Bodenhausen, 1999). Ryan, Bogart and Vender (2000) suggest there is some merit to this idea when reporting that uncertainty, based in greater intra-category variability, led to a lower perceived level of aggressive intent attributed to an outgroup. Further, participants who perceived greater out-group heterogeneity were more open to information that dis-confirmed prejudicial outgroup stereotypes compared to those who were more certain.

Increased perceptions of interpersonal similarity are held to result in increased interpersonal attraction towards the out-group representative with a resulting decrease in inter-group conflict (Moreno & Bodenhausen, 1999). Evidence supporting the logic of decategorisation is found in studies where out-group friendships have been associated with lower bias towards out-groups. For example, Pettigrew (1997) found outgroup friendships lowered affective prejudice towards the outgroup. Similarly, Wright, Aron, McLaughlin-

Volpe, and Ropp (1997) (Study 1 and Study 2) found knowledge of, number of, and the interpersonal closeness of intergroup friendships, reduced negative affectivity towards the outgroup. Personalised contact in cross-group friendships reducing affective bias is consistent with predictions derived from the decategorisation approach (Hewstone et al, 2002). Further, in both of these studies it was negative affectivity that was reduced. Brewer (2001) argues that negative affectivity plays a significant role in perpetuating inter-group aggression, suggesting that decategorisation could play a role in de-escalating potentially hostile situations. Bettencourt, Brewer, Croak, and Miller (1992) conducted research specifically aimed at testing the decategorisation model.

Bettencourt et al (1992) compared groups instructed to concentrate on completing a task (high social identity salience condition) or focusing on interpersonal matters. In cooperative tasks, Bettencourt et al (1992) found that those with a task focus displayed a significantly higher ingroup bias in reward allocation than those with an interpersonal focus. In terms of friendliness, task focus teams displayed more in-group bias than did interpersonal focused groups. Further, those in 'interpersonal focus' groups perceived out-group team members as less similar to each other compared to participants in 'high social identity salience' groups. More recent work by Mullin and Hogg (1998) found a significant main effect for categorisation on ingroup bias. Participants in a condition of high category salience displayed greater discrimination and ingroup bias than those in a condition of high personal identity salience. This suggests decreased salience of social identities in intergroup contact situations may improve intergroup relations, supporting a basic premise of the decategorisation model.

Bettencourt et al (1999) investigated this question in a series of studies using both experimental and natural categories. They consistently found minority groups perceived higher group salience than majority groups. Minority groups reported the highest category

salience, intra-group cohesion and inter-group anxiety when compared to either majority or equal status groups. In Study Three category salience mediated in-group positivity. In all three studies the higher category salience of minority group was accompanied by the most negative outgroup evaluations when compared to either equal status or majority groups. Consistent with proponents of decategorisation, this research suggests that promotion of social category salience will increase conflict.

Ensari and Miller (2001) examined whether decategorisation would be effective in reducing bias within a crossed categorisation context. Crossed categorisation exists when there are multiple dimensions available for use in the categorisation of self and others (Crisp, Hewstone, Richards & Paolini, 2003). For example, a person can be simultaneously categorised in terms of religion and gender (Crisp, Hewstone, & Cairns, 2001). Interactions involve several potential profiles- two people may be dissimilar on all available categorisations, similar on one dimension but dissimilar on another, or similar on all dimensions. Research within this paradigm has often been consistent with a basic SIT derived expectation of additivity. Additivity means the more areas of dissimilarity there are, the more negative will be the evaluation between groups (Crisp & Hewstone, 1999). For example, groups that differ on race *and* gender are more negative towards each other than groups that differ on race *or* gender. Ensari and Miller (2001) found when team assignment stressed the uniqueness of individuals (personalisation) instead of their group affiliation the usual additive pattern disappeared. Instead of greater ingroup bias against those who were double outgroup members, double outgroup members were evaluated the same as either double ingroup or partial ingroup members. Where participant category membership formed the basis of group assignment the additive pattern was found (Ensari & Miller, 2001).

Based on the cited research it is possible to suggest decategorisation is a useful strategy for the reduction of intergroup conflict. Further, there is some similarity between the

cited research and cross-functional team contexts. For example, Ensari and Miller (2001) manipulated the salience of group membership by telling participants each subgroup dimension lent equally important task relevant skills that would aid in task completion. Furthermore, Bettencourt et al (1999) can be applied to cross-functional teams as often politically dominant majority and minority groups exert influence within these teams (Jassawalla & Sashittal, 1998).

Application of decategorisation research to a cross-functional team would suggest it is worthwhile building friendly interpersonal relationships, not just interacting as demanded by the task, is a worthwhile investment. This suggestion is supported by Huang and Newell (2003) who found that cross-functional teams characterised by emotional attachment between team members were more willing to be open to out-group member information. Similarly, Jassawalla and Sashittal (1999) found teams where there was a lack of mutual warmth were unwilling to cooperate within the cross-functional team unless 'forced' by management. Further corroboration is provided by Gaertner et al (1999b) who found self-disclosure increased and in-group bias decreased the more participants perceived the context to be interpersonal. Self-disclosure implies trust in the other person (Jeffries & Reed, 2000) and trust is crucial for obtaining the best results from a cross-functional team (Maltz & Kohli, 1996; Zolin et al, 2001). However, the decategorisation approach has also been criticised. The criticisms of this strategy will be the subject of the next section.

Criticism of decategorisation.

A basic criticism of decategorisation involves the veracity of the assumption that positive interpersonal contact with individuals group members will generalise to the out-group as a whole (Mullin & Hogg, 1998). Bettencourt and Hume (1999) reported personal and social identities differ markedly in cognitive content. In addition to finding more affective and value laden phraseology expressed by participants when in social rather than

personal identity conditions, there were more references to interpersonal associations when social identity (as opposed to personal identity) was salient. This would seem to indicate promoting interpersonal interaction lessens the socio-cognitive affiliation between self and others. Removing the social connection between the immediate out-group member and other out-group members actively breaks the cognitive bridge between the 'personalised' out-group member and the other depersonalised out-group members (Hewstone et al, 2002).

Bettencourt et al (1992) argued that they *did* find evidence of generalisation to those not present in their actual contact. The basis of their claim was the degree of perceived similarity between intra-team outgroup members and outgroup members observed on a video presentation. However, in both Bettencourt et al (1992) and Ensari and Miller (2001) participants wore labels or badges naming the participants in-group. Under these conditions it is reasonable to question whether interaction was genuinely decategorised (Hewstone et al, 2002; Gonzalez & Brown, 2003).

There is additional evidence decategorisation decreases the likelihood of generalisation of positive post-contact evaluations of an individual to an entire out-group. Brown, Vivian and Hewstone (1999) manipulated the perceived prototypicality of out-group members. In a laboratory study contact with an out-group member (who in SCT terms, fit the out-group prototype better) was most likely to increase the positivity of out-group members as a whole. Contact with an atypical member (analogous to a personalised contact situation) was not as effective at improving evaluations of the out-group. Nor did improved evaluation generalise as well as contact with a prototypical out-group member. These outcomes were replicated in a subsequent field study.

In a similar vein, Gonzalez and Brown (2003) examined the efficacy of decategorisation within a context of cooperative interaction with reward interdependence. Participants in a decategorised context were found to be as positive towards outgroup

members as they were towards ingroup members. However, experimental conditions where categorised contact was promoted were at least as effective at promoting intragroup harmony. Further, the intragroup benefits of decategorised contact did not extend to out-group members outside the decategorised contact setting.

Considered together, Gonzalez and Brown (2003) and Brown et al (1999) suggest decategorisation is of limited use in effecting wide-spread improvements in inter-group relations. Contact between intergroup exemplars that have a high degree of 'fit' to a prototypical social category standard is more likely to generate a generalised improvement in out-group evaluations than decategorisation which effectively neuters the facilitative effect of prototypicality. Beyond questionable generalisation, there is also evidence that comparative context may limit the affects of individuated perception over depersonalised perception.

Greenland and Brown (1999) found that while benevolent personalised contact can lead to high quality interpersonal relations, the existence of intergroup anxiety prior to contact increased the salience of social categories. Just as attempts to eliminate stereotypical thoughts about a social category can increase the accessibility of the out-group stereotype (Macrae & Bodenhausen, 2000), increased ingroup salience decreases the likelihood people will be willing or able to take advantage of decategorised intergroup contact. Bettencourt et al's (1999) findings corroborates this view, as it was minority groups who were most anxious, had higher category salience and were the most negative towards outgroups.

These results suggest pre-existing positive intergroup contact is a necessary condition for the application of decategorisation as a method for improving intergroup contact. This raises two questions. Firstly, given factors such as the existence of intra-organisational numerical minority groups, intra-organisational status differences and the deleterious impact of common-place organisational politics (Valle & Perrewe, 2000), is it realistic to assume a cross-functional team will be sufficiently benevolent for decategorisation to have the desired

effect? For example, Hansen et al (2005) found it is not an individual's predisposition to withhold knowledge but the perception that there inter-functional competition underlying the withholding of expertise. Secondly, even if cross-functional team is relatively benevolent, what is the practical advantage to be gained from reducing awareness of intergroup categorisation in favour of seeing the uniqueness of individual cross-functional team members?

Evidence that there is little advantage to be gained through promoting personalised contact is provided by Gaertner et al (1996). The researchers reported a positive association between perceiving outgroup students as individuals and biased attitude. This result questions the emphasis placed in decategorisation models on individuated perception as a means of improving intergroup relations. Even if it is accepted that individuation does improve interpersonal attraction, there is little evidence to suggest interpersonal attraction will be a dominant factor in improving intergroup relations. For example, Hogg et al (1995) found interpersonally attractive people were evaluated more negatively than socially attractive prototypical in-group members. Similarly, Verkuyten and Hagoendoorn (1998) found eliciting an individual identity did not result in lower prejudice towards an ethnic outgroup compared to a social identity condition. Research shows groups are more interested in ingroup enhancement than outgroup derogation (Hodson et al, 2003). Groups with norms of 'fairness' can be less biased towards the outgroup than the ingroup (Jetten et al, 1997). As the process of self-categorisation appears more important than individual traits in displays of prejudice (Verkuyten & Hagoendoorn, 1998) it can be suggested retention of a social identity with fairness norms (Jetten et al, 1997) is more likely to improve intergroup relations than decategorisation. Consistent with this suggestion, Hogg and Hains (1996) found shared social identification and prototypical similarity had a stronger influence on attraction than interpersonal liking. The cited research suggests that in certain inter-group situations it is

possible for interpersonal contact to perpetuate rather than lessen inter-group conflict (Brewer & Gaertner, 2001). In contrast, retention of social identity may aid in reducing conflict.

A number of studies have revealed a more important fundamental problem inherent in the decategorisation approach. The observation that decategorisation works by decreasing attractiveness of ingroup members, not increasing the attractiveness of out-group members was first made by Gaertner, Mann, Murrell and Dovidio (1989). These researchers reported personalised contact was related to decreased ingroup bias. However, those who were formerly ingroup members were seen as less honest, less valuable and less cooperative in the personalised condition compared to a shared identity condition. This finding has been consistently replicated (Gaertner, Mann, Dovidio, Murrell, & Pomare, 1990; Gaertner et al, 1999b; Dovidio, Gaertner, Isen, & Lowrance, 1995). For example, Dovidio et al (1995) found former in-group members were perceived to be less likeable, less friendly and less honest than the personalised out-group members. In other words, decategorisation does not allow for social categorisations to become more inclusive, but actually increases the psychological distance between an individual and other ingroup members.

The suggestion is encouraging depersonalised contact within a cross-functional team would be likely to decrease the connection between a member and the originating organisational function. However, this is unlikely to be seen as a positive outcome by either the organisational sub-group or the superordinate organisation. For example, people with higher shared social identification tend to be more willing to exert effort on behalf of the group (van Knippenberg, 2000; Wegge & Haslam, 2003) than those committed more to their individualised goals (Charbonnier et al, 1998). If an aspect of identity is disrespected (as is implied if the choice to conform more to the personalised self than the in-group self meets disapproval) then the deviant is likely to feel less loyalty, and be less willing to cooperate with the group (Barreto & Ellemers, 2002). By distancing themselves from an ingroup, the

deviant is likely to be allowed less influence than more prototypical functional in-group members (Platow et al, 2000). This can reduce the informational diversity the available to the ingroup with consequent decreases in group performance (van Knippenberg & Haslam, 2003). Similarly, those seen to deviate from the group are less likely to receive assistance when required (Yzerbert et al, 2003) and could be subject to intragroup disapproval (Castano et al, 2002; Coull et al, 2001; Hogg et al, 1995). Such a hostile climate is likely to detract from both task performance and team commitment (Parker et al, 2003). Further, levels of intra-group trust are likely to be lowered which may increase, rather than reduce relational conflict (Simons & Peterson, 2000; Costa et al, 2001).

The potential negative consequences of personalisation for intra-group functioning reviewed above should be further considered in light of Labianca et al (1998). These researchers found existence of cross group friendships did not significantly reduce the perception that relations between organisational subgroups were poor. However, negative contact was comparatively powerful in determining inter-group relations. Furthermore no statistically significant relationship was found between the frequency of inter-group contact and lessening of inter-group conflict. In a review and summary of SIT/SCT and interpersonal similarity-attraction research, Mannix and Neale (2005) conclude that the inherently intergroup nature of diversity in an organisational context make reliance on interpersonal similarity and attraction be less effective (for helping an organisation manage and access to the potential boon inherent in intra-organisational diversity) than building allegiance to the organisation as a shared higher order locum of self-categorisation and social identity. For example, Mannix & Neale (2005) suggest information processing within functionally diverse teams will be more integrative when a superordinate identity structure takes precedence over interpersonal similarity or liking. This assumption underpins the 'Common ingroup identity model' (Gaertner et al, 1996), as will be discussed in the next section. The negligible impact

of positive interpersonal relationships on intergroup conflict, considered together with the number of unintended negative consequences that can occur from decreasing the social connection within the functional in-group questions the pragmatic value of pursuing a decategorisation strategy within a cross-functional team.

Decategorisation summary.

In summary, decategorisation predicts inter-group relations will improve if interpersonal individuated contact can be encouraged. Although there is some support for this position, empirical evidence suggests significant limitations. Firstly, positive interpersonal contact may not generalise beyond the individuals involved in the contact. Secondly, depersonalisation may only be effective if the social context is already benign, a situation which cannot be guaranteed within an organisational context. Thirdly, decategorisation does not increase attraction of the outgroup, but decreases the social psychological connection to other ingroup members. In so doing decategorisation may decrease functioning of the original organisational sub-group through removing the facilitative influence of shared social identification and self-categorisation. Finally, interpersonal contact is less influential than negative interpersonal contact in determining inter-group relations. It is logical to conclude there may be more to gain from working with, as opposed to eradicating, the psychological processes underpinning SIT and SCT. The next section will be concerned with strategy that embodies just such an approach, the recategorisation model.

Recategorisation.

The recategorisation approach grew out of a need to understand why cooperative interpersonal contact or shared intergroup goals could lead to either worsening or improvement in intergroup relations when the contact hypothesis would suggest only an improvement would result (Gaertner et al, 1996; Brewer, 1996b, 1999a). The

recategorisation approach (see Figure 11) encapsulated in the ‘Common in-group identity model’ (Brewer & Miller, 1996) is similar to decategorisation in that dissolution of inter-group boundaries is expected to improve inter-group relations (Brewer & Gaertner, 2001). However, with recategorisation self-categorisation processes are actively harnessed, as opposed to deactivated, to improve inter-group relations (Brewer & Miller, 1996). A recategorisation theorist would suggest that inter-group contexts should be designed to encourage a salient social identity that encompasses both former in-group and out-group members (Brewer & Miller, 1996). This is predicted to improve inter-group relations through a redirection of the motivational and cognitive biases proposed by SIT and SCT (Dovidio, Validzic, & Gaertner, 1998).

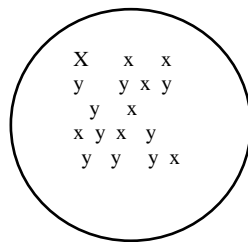


Figure 11. Recategorisation approach to intergroup conflict reduction (adapted from Brewer & Miller, 1996)

More specifically (consistent with processes and outcomes predicted by SCT), positive evaluation of former outgroup members (now ingroup members) will follow as a result of the depersonalised perception of the now ingroup members (Dovidio et al, 1998). For example, representatives of function ‘A’ will be perceived favourably by representatives of function ‘B’ (and vice-versa) when a common identity as staff members of a higher order identity such as ‘cross-functional team’ or organisation ‘A-B’ is made salient. In other words, the intent behind making a common social identity contextually meaningful is to broaden inclusiveness. That it is realistically possible to manipulate the social psychological inclusiveness is indicated by Crisp and Hewstone (1997; cited Crisp & Hewstone, 1999). These researchers found the social inclusiveness of participants in a crossed-categorisation

experiment changed with the inclusiveness (we = inclusive, xxxx= neutral, they= exclusive) of descriptive pronouns as long as there was at least one social identity in common.

Similarly, Crisp et al (2003) reported that manipulating inclusiveness moderates intergroup relations by allowing partial recategorisation of the out-group. There is also more direct evidence to support the recategorisation position.

Early laboratory research that examined the relative efficacy of recategorisation compared to decategorisation was conducted by Gaertner et al (1989). In this study transforming the cognitive representation to become more psychologically inclusive reduced in-group bias, and improved outgroup evaluation, to a greater extent than was achieved via a decategorisation strategy. This created a context perceived to be more trusting, cooperative and friendly than was present in either a purely intergroup or depersonalised setting. Importantly, improvement in intergroup relations was achieved not by decreasing the attractiveness of the ingroup, but by encouraging a positive evaluation of the outgroup. The implication is creating a shared locus of social categorisation avoids the decrease in the positivity of ingroup members (which has been associated with decategorisation) while being superior in terms of improving intergroup relations. However, Gaertner et al (1989) did not provide conclusive evidence that improvement in intergroup relations was not due to the cooperative nature of the interaction. This leaves open the possibility that cooperative contact, rather than recategorisation, was responsible for any improvement.

The relative importance of cooperative contact compared to recategorisation was addressed by Gaertner et al (1990). The effect of cooperation was insufficient of itself to improve intergroup relations. Cooperative contact was associated with less ingroup bias and a more positive out-group evaluation. However, this effect was mediated by the perception a superordinate identity encompassed both groups. Further, it was noted that cooperation has the potential to reduce the quality of existing intergroup relations. Research suggests an

explanation. Intergroup cooperation may emphasise existing social identities with a consequent increasing willingness to engage in intergroup competition (Deschamps & Brown, 1983; Haunschild et al, 1994; Gaertner et al, 2000). Recent research (Hansen et al, 2005; van Der Vegt & Bunderson, 2005) has found inter-functional cooperation is insufficient to improve relations within cross-functional teams unless the team is accepted as a shared social identity. Therefore, in line with SIT, it is reasonable to suggest enforced cooperation (in the absence of a uniting common identity) increases social competition based in mutual distrust rather than to improve social relations (Brewer, 1999a).

The importance of social categorisation as an adjunct to other potential contributors to the quality of inter-group contact is emphasised in research validating the 'Common Ingroup Identity Model' (CIIM) of Gaertner, Dovidio, Anastasio, Bachman and Rust (1993). According to the CIIM (see Figure 12) a number of contextual features contribute to the form of social categorisation experienced by those in contact. With a conceptual basis in both SIT and SCT, the CIIM predicts that the inclusivity of the social categorisation will have consequences for the cognitive, affective and behavioural aspects of inter-group contact (Gaertner et al, 1999c). The fundamental assumption is that increasing the salience of a superordinate social category will create a context whereby factors proposed by the 'contact hypothesis' will *consistently* improve intergroup relations. Relations are proposed to improve through a process of redirecting normal cognitive and motivational aspects of social identification and self-categorisation away from intergroup competition to intergroup assimilation (Dovidio et al, 1995; Hornsey & Hogg, 2000b). Over time, the now favourable depersonalised perception of former outgroup members is expected to give way to more individualised, but still positive impressions (Gaertner et al. 1999c).

Research by Gaertner et al (1993) was supportive of the (CIIM). The independent variables 'perceptual differentiation' and 'mood' (the 'affective priming' aspect of the model)

were found to predict the dependent variable ‘group representation’ in the manner specified by the researchers. Specifically, path analysis revealed pre-existing positive mood increased the willingness of participants to see the group as one group.

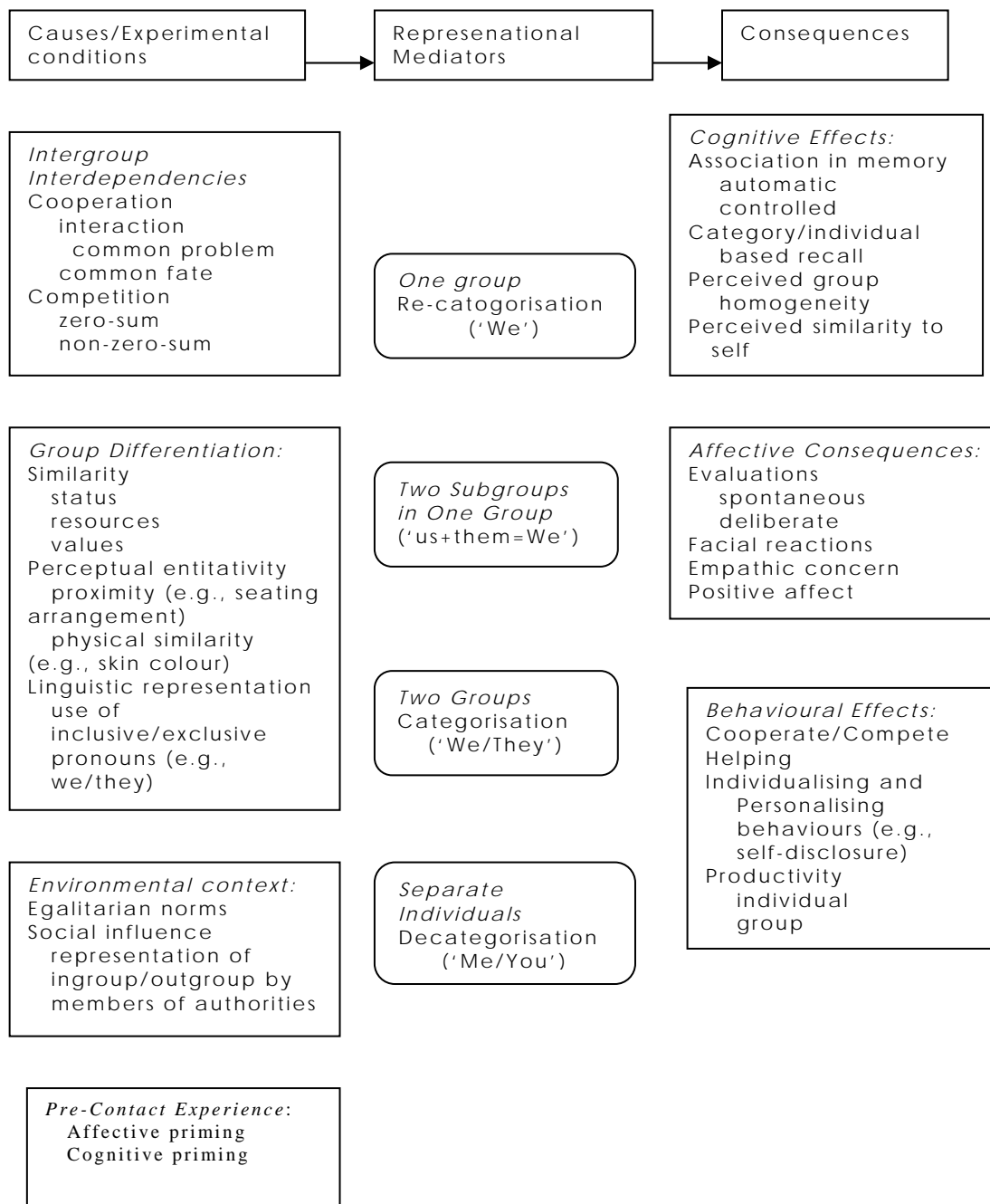


Figure 12. The Common Ingroup Identity Model. (adapted from Gaertner et al, 1999c)

Recategorisation predicted a positive attitude towards the outgroup. In contrast, when participant contact took place when there was an obvious symbolic intergroup differentiation

there was resistance to accepting common social identity. Negative outgroup evaluations were the result. Additionally, Gaertner et al (1993) reported cooperative interaction predicted the sense that the context was intragroup (acceptance of a common in-group identity) rather than intergroup (based in sub-group identity) or interpersonal. The acceptance of the common identity also predicted the evaluation of the out-group. The out-group was evaluated positively when the context was perceived to be intragroup, and negatively when the context was intergroup or interpersonal. Further, the positive effect of cooperative interaction was mediated by the representation of the group as a superordinate psychological entity.

More recent research conducted within the CIIM framework also supports the superiority of a recategorisation, rather than a decategorisation approach to inter-group conflict reduction. Dovidio et al (1995) reported similar results to Gaertner et al (1993) in that the effect of affect and perceptual differentiation on intergroup relations was mediated by the extent to which outgroup members could be recategorised as ingroup members. When participants saw themselves as united by a single uniting group identity, ingroup bias decreased and outgroup evaluations increased. This appears to signify improvement in inter-group relations mediated through establishment of a common social identity. Decategorisation also reduced in-group bias (to a lesser extent), but this was due to a reduction in the social attractiveness of in-group members and out-group members to equivalent levels (Dovidio et al, 1995).

Gaertner et al (1999b) also found inducing a more inclusive social categorisation was superior to decategorisation as a strategy for improving inter-group relations in terms of both the size of the improvement in inter-group relations and the psychological mechanism by which improvement was achieved (increasing attractiveness of out-group rather than decreasing attractiveness of in-group). Further, there was no relationship between a

'common fate' and improved out-group evaluation. The positive influence of inter-group cooperation was mediated by the inclusiveness of the social psychological context (Gaertner et al, 1999*b*). The suggestion is a 'common fate' is not sufficient to improve the relationship between groups without the socially facilitative effect of depersonalised trust inherent to a shared social identity (Brewer, 2001).

Dovidio et al (1997) found perception of a common in-group identity mediated both helping of an out-group member and self-disclosure to an outgroup member. In fact, there was more self-disclosure to an outgroup member than an in-group member when a superordinate identity was salient. Matheson et al (2003) found tolerance for internal dissent in an intragroup context that is not displayed in an intergroup context. This suggests a shared locus of identification can provide a pathway for debate (by assuring other group members of the ultimate loyalty of the dissenter to the in-group) (Van-Vugt & Hart, 2004; van Knippenberg et al, 2004). The implication is that a recategorisation strategy is more able to use social attraction to increase liking, helping, and trust, more than is possible with decategorisation (Hogg et al, 1995).

Gaertner et al (1999*c*) suggest that recategorisation, unlike decategorisation, does not require a pre-existing benevolent context. Support for this derives from laboratory based research that has consistently failed to find a statistically significant association between a competitive intergroup context and evaluation of the out-group relative to the ingroup during cooperative interaction (Gaertner et al, 1990; Gaertner et al, 1989; Gaertner et al, 1999*b*). However, support for recategorisation from laboratory studies has opened an avenue for criticism. Hewstone et al (2002) and Brewer (1999*b*) have proposed recategorisation, although effective, may not be a realistic option when dealing with natural groups. For example, the initial establishment of a superordinate identity may be made extremely difficult due to long-standing mutual antipathy (Hewstone, 1996; Hewstone et al, 2002), and the

general tendency to adopt a defensive aggression toward out-groups (Yzerbert et al, 2003; Brewer, 1999*b*). However, it is not unknown for protagonists to desire an improvement in the quality of the inter-group relationship (Haslam, 2001). This suggests that a mutual willingness to put aside past differences may exist. Although acknowledging it is unlikely for groups locked in “mortal group conflict” to accept assimilation, Gaertner et al (1999*c*) point out much CIIM research has been field studies with participants in groups experiencing daily contact despite a history of inter-group conflict. For example Gaertner et al (1993) laboratory findings were replicated in the field context of a racially mixed school.

Recategorisation of racial outgroup members, based in a common identity as a student of the same school was associated with more positive outgroup evaluation than those who saw the student body as a decategorised mass of individuals. Students who perceived the student body to be composed of racial sub-groups evaluated outgroups negatively at the thought of cooperative interdependence. The quality of the inter-group contact was partially mediated by the cognitive representation of the school as uniting superordinate identity. The nature of mediation was to decrease bias against former outgroup members by increasing the social attractiveness of the former outgroup.

Similar results have been found in field research using different populations to Gaertner et al (1993). Nier et al (2001) conducted a two phase research program where a laboratory study (Study One) was complimented by a subsequent field study (Study Two). In Study Two, either black or white interviewers asked Caucasian football fans if they would allow themselves to be interviewed. A lone interviewer would approach participants (of the same gender as the interviewer) whose university affiliation could be gauged by their clothing. The interviewers symbolically signified a shared team affiliation through changing caps to match the team supported by the participant. Results revealed that white interviewees were much more willing to assist black interviewers if they were wearing a team cap (rates of

compliance with white interviewers were not significantly affected by shared loci of social identification). As minority group categorisation is more salient than majority group categorisation (van Twuyver & van Knippenberg, 1999) the results suggest recategorisation of the racial outgroup increased the rate of compliance (Gaertner et al, 1999c; Nier et al, 2001). Consistent with this Banker and Gaertner (1998) found higher quality internal relationships within step-families when the family was cognitively represented as the sole social categorisation. In contrast, decategorised perception predicted (statistically non-significantly) negative familial interaction. The implication is that intra-familial discord can be averted if family members see themselves as part of a new cognitive whole. Recently, Wohl & Branscombe (2005) reported that increasing the salience of the 'human beings' as the superordinate category could be associated with improved affective responses towards members of historically antagonistic ethnic groups.

Recategorisation in organisations.

The applicability of a recategorisation strategy to a cross-functional team is supported by research in organisational contexts. For example Bachman (1993, cited in Gaertner, et al, 1996) conducted research within the context of a merger between two banks. The results indicated less inter-group anxiety when organisation members viewed the newly merged corporate entity as a shared superordinate identity. In turn, lower intergroup anxiety was reflected in negative ratings of sociability bias and work related bias, whereas personalised perception of the pre-merger outgroup was a positive contributor to inter-group anxiety. The similarity of the merger context to a cross-functional team suggests recategorisation has the potential to make an important contribution to the functioning of the cross-functional team. Research specifically examining the effect of a superordinate identity on cross-functional team performance supports this argument

Sethi (2000b) reported shared superordinate identity (with the cross-functional team as the superordinate identity) mediated increases in product performance through the variables ‘outcome interdependence’ and ‘autonomy’ (freedom from managerial interference in decision making). In contrast, ‘task interdependence’, ‘team longevity’ and ‘physical proximity’ were unrelated to product performance. Sethi (2000b) is complemented by van Der Vegt and Bunderson (2005) where the ability of a team to access and use informational diversity depended on acceptance of the team as a shared superordinate identity. A logical conclusion is that a cross-functional team will be more advantageous to an organisation if members share a loci of identification with the cross-functional team rather than many separate unaffiliated loci of identification with original organisational subgroup.

It could be must be noted that neither Sethi (2000b) or van Der Vegt and Bunderson (2005) manipulated the cognitive representation of the cross-functional team to be more or less inclusive. Therefore neither study constitutes direct evidence that manipulation of social identity through social categorisation to be an efficacious intervention. However, laboratory research has also found manipulation of the level and loci of social categorisation (so that a cross-functional team was perceived accepted as a superordinate identity) has led to improved inter-functional collaboration (Gaertner et al, 2000; Kane et al, 2005; Cunningham & Chelladurai, 2004). Taken together, there is a basis for arguing cross-functional team functioning could be enhanced through promotion of a shared superordinate identity.

Despite the level of support for recategorisation in both laboratory and field studies, this approach is not free from criticism. Criticisms of recategorisation is the subject of the next section.

Criticisms of recategorisation.

Generalisation.

Generalisation is an issue where one of the goals of an intervention is to initiate widespread social change through a change in the negativity ascribed to the stereotypical outgroup member (Rothbart & Park, 2004). Cross-functional teams are often intended to increase the routine level of intra-organisational cooperation to obtain a flow-on of organisational benefits beyond the cross-functional team itself (Hitt et al, 1993; Schneider & Northcraft, 1999). Therefore generalisation is an issue of practical importance when attempting to intervene within a cross-functional team context.

There has been little research to date demonstrating generalisability due to recategorisation (Gonzalez & Brown, 2003). Gaertner et al (2000) propose large scale improvements in intergroup interactions due to recategorisation will generalise through normal human rules of reciprocity. Each act of intergroup assistance would result in similar behaviour in return. The resulting series of cooperative interactions across group boundaries thereby facilitates the development of a large number of friendly interpersonal relationships. For example, a member of department 'x' will help a member of department 'y' due to cooperative interaction with another member of department 'y' while the superordinate categorisation 'x-y' was salient. The second member of group 'y' would then assist another member of group 'x'. The contrary position is that recategorisation suffers the same problem as decategorisation (Brewer & Gaertner, 2001). Specifically, recategorisation may break the psychological connection between those who share a common identity with outgroup subgroups (such as in a cross-functional team social identity) and their original subgroup. In breaking connection to a pre-existing identity recategorisation effectively removes the avenue of generalisation (Hewstone, 1996).

The process of sub-typing is can also contribute to the attenuation of generalisation. A subtype is different from a subgroup in that the sub-typed individual is seen as a special case, effectively removing the individual from the out-group (Rothbart & Park, 2004). The

tendency to sub-type re-categorised former out-group members is a possible outcome if the individual outgroup member is perceived to be a poor fit to the prototypical out-group member (Rothbart & Park, 2004). Moreno and Bodenhausen (1999) suggest people are motivated to protect the integrity of social stereotypes. Stereotype protection is aided by sub-typing (Yzerbert et al, 2000). Within the confines of a recategorisation context, sub-typing reflects the tendency to prefer the use of lower order social categories when interpreting multiply categorisable targets (van Twuyver & van Knippenberg, 1998; Crisp & Hewstone, 2001). Information reflecting deviation from a superordinate social category, in other words personalised rather than depersonalised characteristics, become the focal point for social judgement (Crisp et al, 2001; Krolak-Schwerdt, 2004).

The SCT perspective would argue that the process of recategorisation could induce uncertainty from having to integrate two previously separate prototypes (Brewer, 2001; Hewstone et al, 2002). Reducing uncertainty entails interpretation of data available in the social frame via comparison of what is observed with what fits the two, previously exclusionary, prototypes. As the tendency is to protect the ingroup prototype, personalised perception may draw attention to the perceived atypicality (of an individual from the outgroup prototype) to explain why that individual can now be included in a common ingroup (Hogg, 2004). Perceived atypicality, influenced by the expected amount of category heterogeneity (Rothbart & Park, 2004), in conjunction with the contextual relevance of a specific social category (McGarty, 2004), may therefore be associated with a friendly personal relationship. Such relationships would not necessarily generalise to the rest of the outgroup (as recategorised ingroup members) their 'friend' is recategorised by virtue of their individual, instead of their prototypical qualities. Evidence supporting this idea is provided by Yzerbert, Coull and Rocher (1999).

Yzerbert et al (1999) found that counter-stereotypical evidence did not lead to generalised stereotype change if there was additional stereotype neutral information available. The researchers suggested incorporation of neutral information is used as evidence the out-group representative is atypical. Therefore there is no reason change the out-group stereotype. Marques et al (2001) corroborate this when reporting that distinguishing the ingroup from the outgroup is important for verification of the ingroup descriptive norm. In a similar vein Abrams et al (2000) found that even though an outgroup member may agree with the normative ingroup position, these deviant outgroup members were recognised as being atypical for the outgroup. The low prototypicality of the outgroup deviant meant the anti-normative outgroup member was evaluated as positively as an ingroup member, but the rest of the out-group was not. Hantzi (1995) stereotype change was mediated by the perceived prototypicality of a counter-stereotypical outgroup member. The less typical were more likely to be sub-typed. Kunda and Oleson (1997) found stereotype change is lower the more an outgroup member deviates from the outgroup stereotype. The research cited above would suggest recategorisation has the potential to detract from the perceived prototypicality of a recategorised out-group member thereby functioning to limit generalisability.

Another process through which prototypicality may detract from generalised improvement in intergroup relations is the relative prototypicality of each sub-group to the superordinate social category. Weber et al (2002) found the Polish out-group was seen as less prototypical of the superordinate category 'European' which legitimised the lower status of Poles relative to the German in-group. In other words, the status accorded to Germans was not generalised to the Polish by virtue of the comparatively poorer representation of the superordinate social category of European represented by Poles. The potential for this low generalisation to contribute to lower quality inter-group relationships can be inferred from integrating the findings of Weber et al (2002), Roccas (2003) and Bettencourt et al (2001).

Roccas (2003) found people prefer to identify with the highest status group available when faced with a multiplicity of possible identities. To the extent a low status subgroup attempts to reduce a status differential by claims to a shared superordinate identity of higher status there exists the potential for another sub-group to preserve a favourable status differential by denying access to the superordinate identity. Li and Hong (2001) reported high status groups were particularly aware of their higher status. Awareness of their superior status detracted from their willingness to assume similarity between groups, thereby decreasing the quality of the inter-group relationship. Bettencourt et al (2001) found perceived illegitimacy of a status differential combined with impermeability of a group boundary created a willingness to engage in social competition on the part of both high and low status groups. Considered together with Weber et al (2002) the research suggests recategorisation will be resisted on the part of high status groups while resistance may be seen as illegitimate on the part of the low status group.

Instead of a generalised improvement, there may be a generalised degeneration of intergroup relations induced by the prospect of recategorisation (Waldzus et al, 2004). For example, Wenzel (2000) found former East Germans did not perceive themselves to enjoy the prototypical German standard of living. The failure of this standard of living to generalise to former East Germans was particularly problematic for those who expressed a higher amount of recategorisation as German. Higher acceptance of the superordinate identity was related to higher perceived injustice and increased social protest. Relative prototypicality may also be used to justify the status quo through exclusion of an outgroup from a common identity. Wenzel (2001) found this when reporting higher social identification with German was positively associated with a greater perceived fit of the in-group to the superordinate category of 'European'. This greater prototypicality was used as justification for the denial of Turkish entry into the European Union. Those who did not perceive a differential in prototypicality

believed outgroup exclusion to be unjust (Wenzel, 2001). In this instance, relative distance to a prototype is found to limit the generalisation of accepted justice standards to a less prototypical out-group.

These results can be contrasted with research showing generalised improvement in intergroup relations may be enhanced by maintenance of social identity boundaries. Wright et al (1997) reported observation of intergroup friendships, in both a minimal group experiment and a simulation of the robbers cave studies, led to a generalised improvement in out-group evaluations. In a laboratory study Brown et al (1999) found the perceived homogeneity of the social category 'German' interacted with the perceived prototypicality of a German confederate to predict more positive post-contact evaluations of Germans as a whole. This result was substantially replicated in a field study (Study Two) where perceived category similarity and social category salience moderated the amount of positive attitude generalisation to all Germans. The implication is that reducing prototypicality through recategorisation detracts from efforts to improve wider social relations.

Research indicating the potential for recategorised contact to generalise does exist, but is not compelling. For example, Dovidio et al (1997) reported that a manipulation designed to heighten superordinate identity mediated the removal of overall bias against an out-group. Included in this overall measure was an index of willingness to help an out-group member who had supposedly taken part in the same experiment on a different day. Given the absence of contact with the out-group member, this is assumed to be a proxy measure of generalisation. The results were only weakly suggestive of generalisation, with statistical relationships being only marginally significant for out-group helping. Similarly, Gonzalez and Brown (2003) reported superordinate identification could generalise to outgroup members without direct contact after experiencing contact with other outgroup members. Recategorised generalisation was higher than decategorised generalisation. However,

recategorised generalisation was found to be no better than a comparative condition where subgroup boundaries were maintained at the same time as the superordinate identity. In other words, although recategorisation does not preclude generalisation, there may not be a need to extinguish existing group identities. The importance of this is that fear of assimilation can detract from the quality of inter-group relationships (Brewer, 2001) so it may be beneficial to avoid full recategorisation.

Overall, research suggests recategorisation may lead to generalised improvement in intergroup relations. However, field research using national categories brings into question the pragmatic value of attempting to force the adoption of a superordinate identity.

Weakening the prototypicality of an outgroup person through individuation appears to decrease the connection to the rest of the outgroup. Alternatively, the relative prototypicality of a subgroup may be detrimental to intergroup relations if recategorisation, or perceived entitlements, are withheld from the sub-group deemed less prototypical of the superordinate social category. The focus of the next section will be the issue of distinctiveness threat proposed to result from pressures to recategorise (Hornsey & Hogg, 2000c).

Distinctiveness threat and resistance to recategorisation.

Within the SIT framework, the drive for positive distinctiveness is considered a fundamental social-psychological motivation. Intergroup distinctiveness is also a fundamental aspect of SCT, reflecting the need for uncertainty reduction by clarifying 'who is who' and 'what is correct' within the bounds of a specific social context (Turner et al, 1994). The assimilation of multiple identities into a superordinate identity can be considered threatening to the extent positive distinctiveness and uncertainty reduction needs are attenuated through recategorisation (Ellemers et al, 2002; Hewstone et al, 2002). Brewer (1999a; Brewer, 2001) offers the opinion that enforced cooperation with an outgroup in the absence of social psychological basis for trust is likely to lower, rather than raise the quality

of the relationship. The underlying rationale being (due to enforced interaction) pre-existing intergroup boundaries become more salient than normal. Socio-structural features in particular may inhibit the development of the necessary levels of trust. For example, features such as compatibility of group goals, presence and nature of status and power differentials, internal cohesion of each sub-group, the amount of intergroup similarity (Hornsey & Hogg, 2000c) and the tendency to look askance at outgroup behaviour (Gaertner et al, 2000; Brewer, 1999b) may combine to make recategorisation ineffective. The role of positive distinctiveness in reducing the appropriateness of recategorisation is indicated in research by Hornsey and Hogg (1999).

Hornsey and Hogg (1999) reported inter-group bias between humanities and math-science student groups increased after the common in-group identity of shared university membership was made salient. Inter-group bias was highest on the part of those who felt the superordinate category was overly inclusive, and therefore a threat to in-group distinctiveness. Similarly, Cinnirella (1997) found British participants felt the distinctiveness of their nation derived social identity was threatened by recategorisation as European. Social identification as 'British' was negatively correlated with the superordinate identity with correspondingly poor attitudes towards integration into Europe. Qualitative analysis of participant statements revealed British and European social identities were seen as incompatible with inter-group differences framed to stress the differences between Britain and Europeans. The British discourse was marked by statements indicating recategorisation was a threat (Cinnirella, 1997). Zagefka and Brown (2002) found immigrant and native participants who were least accepting of sharing a superordinate national based identity professed to the most in-group bias and the least favourable perception of intergroup contact. An important factor in rejection of the out-group was 'culture maintenance'. Piontkowski, Florack, Hoelker and Obdrzalek (2000) found higher status groups preferred assimilation as

integration was threatening. These results suggest recategorisation may be resisted in order to preserve the distinctiveness of a valued social identity. Support for this inference derives from Rikettas (2002) finding that the need for regional sub-group distinctiveness lowered identification with, and acceptance of, the superordinate social category 'European Union.

The enforced adoption of a common in-group identity may cause problems within the superordinate group. For example, Barreto and Ellemers (2002) found disregarding an existing social identity by being ascribed membership in a self-irrelevant social category was problematic for the individual and the group. Ascription led to low levels of social identification, low loyalty and withholding effort from the superordinate group. The negative effects on the ascribed groups were associated with increased identification with their self chosen sub-group. If recategorisation involves a perceived reduction in status for one of the in-groups, or emphasises an existing status differential, then this too may constitute a distinctiveness threat (Terry, 2003). For example, Hogg, van Leeuwen, and van Santen (2003) found common fate increased the salience of a low status subgroup. The low status group did not reciprocate the cooperation displayed by the higher status out-group but responded with inter-group competition (Hogg et al, 2003). Research by Seta et al (2000) found awareness of intra-group intergroup status differentials resulted in less cooperation from the lower status group when faced with recategorisation as part of a high status group. These findings are of particular relevance to a cross-functional team situation given employees can be expected to be well aware of the status differential between organisational sub-groups (Terry, 2003). The practical implication is that recategorisation can lower the quality of inter-group relationships within a small superordinate social category such as a work group.

The potential organisational relevance of sub-group distinctiveness threat through recategorisation is evident in an organisational simulation run by Ellemers, van Rijswijk,

Bruins, and de Gilder (1998). These researchers observed that loci of group membership and strength of social identification influenced response to power use by superiors. For example, there was lower commitment and cooperation with an outgroup superior exhibiting overly autocratic leadership behaviour. In contrast, the same excessive power use by an ingroup member was attributed to external compulsions. As a result commitment and cooperation were not withheld. These results are consistent with field observations by Jassawalla and Sashittal (1998; 1999) that poor cross-functional team outcomes coincide with an autocratic leadership style. Leadership style seen by outgroup based cross-functional team members as being in the interests of the leaders subgroup rather than the cross-functional team as a whole and at the expense of outgroup subgroups is particularly offensive.

Organisational field research by Jetten et al (2002) found higher pre-merger identification with an organisational subgroup predicted negative affect towards recategorisation due to an impending merger. Longitudinal analysis revealed the more employees identified with their pre-merger subgroups the lower the level of superordinate organisational identification. In addition to the negative effect on organisational identification, high pre-merger sub-group identification contributed to lower job satisfaction after the restructure. Longitudinal field research by van Knippenberg et al (2002) is also consistent with the idea recategorisation may have a negative impact in organisations due the destruction of existing subgroups. Enforced recategorisation in the form of absorption into a more powerful organisation encouraged the less powerful group to emphasise the differences between organisational subgroups. The perceived differences between organisational subgroups was reflected in a lower identification with the post-merger superordinate identity on the part of the absorbed sub-group. Terry and Callan (1998) reported increased inter-group competition (as a result of distinctiveness threat to their lower status organisational subgroup) in a merger. In Terry et al (2001) (as a function of increased boundary

permeability) adopting a common in-group identity with a lower status merger partner was seen to have negative consequences for employees of the higher status merger partner. This pattern of findings would suggest recategorisation, or adoption of a common-in-group identity may have negative consequences for an organisation. The reason for this lies in the inherent threat to the continued distinctiveness of a valued social identity based in sub-group membership.

Recategorisation summary.

In summary, the recategorisation strategy predicts adoption of a superordinate social identity will improve inter-group relations through depersonalised evaluation of former outgroup members as equivalent to in-group members. There is evidence that recategorisation may be of greater benefit than decategorisation in contexts of low level mutual antipathy. There is also cross-functional team research where acceptance of recategorisation improves group performance. However, there is also evidence to suggest people may resist recategorisation due to concerns for in-group distinctiveness. Additionally, recategorisation shares a problem with decategorisation, albeit to a lesser extent, of lower than optimal generalisation. This is due to the tendency to psychologically distance stereotype disconfirming out-group members from the out-group. Further, recategorisation can bring questions of social justice to the fore which may actually cause intergroup relations to degenerate. Status differentials and justice concerns exist within the broader organisational context and within cross-functional teams. An implication is an alternative method for improving inter-group relations that does not threaten existing self-categorisation and social identification may be valuable. This idea will be explored in the next section through examination of the multiple identification strategy.

Multiple identification.

Recommendation of a multiple identification strategy (see Figure 13) is based in the assumption that social identities are not necessarily incompatible or exclusive. Therefore it is possible to identify with multiple social identities simultaneously (Gaertner et al, 1996; Brewer & Gaertner, 2001). Multiple identification differs from recategorisation in that pre-existing social identities, rather than individualised group members, are treated as the building blocks for a higher level superordinate category (Hewstone et al, 2002). In other words, at one level contact is intergroup, yet it is also intragroup by virtue of concurrent inclusion in a superordinate social category. A strategy of multiple identification is considered to balance the need for in-group distinctiveness with pressures for inclusion in a superordinate social group (Hornsey & Hogg, 2000c). Membership in a cross-functional team requires a balancing of many social identities such as employee of the organisation, member of the cross-functional team and the original organisational sub-group. As previously demonstrated, problems with cross-functional teams often emerge along social identity based fault lines. Therefore there would seem to be a natural fit between the cross-functional team context and a strategy that is intended to improve intergroup relations by balancing sub-group distinctiveness with superordinate inclusiveness.

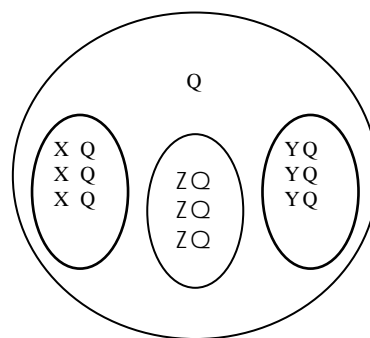


Figure 13. Multiple identification strategy with nested sub-groups (adapted from Hornsey & Hogg, 2000c; Brewer, 1996).

Pursuit of a multiple identification strategy is consistent with the theoretical premises of a number of different models (Brewer & Gaertner, 2001). For example, according to

Optimal distinctiveness theory (ODT) (Brewer, 1991) there exists a simultaneous drive for inclusion and separation. The principles of SCT and SIT govern the resolution of optimal distinctiveness concerns. SCT is reflected in the need for assimilation into social categories of different level of inclusion. Social categories that are overly inclusive due to size, having ill-defined category boundaries (Brewer, 2001) or when perception is overly depersonalised (Brewer, 1991), motivate a need for differentiation (Brewer, 1999*b*). The need for differentiation drives a search for uniqueness, which, when satiated, fuels the desire for self-categorisation (Brewer, 1996). Social identification signifies a harmonising of the dynamic tension between exclusion (between groups) and inclusion within a social category (Brewer, 1991; Brewer, 1999*b*).

The tension between exclusion and assimilation actively limits the degree to which a superordinate category can become a meaningful basis for social identification (Brewer, 1999*b*). For example, attempting to impose a superordinate identity as company employees may increase a need to protect sub-group distinctiveness (Horney & Hogg, 1999). Factors necessary for productive, cooperative intergroup relationships, for example mutual trust and loyalty, carry inherent vulnerability and therefore are more likely to be displayed within well defined and distinct social categories (Brewer, 1999*a*).

ODT would suggest the key to high quality intergroup interaction is to allow for the distinctiveness of existing sub-groups while replacing the existing category boundaries with one sufficiently inclusive to encompass both groups (Brewer, 1999*a*). The superordinate identity facilitates the extension of intergroup cooperation and positive regard by making such social exchanges intragroup. Yet subgroup integrity is maintained, thereby avoiding the distinctiveness threat inherent in recategorisation (Hewstone et al, 2002). Organisations may be too large to offer a sufficient level of inclusion (Hogg & Terry, 2000). Recategorisation with the organisation may constitute a threat to sub-group distinctiveness (van Leeuwen &

van Knippenberg, 2003). Behaviours intended to protect a sub-group can be detrimental to a cross-functional team. Therefore the ODT perspective suggests that multiple identification with the sub-group and the cross-functional team would be beneficial to the cross-functional team by removing a source of distinctiveness threat

Alternative reasons for recommending multiple identification comes from two different groups of researchers. Hewstone and Brown (1986), noting the importance of discontinuity, prototypicality and preservation of social identity distinctiveness proposed the 'mutual intergroup differentiation model'. This model is derived from the SIT idea premise that different social identities place more importance on different dimensions of comparison. Hewstone and Brown (1986) argued that when a dimension of comparison is particularly relevant to the positive distinctiveness of a group, intergroup difference is accentuated. When the ingroup is inferior, intergroup differentiation will be minimised. Lower intergroup differentiation on dimensions not crucial to the ingroup social identity will not threaten the positive distinctiveness of the ingroup. Therefore it is possible to preserve the inter-group boundaries without conflict. Hewstone and Brown (1986) argued that preservation of inter-group boundaries is the key to effecting generalised improvement. Preservation of boundaries should be complimented by recognition of legitimate areas of superiority and inferiority. Each groups' dimension of superiority should be accorded equal worth (Hewstone, 1996). Each group preserves positive distinctiveness while holding a positive evaluation of the out-group that is consistent with the out-groups self perception (Hewstone, 1996). Together, the maintenance of inter-group separation and recognition of legitimate areas of out-group superiority is held to meet needs positive distinctiveness while affecting generalised improvement in inter-group relations (Hewstone et al, 2002). The process of mutual intergroup differentiation is intended to make diversity a valued social property by balancing similarity with difference (Hewstone, 1996).

Van Knippenberg and Haslam (2003) have argued balancing similarity with difference is necessary for managing diversity within organisational contexts. However, the mutual differentiation model does not actively attempt to restructure the social context so that additional cognitive attachments are made between the subgroups (Brewer, 1996*b*). Therefore, mutual differentiation can be reduced to cooperative interdependence that respects sub-group integrity through clearly defined but complimentary roles (Brewer & Gaertner, 2001). Problems with implementing this approach can be attributed to a failure to incorporate cognitive inter-connection to counterpoint respect for intergroup distinctiveness. For example, intergroup contact increases the salience of social categories which can promote intergroup anxiety (Hewstone, 1996). Intergroup anxiety has been found to predict negative affect towards the out-group (Greenland & Brown, 1999) which can lead to intergroup conflict (Brewer, 2001). Further, benevolent inter-group contact has been found less potent for improving inter-group relationships than either shared social identification or self-categorisation (Brewer, 1999*a*; Brown et al, 1999). In other words, by being overly circumspect with regards to difference, Hewstone and Brown (1986) have ignored the potential benefits a higher order inter-group connection may hold.

Both the dual identification and subgroup relations approaches recommend sub-group distinctiveness be maintained through nesting within an inclusive superordinate identity which. The dual identity approach is a more complex version of the common in-group identity model and represents a response to criticisms of the common identity approach (Brewer & Gaertner, 2001; Hewstone et al, 2002). Firstly, recategorisation imposed limits on the generalisability of any benefits obtained through recategorised contact. Second, elimination of subgroup identity is not always a realistic proposition or even advantageous (Gaertner, 1996). The premise underlying the dual identity approach is to allow a more complex representation of the superordinate group wherein subgroup identity salience is

maintained, but contextualised by inclusion in a dominant superordinate loci of identity (Gonzalez & Brown, 2003). This practice should serve as basis for mutual trust (Brewer, 2001). From the perspective of this approach the best outcome is for the superordinate identity to be clearly dominant as higher sub-group salience lessens the immediate improvements in affect, attitude and behaviour (Eller & Abrams, 2004).

The aim of Hornsey and Hogg's (2000c) subgroup relations model is the preservation of subgroup distinctiveness. The basic assumption is the presence or absence of subgroup distinctiveness threat determines the quality of intergroup relations. Support for the role distinctiveness threat is provided by Egings et al (2002) who found respecting sub-group identification, although allowing slightly more conflict, was perceived to be more enjoyable and fair. In this condition participants felt the contribution of their subgroup to be valued. Positive evaluation of the subgroup negotiation process was mediated by the development of a superordinate identity. In other words, preserving subgroup distinctiveness removed a perceived threat of assimilation. This can be contrasted with Hornsey and Hogg (1999) where sub-group bias increased in response to recategorisation that did not allow sub-group distinctiveness. Hornsey and Hogg (2000c) suggest that subgroup identities should not only be preserved but 'nourished', implying that subgroup and superordinate identities should be increased simultaneously if possible.

All of these models share a fundamental assumption that identification with one target does not necessarily detract from the ability to socially identify with another target. Further, there is a general agreement that multiple identification makes good 'conceptual sense'. However, one conceptual point that should be made is multiple identification, despite claims by some researchers (Smith et al, 2003), does not contradict the SCT principle of 'functional antagonism'. To reiterate, functional antagonism' refers to a process whereby increased salience of one social category should decrease from the salience of a self-category at a

different level of abstraction (McGarty, 1999). However, functional antagonism was intended to be the simplest explanation capable of accounting situations where one self-category is more influential (Turner et al, 1994). Multiple self-categorisation will be possible if it is contextually adaptive and the content of each social category is complimentary (Wenzel, 2000). Haslam (2001) suggests multiple identification in an organisation does not contradict 'functional antagonism'. His reasoning is that multiple identification requires the content of the superordinate organisational identity is built upon distinct subgroups.

That multiple identification is a realistic goal is suggested by cross-categorisation research where it is demonstrated that people are capable of attending to multiple simultaneous dimensions of social categorisation (Crisp et al, 2003; Crisp & Hewstone, 2001). Crisp and Hewstone (1999) found priming a common in-group identity with either an inclusive pronoun 'we' or exclusive pronoun 'they' affected the speed with which a trait was recognised as positive or negative. Positive traits were most quickly recognised as such if primed when a targets name implied common in-group and one subgroup membership (either, gender, ethnic, or both) was shared. Traits were slower to be recognised as positive if the name held in memory belonged to a double out-group member. Crisp et al (2003) found priming for exclusion had the opposite effect. The partial in-group, whose partial outgroup status (as opposed to inclusive common identity status) was subliminally primed were less positively evaluated than the purely in-group. Crisp et al (2003) also found emphasising exclusion increased the perception a partial ingroup was different from the ingroup. In conjunction, these two studies provide an initial basis for support for the multiple identification strategy. Of particular interest is the finding that the priming manipulation of subgroup inclusion or exclusion with a shared higher order social category produces measurable changes in social perception.

The effectiveness of multiple identification in an intergroup contact context is observable in Dovidio et al (1998). These researchers found preserving subgroup distinctiveness (of equal status sub-groups) by giving each different roles (but equally valued roles) resulted in decreased ingroup bias and improved outgroup evaluation. Higher levels of ingroup bias were reported in conditions where subgroup distinctiveness was not respected. Furthermore, those in the multiple identity condition were more open to the idea that the subgroup could be contained with a common in-group. Membership in the common ingroup was resisted where subgroup distinctiveness was not respected. The perception subgroups were part of a single group mediated the decrease in ingroup bias, increased cooperation and decreased intergroup competition. The mediational role of the common-ingroup reported by Dovidio et al (1998) could be interpreted as support for recategorisation. However, since respecting sub-group distinctiveness facilitated acceptance of the superordinate identity, this study provides more compelling support for a multiple identification strategy (Hewstone et al, 2002).

This conclusion further support by Gaertner et al (1999*b*). In this study the largest mediator of a decrease in ingroup bias, when compared to either a recategorisation or decategorisation, was the maintenance of subgroup identity within a superordinate identity. In a similar vein, Hornsey and Hogg (2000*a*) reported that participants for whom simultaneous (superordinate and sub-group) identities were salient displayed less ingroup bias towards other sub-groups than participants who identified solely at a superordinate level. This study also provides support for the position that multiple identification prevents distinctiveness threat to social identities. Specifically, participants who were re-categorised under the auspices of a superordinate social identity reported the highest levels of social identification with their original sub-group. Increases in subgroup identification, as a consequence of recategorisation can be a sign of distinctiveness threat (Eggins et al, 2003).

Hornsey and Hogg (2000*b*) extended Hornsey and Hogg (2000*a*) by examining the impact of sub-group similarity and preservation sub-group distinctiveness on inter-subgroup bias. In Study One there was more inter-subgroup bias when interaction was under superordinate, rather than simultaneous, multiple identification. Inter-group *similarity* was found to increase bias under superordinate identity conditions but when multiple identities were simultaneously active there was more negativity displayed towards *dissimilar* groups. In Study Two, which was based in measurement rather than manipulation, the same pattern emerged. One exception to this was similarity did not have a relationship with sub-group bias under superordinate identity conditions. The researchers suggested this effect is due to greater identity threat from ‘manipulation’ as opposed to ‘measurement without manipulation’ (Hornsey & Hogg, 2000*b*). If this interpretation is accurate, it can be inferred that manipulating social identification in the manner required by recategorisation contains a problematic amount of threat. In contrast, manipulation required by a multiple identity strategy is less threatening and therefore more likely to improve inter-group relations.

The cited laboratory based research does suggest that pursuit of a multiple identification strategy could be more effective than either decategorisation or recategorisation. Research from field studies suggests the multiple identification strategy may be useful in real world situations. For example, Cinnirella (1997) found Italian participants were likely to have dual Italian-European social identities. As a consequence Italians felt less anxiety at incorporation into a greater European union than English participants who felt English and European social identities were incompatible. National identity was the same for both Italian and English participants. This suggests it was multiple identification on the part of Italians that was associated with less inter-group anxiety (Cinnirella, 1997). Gaertner et al (1996) reported students who simultaneously identified with a racial sub-group and the superordinate American identity perceived contact to be more

favourable than students with a single sub-group identity, an interpersonal orientation, or who identified at the superordinate level. Dual identification predicted less affective bias and more positive subgroup evaluations. Given the association between negative affect, anxiety and hostile intent in intergroup contexts (Yzerbyt et al, 2003; Brewer, 2001) Cinnirella (1997) and Gaertner et als' (1996) research implies that multiple identification would be a useful strategy.

Multiple identification and organisations.

Organisations may also find benefit from multiple identification. For example, Ellemers, de Gilder, and van den Heuvel (1998b), although not specifically concerned with multiple identification, found affective commitment to the organisation was positively associated with affective commitment to their organisational sub-group. Both loci of commitment were positively associated with 'contextual performance'. Contextual performance is an indicator of relationship quality (Ellemers et al, 1998b) while affective commitment is one of the fundamental aspects of social identity (Ellemers et al, 1999). The suggestion is complimentary multiple workplace identities may lead to improvements in intra-organisational interactions. In van Knippenberg and van Schie (2000) organisational identification was positively related to subgroup identification. Both loci of identification could predict desired organisational outcomes. However, subgroup identification was a more potent predictor. The researchers suggested the relative potency of the sub-group identity may lead to detrimental intra-organisational conflict unless complimented by superordinate identification with the organisation. Hennesy and West (1999) support this reasoning. They found subgroup favouring evaluations did not translate into discrimination against organisational sub-groups because of commitment to the goals of the superordinate organisation. Huo, Smith, Tyler, and Lind (1996) also indicate a palliative effect from multiple identification when subgroup identity is higher than organisational identification.

Huo et al (1996) found multiple identification (ethnic sub-group and organisation identification shared with a manager) increased employee acceptance of employer solutions to an intra-organisational conflict. It should be noted sub-group identification was higher than organisational identification which suggests employees were more predisposed to further the needs of the subgroup rather than the organisation (Riketta & van Dick, 2005). Further the respondents were all union members with recent involvement in conflict with a supervisor and therefore possibly more hostile than those without recent conflict may have been (Huo et al, 1996). Employees with dual identification were more likely to accept a decision if they felt fairly treated, even if they did not benefit personally. However, those without a basis for dual identification perceived any outcome but the one they desired to be an injustice.

The above research suggests complete recategorisation is not a prerequisite for conflict resolution. Multiple identification can facilitate intra-organisational intergroup conflict resolution as long as the members are treated respectfully. Respectful treatment is important for those with multiple identities as it confirms the individual is a valued member of the group (Huo et al, 1996). Fairness may be less important to those with little commitment to the superordinate identity as less self-affirmation is derived from intra-organisational respect than maintenance of a conflictual stance (Tyler et al, 2003). The suggestion is that multiple identification can lessen the likelihood of stronger subgroup loyalty becoming detrimental to an organisation (van Knippenberg & van Schie, 2001).

Jetten et al (2002) reported multiple identification protected employees from feeling threatened by the impending dissolution of existing subgroups *if* identification with the superordinate identity was high before restructure. Two studies by van Knippenberg et al (2002) suggest subgroup distinctiveness should be preserved if management wish all staff, including those acquired through the merger, to identify with the post-merger organisation. Lipponen et al (2003) reported sub-contractors whose prime identity was with their external

organisation were biased against the shipyards own workforce. Those sub-contractors identified with both the shipyard and their external organisation did not display bias towards other subgroups. Given the positive effects of social identification on workplace productivity (Wegge & Haslam, 2003) and the negative effects of distinctiveness threat noted in merger contexts (Terry et al, 2001; Terry & Callan, 1998) it can be suggested that preservation of sub-group distinctiveness through multiple identification is potentially beneficial.

The trend in the above research suggests multiple identification has the potential to improve intergroup relationships. This trend is observable in laboratory, ethnic and organisational settings. Balancing subgroup differentiation with high order inclusion allows for generalisation to out-group members not involved in direct contact. Multiple identification allows subgroup members to feel respected and valued during intergroup interaction. The relatively low level of identity threat detracts from the likelihood of conflict. However, multiple identification approach is not immune to criticism. These criticisms will be the focus of the next section.

Criticism of multiple identification.

Various researchers have suggested multiple identification may not be the answer to all problematic intergroup relationships. For example, Brewer and Gaertner (2001) suggest dual identification may be counterproductive in some circumstances. Hewstone et al (2002) have suggested that subgroups may have different ideas as to the ideal form of the intergroup relationship. Brewer (1996) suggests 'natural' groups know the relative status of each group. Status difference can lead to conflict, but experimenters often balance status within the laboratory. It may also be more difficult to make people aware of multiple category memberships than a single superordinate membership (Krolak-Schwerdt, 2004; Gonzalez & Brown, 2003; Urban & Miller, 1998). Research addressing the validity of these concerns will be discussed below. It should be noted that the author is not suggesting multiple identification is

the universal cure for all inter-group conflicts, simply that it is suited to cross-functional teams. Consistent with this intent, a strategy intended to create a context where participants recognise the synergy between multiple social identities present in cross-functional teams will be outlined. It will be suggested that increasing the perceived complexity of the multiple identity structure, capitalising on the idea of social identity is both an IV and a DV (McGarty, 1999; Turner, 2000) by presenting information intended to encourage identification with the task group before group members actually meet, and participation in an intergroup competition on behalf of the multiple identity structure will avoid factors detrimental to the efficacy of a multiple identification strategy. The first issue to be addressed is that multiple identification has been associated with negative outcomes in merger research.

Multiple identification in mergers.

One study demonstrating counterproductive effects from multiple identification is Banker and Gaertner (1998). These researchers examined a population of step-families for stepparent-stepchild relationship quality. Multiple identification (two-groups within one-group condition) was a statistically non-significant negative predictor of step-family harmony. In contrast, the positive relationship between quality contact and step-family harmony was mediated by the sense the family unit was a single common in-group.

Bachman (1993, cited in Gaertner et al, 1996) provides evidence more directly related to a cross-functional team situation. The researchers found ingroup bias on task related dimensions was directly, and positively mediated by multiple identification with the post-merger bank. Better intergroup contact was associated with recategorisation, not multiple identification. Gaertner et al (1996) proposed two reasons for this inconsistency between studies. Firstly, different item wording between the bank and high-school study may have led to an increased sense of competitiveness within the bank sample. Secondly, high-school attendance does not require the extinguishing of a pre-existing identity. However, the merger

did require one group to re-categorise. Therefore multiple identification could be seen as a failure to make one organisation from two. The outcome was poor quality contact that increased the salience of intergroup boundaries and positively contributed to ingroup bias (Gaertner et al, 1996). On the basis of Bachman (1993, cited in Gaertner et al, 1996) it can be suggested cross-functional teams will not profit by a multiple identification strategy. However, this conclusion can be challenged on the basis of information presented in Gaertner et al (1996).

Gaertner et al (1996) reported the measure of bias was composed of two distinguishable components. One factor related to workplace competence, for example qualities such as hardworking, intelligent and skilled. The other factor related to sociability, for example qualities such as friendly, helpful and cliquish. Multiple identification had no connection to 'intergroup anxiety' and therefore no connection to sociability bias. This is important as intergroup anxiety and negative affect are important precursors of intergroup hostility (Brewer, 2001) whereas task related conflict signifies intragroup safety (West, 2002) and increased team performance (Amason & Schweiger, 2000). The absence of a connection between sociability bias and multiple identification therefore implies multiple identification will not be detrimental to cross-functional teams.

An additional challenge to Bachman (cited in Gaertner et al, 1996) as evidence multiple identification is inappropriate in a merger or cross-functional team context is that multiple identification only predicted work related bias when contact quality was poor. One of the conditions of contact measured by Bachman (1993, cited in Gaertner et al, 1996) was 'positive interdependence'. Poor quality contact would therefore imply executives thought interdependence a cause of loss, or negative interdependence (Brewer, 1999a). The difference between a common bond and a common identity is group is central in developing this argument.

A common bond group is simply focused on interdependence rather than meeting the needs of the group social identity (Utz & Sassenberg, 2002). Spears et al, (2004) argue work teams often fall under the classification of common-bond groups as interaction is driven by an organisationally imposed, task focused, and structural interdependence. Spears et al (2004) also suggest a common-bond group requires membership within a common-identity for the bond to be psychologically meaningful. However, as the common-bond represents a very low intensity common-identification it can be assumed that source of a common cross-functional team identity is not as influential as the original subgroup identity (Hogg & Terry, 2000; van Knippenberg & van Schie, 2001). Where there is true social identification conditions of contact do not lead to intergroup negativity when multiple identification is salient (Gaertner et al, 1999*b*). The suggestion is Bachman (1993, cited in Gaertner et al 1996) is not a multiple identity context. What is assumed to be the common identity may only be a common-bond.

There is additional reason to suggest the bank merger is a superordinate common-bond rather than a superordinate common identity. This is that social identification is not an unthinking automatic process (Turner, 1996). In Bachman (1993, cited in Gaertner et al, 1996) even though the bond cannot be denied without denying reality, multiple identification may not make good psychological sense. The reason is that negative contact on Bachmans (1993, cited in Gaertner et al, 1996) measure encompasses suggests a lack of respect between merger partners whereas an attractive social identity would be self-affirming to both subgroups (Haslam et al, 2003).

The importance of intra-organisational respect is observable in Haslam et al (2000). These researchers found increasing intra-organisational respect through positive feedback heightened social identification with the organisation and increased effort towards meeting the interests of the organisation. In contrast, intragroup disrespect implies the ingroup does

not value the presence or contribution of a group member which increases the chance of intra-organisational dissent being displayed (Smith et al, 2003). The presence of disrespect in Bachman (1993, cited in Gaertner et al, 1996) is observable in the fact ingroup bias in the multiple identification condition was related to perceived differences in task competence (Bachman, 1993, cited in Gaertner, 1996). Branscombe, Spears, Ellemers, & Doosje (2002) found those feeling disrespected by an in-group are unlikely to display outgroup derogation and would only work towards ingroup goals if there is personal gain. Self-interested behaviour such as this is more characteristic of a common-bond group than a common-identity group (Utz & Sassenberg, 2002).

Evidence that connectivity within the loci of multiple identity played a role in generating inter-group competition derives from the fact not all executives displayed in-group bias. Those who felt the merged organisation to be separate groups did not display any intergroup competition. Only executives who perceived the context to be one of subgroups within a superordinate group were willing to engage in competition (Bachman, cited in Gaertner et al, 1996). In other words, those acknowledging the in-groups connection to the superordinate group are more likely to feel threatened by disrespect (Tyler et al, 1996).

Spears et al (2004) suggest membership in a common bond group can motivate differentiation along available dimensions when the subgroup distinctions are made meaningful. If the inequitable treatment underlying perceptions of negative contact (Bachman, 1993; cited in Gaertner et al, 1996) is thought by employees to be based on pre-merger subgroup membership then it is likely pre-merger group membership groups had been made salient (Turner et al, 1994; Gaertner et al, 2000). Further, if negative treatment is considered illegitimate then the drive for positive distinctiveness would motivate intra-organisational social competition along social identity defining dimensions such as workplace competence (Hogg & Terry, 2000; Haslam, 2001).

Support for this idea is observable in Gordjin, Yzerbyt, Wigboldus and Dumont (2006) who found incursion of unfair treatment from an outgroup was associated with anger and the desire to take retaliatory action. Monteil and Michinov (1996) found being considered an inferior performer (on a socially valued task) stimulated downward social comparisons towards others from the inferior performer. Sanitioso, Freud and Lee (1996) reported people expecting inter-group competition tend to see the out-group as incompetent on tasks that are meaningful to the social-self. Hunter et al (2004) conducted research including a condition where the behaviour of those with those with low public collective self-esteem (CSE) was measured with respect to displaying in-group bias as a means of redressing the deficiency CSE. Low public CSE is felt when in-group members believe that the social identity group is negatively evaluated (Hunter et al, 2004). These researchers reported low public self-esteem motivated outgroup derogation on available social identity relevant dimensions. This was found to increase ingroup self-evaluation amongst those with low public CSE. The negative evaluation implied in the dimensions of negative contact suggests members of the socially devalued subgroups in Bachman (1993; cited in Gaertner et al, 1996) are likely to feel low public CSE. Ingroup bias on work related dimensions of comparison is therefore consistent with a drive for positive differentiation within the multiple identity condition (Terry et al, 2001). This would support the contention that the post-merger banking organisation is source of a common-bond, but not a common-identity to those maintaining a meaningful social psychological connection to both post and pre-merger groups.

The cited research suggests the Bachman (1993; cited in Gaertner et al, 1996) study is not a true representation of a multiple identification context. Evidence suggests the post-merger banking organisation is, at best, a source of a common bond based in task interdependence. The negative nature of this interdependence has arguably detracted from employees willingness to fully adopt a true multiple identification. Instead, employees are

attempting to meet needs for social self-affirmation and inclusion through differentiation along the dimensions most relevant to establishing a positive social identity.

Two implications can be drawn from the preceding discussion. First, there may be contexts such as step-families where multiple identification may be inappropriate. However, Bachman (1993; cited in Gaertner et al, 1996) does not constitute an effective challenge to the effectiveness of multiple identification as a strategy for use in cross-functional teams. The focus of this study is not a true multiple identification context since the post-merger organisation in question appears to be a superordinate-bond over distinct sub-groups, as opposed to a source of common social identity. The next basis of criticism of multiple identification to be discussed will be the issue of inter-group status.

Multiple identification and sub-group status differences.

In general, SIT research has found that intergroup status differences encourage intergroup differentiation (Betterncourt et al, 2001). Brewer (1996b) suggests intergroup contact researchers (routinely striving to remove intergroup status differentials within laboratory settings) have ignored the differentiating effect of status differences within cross-functional teams. However, in real organisations, groups are not only stratified, but each group is aware of its place within the organisational hierarchy. The pertinence of this to the current work is that multiple identification, by virtue of its reliance on a balance of similarity and dissimilarity, may be particularly sensitive to deleterious effects of status driven differentiation (van Knippenberg & Haslam, 2003; Brewer, 2001).

Seta et al (2000) indicated the success of intergroup mergers was contingent on the status differences between subgroups within a superordinate group. Hornsey et al (2003) found high status subgroups decategorised and displayed out-group benevolence while the low status subgroup displayed the opposite behaviour. Members of both subgroups reported a decrease in the salience of, and social identification with, an available superordinate

identity when intergroup cooperation was required. In other words relative intergroup status differences can be detrimental to social integration between subgroups. These two studies would suggest that there is some substance to the Brewer (1996*b*) proposition.

Brewer (1996*a*) also argues status differences can adversely affect cross-functional teams. The reason given by Brewer (1996*a*) is that functional roles converge with membership in different organisational subgroups and members of cross-functional teams are aware of status differences within the organisation. If Brewer is correct then there should be evidence for interfunctional differentiation in cross-functional teams in forms consistent with beliefs regarding the nature of (stability, legitimacy and social mobility) subgroup status differentials (Hogg & Terry, 2000). For example, in the airline merger study by Terry et al (2001) the high status staff group displayed in-group bias on dimensions of professional competence. This suggests high status staff may feel their positive distinctiveness (and their social dominance) is threatened by being seen as equivalent to those of lower status. Increased bias against domestic carrier staff (the low status group) suggests ignoring status differentials while attempting to broaden the inclusiveness of a social category could increase, rather than decrease, conflict between organisational subgroups.

Hitt et al (1993) state that reactions to power use can detract from the social integration within a cross-functional team. This would certainly detract from the value of the cross-functional team to the organisation. The related social identity processes are explicated by Ellemers et al (1998*a*). These researchers found frequent exposure to power use by a higher status outgroup not only decreased cooperation, but became considered a negative component of the outgroup social identity. Also consistent with SIT, Reynolds et al (2000*a*) found less powerful groups distanced themselves from, and collectively challenged, more powerful groups. The challenge was legitimised through the evolution of a negative stereotype of the higher status group. This would be consistent with the argument by

Reynolds and Platow (2003) that resentment of power use on the part of lower status organisation members may give rise to behaviours intended to redress the power imbalance. Jassawalla and Sashitall (1998) report observations consistent with the argument of Reynolds and Platow (2003) and Brewer (1996a). Specifically, these researchers found ineffective cross-functional teams are marred by the salience of organisational status differences. The organisational status differences served to increase both the perceived level of hostility between subgroups and intergroup social distance while decreasing inter sub-group trust. The low status subgroups were found to withhold effort and withhold information from cross-functional team partners.

On the basis of the cited laboratory and field research it could be argued that until status differentials are addressed there would be little willingness on the part of either group to adopt a multiple identity. However, contrary to this, Gaertner et al (1999c) suggest the most appropriate method for avoiding differentiation based in status differentials is to create a context that promotes simultaneous identification. The reasoning is that positive distinctiveness concerns will not arise if distinctiveness is not threatened if a common identity acts as a unifying force (Gaertner et al, 1999c). If research supports this idea it can be suggested that multiple identification is useful within cross-functional team even if status differences are present in the wider organisational context.

One factor which provides some measure of support to Gaertner et al (1999c) is that intergroup differentiation is not indiscriminate, but is commensurate with commonly acknowledged reality (Ellemers et al, 1997). Prototypical fit is more important than positivity or negativity of a trait for intergroup differentiation (Reynolds et al, 2000b) so competition will only occur over comparative dimensions contextually relevant to both subgroups. Furthermore, reality constrains social competition. Increased perceptual accuracy, which necessarily reflects reality, improves intergroup relations (Li & Hong, 2001). This suggests

organisational status differences will be problematic only when there is dispute about the reality of the difference and if distinctiveness is threatened. Acknowledgment of a legitimate status difference will not necessarily lead to conflict (Eggins et al, 2003).

It must be acknowledged that in an organisational setting most subgroups would consider competence to be an important aspect of intraorganisational status and social identity (Tyler & Blader, 2001). This does not mean, however, subgroups will infallibly compete over 'competence'. With reference to cross-functional teams, Brewer (1996a) suggests inter-functional differentiation based in status concerns will be alleviated if subgroup roles define ingroup competence within the cross-functional team. Eggins et al (2003) suggests this tactic will be most profitable for the organisation if subgroup distinctiveness is complimented by a simultaneously active organisational identity. In other words, multiple identification may reduce the effects of intra-organisational status differentials between organisational subgroups.

Some initial support for the idea that multiple identification is effective in improving intergroup relationships where obvious status differences exist comes from Hornsey and Hogg (2002). Low status was found to increase the willingness of participants to adopt a superordinate social identity. In contrast, those who thought their subgroup had higher status were found to identify more with their subgroup. Merger research has shown this pattern of identification and bias can increase inter-group negativity on the part of higher status subgroup members (Terry et al, 2003). Consistent with this merger research, Hornsey and Hogg (2002) found members of the high status subgroup were particularly aggressive towards the low status subgroup when the shared superordinate was rendered salient. However, when a multiple identification approach was adopted (instead of recategorisation) the inter subgroup status differential did not contribute to bias. The suggestion is multiple identification can reduce the impact of status differences on subgroup interaction. Eggins et

al (2002) negotiation based research would suggest this is due to value being added to the low status subgroup by virtue of sharing an identity at one level, without threat induced from encroachment of distinct group borders.

Brewers (1996a) recommendation of preserving sub-group distinctiveness by acknowledging the separate knowledge, skills and abilities brought to a cross-functional team by functional sub-groups has received support. For example, Eurich-Fulcer and Schofield (1995) found ingroup bias increased as the convergence between two social categorisations increased. Jetten et al (1998) found ingroup bias increased if groups were seen as *either too similar or too different*. Wolsko, Park, Wittenbrink and Judd (2000) found explicitly multicultural contact increased the accuracy of social stereotypes in terms of recognising the positive and negative aspects of ingroup and outgroup stereotypes. Attitudes towards the outgroup improved more in the multicultural than a colour-blind condition where individualism and basic similarity as humans was stressed. In other words diversity was not overtly acknowledged in the colour-blind condition. Not acknowledging diversity was less desirable in terms of improving intergroup contact than acknowledging social reality by recognising the difference between ethnic sub-groups. Wolsko et al (2000) suggested making ethnic diversity a salient contextual feature (multicultural condition) allowed inter-subgroup variability to be seen as a natural outcome of social diversity rather than a reason to engage in outgroup derogation.

A connection between differential role assignment, limit of status based differentiation and multiple identification is evident in Dovidio et al (1998). These researchers present two findings pertinent to the present discussion. Firstly, retention of pre-existing subgroup distinctiveness by assigning equally valued but different roles increased acceptance of a common superordinate identity compared to groups where distinctiveness was threatened. Secondly, ingroup bias was extinguished where there was maintenance of

subgroup distinctiveness under the common identity. It should be noted that high status groups did evaluate low status sub-groups negatively, and were aware of the low status of the out-group subgroup before cooperation. However, unlike Haunschild et al (1994) (where there was no multiple identity condition) these known pre-existing status differences did not matter within the role differentiated multiple identity condition. The positive effects of multiple identity occurred regardless of the size of the status differential as long as each subgroup contribution was given equal value (within the interaction).

Research in corporate mergers supports the idea multiple identification can overcome negative effects of status differences within organisations. For example, van Knippenberg et al (2002) found employees were aware of the status differences between subgroups in a post-merger organisation. However, unlike the usual organisational finding that social identification varies in line with ingroup status (Lembke & Wilson, 1998) status differences alone did not have any association with post-merger organisational identification. This was the same for the high or low status groups. Van Knippenberg et al (2002) found status was less important than continuation of the subgroup identity in determining identification with the post-merger organisation. Van Dick, Wagner, and Lemmer (2004) found there were better employee responses to a merger on the part of those who identified with both the pre and post merger organisations. These studies are relevant to the current discussion as continuity of pre-merger identity, is equivalent to maintaining subgroup distinctiveness (van Leeuwen & van Knippenberg, 2003). When considered together with Hornsey and Hogg (2002) and Dovidio et al (1998) it can be suggested that continuity of a subgroup identity within a superordinate organisational setting may play a part in reducing status driven attempts for distinctiveness.

It can be suggested status differences cannot be ignored when there is intergroup contact. Employees are aware of status differences before interaction, and are likely to act in

accord with the assessment of social reality from the perspective of the pre-merger social identity. However, the drive for differentiation engendered by status differences can be controlled with a multiple identity strategy. This control will be maximised if equally valued and distinct subgroup roles under the auspices of superordinate identity. Cross-functional teams, being based around the distinct abilities possessed by each subgroup, should be well suited to management based in a multiple identification strategy. Particularly if complimented by explicit reference to, and equal valuing, of each sub-groups contribution to the cross-functional team. Another contextual factor hypothesised to increase resistance to multiple identification is that subgroups may have a different preferences in the structure of the dual identity group. This issue will be discussed in the next section.

Multiple identification and preferred social structure.

Hewstone et al (2002) state that differences in the preferred form of the intergroup context is a primary concern when considering the use of a multiple identification strategy. Evidence (drawn from inter-ethnic research) supports this suggestion (Van Oudenhoven, Prins, & Bunk, 1998; Zagefka & Brown, 2002; Piontkowski et al, 2000). In each of these studies majority and minority groups differed in their preferred form of relationship. Dominant groups tended to favour assimilation, or the complete abandonment pre-existing subgroup culture, on the part of minority groups. This differed from the attitude of the minority groups who tend to prefer an integrative strategy that retains connection to pre-existing ethnic subgroup while acknowledging connection to the dominant group.

Integration is related to a positive intergroup relationship between sub-groups (Zagefka & Brown, 2002). However, the majority group typically underestimate the extent to which a minority is willing to integrate while overestimating the degree to which a minority wishes to reject the majority group (Zagefka & Brown, 2002; van Oudenhoven et al, 1998). This perceptual inaccuracy can be expected to detract from the quality of intergroup relations

over time (Wolsko et al, 2000; Li & Hong, 2001). Zagefka and Brown (2002) confirm the validity of this concern when reporting discrepancy between the subgroups preferred social context was sufficient to cause poorer quality inter-group relationships. The implication is that multiple identification may not improve intergroup relationships if one subgroup incorrectly perceives the other subgroup does not wish to share a multiple identity.

Hewstone et al (2002) suggest the preference for assimilation on the part of a more powerful subgroup explains why multiple identification could lead to conflict rather than improvement in relations. The reasoning is that while the minority group may display outgroup benevolence, the majority group may maintain their ingroup favouring stance. Only minority group members who fully assimilate, in other words completely recategorise, will be acceptable. For example, in Lipponen et al (2003) a subgroup of subcontractors who simultaneously identified with their subgroup and the shipyard positively evaluated members of other employee subgroups. In contrast, the subgroup formed by the shipyards own workforce appeared unwilling to accept the subcontractors subgroup and maintained ingroup serving biases.

This problem may be exacerbated within a context where multiple identification is ostensibly promoted, but actual experience belies the rhetoric (van Oudenhoven et al, 1998). In contexts where multiple identification is widely promoted, being excluded from membership in the majority group for retention of a valued subgroup identity could be considered an illegitimate threat to the continuance of a valued subgroup identity (Mummendey, Kessler, Klink & Mielke, 1999). To the extent this is true, the minority group can be expected to reciprocate with its own outgroup derogation and social competition (Verkuyten & Nekuee, 1999; Reynolds et al, 2000*b*; Wenzel, 2000). However, there is reason to believe multiple identification contributes to conflict only when the superordinate category is too representative of a dominant group. This can be suggested as the inter-ethnic

research cited above invariably involves a minority group having to fit into a superordinate identity that is already 'owned' by the majority group. Exclusion results not from flaws inherent in the multiple identification strategy, but from difficulties in seeing how inclusion in the superordinate category does not mean a subgroup identity can coexist with the superordinate identity.

A SCT explanation for this effect would posit that the dominant group perceive the multiple identity as an extension of their own pre-existing social identity. Therefore, a subgroup wishing to share the superordinate identity would have to 'fit' the comparative and normative standards of the existing prototype (Reynolds, Oakes, Haslam, Turner, & Ryan, 2004; Waldzus et al, 2005). Piontkowski et al (2000) support this explanation when reporting dominant groups who prefer assimilation do so because of perceived intergroup dissimilarity. In contrast, those dominant group members who favoured integration perceived a degree of intergroup similarity. An organisational example is Lipponen et al (2003) who suggested the outgroup negativity displayed by the shipyards 'native' workforce towards subcontractor based subgroups was based in poor fit to the shipyard workforce category. However, on the basis of Waldzus et al (2003) it can be suggested it is possible to counteract social competition between subgroups faced with multiple identification.

Waldzus et al (2003) found that a dual identity condition led to negative inter-subgroup attitudes. The reason was that dual identification led both subgroups to compare the quality of each subgroup fit to a clearly defined, inclusive social category. Those who identified strongly with both the common and the subgroup identities judged their subgroup as more prototypical than the outgroup subgroup. The more prototypical the ingroup was judged to be, the less positive they evaluated the outgroup. However, the relative prototypicality of the ingroup subgroup could be reversed if the prototype became too complex and ill-defined to justify exclusion of either subgroup. The reduction in relative

prototypicality was found to mediate improvement in sub-group relations through dual identification.

The suggestion is multiple identification will improve relationships between subgroups if the social context can be made sufficiently complex to avoid either subgroup being excluded on the basis of poor fit to the superordinate identity. This is relevant to cross-functional teams. The reason is that cross-functional teams, like subgroup relationships in general, are often conceptualised as one of two simple social structures. The two simple structures are 'nested' or 'crosscutting' categorisations (Brewer, 1996a; Hornsey & Hogg, 2000c). Subgroups are considered 'nested' (Figure 13) when each social category is part of a larger superordinate category or as cross cutting (see Figure 14). Relationships are nested when sub-groups can be considered interdependent and enclosed within the superordinate identity (Hornsey & Hogg, 2000c). Brewer (1996a) opines that cross-functional teams usually represent a 'nested' structure. Each function is a discrete but outcome interdependent subgroup within the superordinate social category of the organisation.

Sub-group relationships are crosscutting to the extent a more inclusive identity, external to the most immediate superordinate identity is available (Hornsey & Hogg, 2000c). For example, in an organisation functional sub-groups have access to membership in professional bodies that include sub-group members but do not require inclusion in a specific organisation for membership. The partial overlap between the organisation and the external category make the social structure crosscutting (Brewer, 1996a).

Brewer (1996a) argues that 'nesting' is too simple a strategy to overcome intergroup competition based in the stronger commitment to the functional subgroup relative to the organisation. This is particularly true when roles within the cross-functional team converge with a lower status subgroup identity. However, Hornsey and Hogg (2000c) suggest drawing attention to a crosscutting social category may be counter-productive if the goal is to improve

intergroup relationships within a specific social system. Their reasoning is that the portion of the subgroup identity that does not converge with the superordinate identity can work against attempts to improve intergroup relations within a specific context. For example, in Huo et al (1996) the presence of a crosscutting ethnic identity was associated with a conflictual style of interaction during an organisational dispute unless the organisational identity was simultaneously salient.

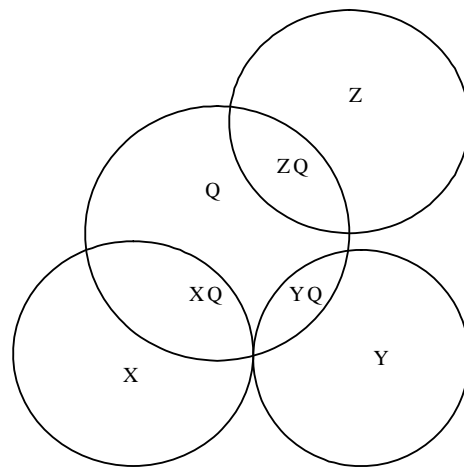


Figure 14. Cross cutting multiple categorisation (adapted from Hornsey & Hogg, 2000c; Brewer, 1996a)

The validity of the Hornsey and Hogg (2000c) idea that crosscutting is not a panacea for sub-group relations does have support. For example, In the Hewstone et al (2002) it was noted that crosscutting does not always reduce bias. Conditions noted by Hewstone et al (2002) as limiting effectiveness of crosscutting include too much inter-subgroup similarity and a context which allows dimensions of categorisation that increase ingroup bias to become dominant. The issue of category dominance is relevant to cross-functional teams as subgroup categorisation is generally more relevant and accessible than a superordinate categorisation (Kluaer, Ehrenberg, & Wgener, 2003; Ashforth & Johnson, 2001; Riketta & van Dick, 2005).

Urban and Miller (1998) found that the dominant social category will determine the amount of bias permeating intergroup relations. Employees typically find the functional subgroup membership more relevant than the superordinate organisation and therefore enter the cross-functional team with a predisposition to act in the interests of the subgroup (Hogg & Terry, 2000; van Knippenberg & van Schie, (2000); Riketta & van Dick, 2005). There is also reason to question the assumption by Brewer (1996) that crosscutting is sufficiently makes a social frame sufficiently complex to overcome the combined effects of prototypical 'fit' and 'positive distinctiveness' (Jetten et al, 1997; 1998). For example Eurich-Fulcer and Schofield (1995) found crossing categories is less effective if the dimensions of categorisation are highly correlated. Subgroups became as biased towards the crosscutting subgroup as they were to a double outgroup. The encroachment of one subgroup into a dimension relevant to another subgroups social-categorisation suggests the prospect of a common identity was invoked but rejected due to distinctiveness threat (Jetten et al, 1998). The Eurich- Fulcer and Schofield (1995) result is therefore compatible with the Waldzus et al (2003) 'simple' condition where the prototype was overly representative of the dominant group. The implication is that crosscutting does not necessarily equate with a sufficiently complex social structure to improve intergroup relationships. This is not meant to imply that social complexity will not improve intergroup relations. Research shows that if the prospective superordinate identity can be made to appear complex enough that neither subgroup can claim to be more prototypical then multiple identification will be a successful strategy (Waldzus et al, 2003; Waldzus et al, 2005).

A brief summary of the research presented in this section suggests subgroups can differ in their preferred social structure. These differences may detract from the quality of the relationship between subgroups. Multiple identification may actually decrease the quality of subgroup relationships relative to a context where subgroups are kept segregated. However,

increasing the social complexity with a multiple identity structure can eliminate this effect. Doing so decreases the perceived differences in relative subgroup prototypicality, thereby increasing willingness to integrate rather than assimilate or compete. Integration, congruent with multiple identification, is associated with better intergroup relationships than assimilation or segregation. Subgroup relationships are normally conceptualised as crosscutting or nested but neither in a pure form lends enough social complexity to the multiple identity structure. The cited research suggests multiple identification may be superior to decategorisation or recategorisation for negotiating tension between positive distinction and inclusion in a contextually adaptive superordinate category but safeguards must be taken. The next section will outline a multiple identification based identity management strategy intended for use in cross-functional teams.

Identity management strategy for use in cross-functional teams

In the section the preceding review of the literature will be integrated into the description of a proposed method for improving the functioning of a cross-functional team. The proposed strategy, based in the principles of SIT and SCT is intended to create the perception of a cross-functional team as a locus of simultaneously salient multiple identities. A number of assumptions, derived from the cited research, guide the reasoning of the author.

Firstly, of the three basic strategies (decategorisation, recategorisation and multiple identification) multiple identification is the potentially the most effective method for improving intergroup relations. In this context 'effective' refers to both decreasing ingroup bias through improving outgroup evaluation, preserving the distinctiveness of all subgroups within a uniting superordinate identity and facilitating the generalisation of positive contact. Status differences can become less important within a cross-functional team. Multiple identification and assignment of equal value to clearly delineated subgroup role decreases the normal drive for positive differentiation based in status differences.

A second assumption is that means for addressing potential shortcomings of the multiple identity can be incorporated into an identity management strategy. Three safeguards have been included in the proposed identity management strategy. All three safeguards address the question of contextual appropriateness raised by Bachman (1993, cited in Gaertner et al, 1996). The first safeguard is built on the argument that failure to create a common identity (as opposed to a common bond) explains why multiple identification was not more successful at uniting subgroups in the banking merger of Bachman (1993, cited in Gaertner et al, 1996). The fact employees work together cannot be assumed, as is commonly the case, to equate to a shared social identification (Haslam et al, 2003). This suggests social inclusion needs to be approached strategically so that the desired social categories and identities become both salient and meaningful (Reynolds et al, 2004). For this reason the author will attempt to promote willingness to commit to the cross-functional team as a social identity before team members actually meet.

The rationale is that social identity is potentially both an IV and a DV (Doosje et al, 2002). Shared social identification increases the perceiver readiness to adopt a particular self-categorisation (McGarty, 1999), allows a more benevolent attitude towards failure (De Cremer, 2000) and gives a reason to trust in the good intentions of others (Brewer, 2001; Tanis & Postmes, 2005). Establishing some willingness to extend trust and benevolence is assumed to be useful as the early group climate tends build over time through reciprocal interactions (Zolin et al, 2001). Therefore any conflict inside a cross-functional team where the climate is initially characterised by depersonalised trust will be more likely to be well managed task focused conflict than destructive relational conflict (Porter & Lilly, 1996; van Knippenberg et al, 2004; Brewer, 2001). Further, it is possible to encourage social identification in multiply categorisable groups through information presented before personal

interaction (Wigboldus, Spears & Semin, 2000; Postmes, Spears & Lea, 2000; Scott & Fontenot, 1999).

A second safeguard incorporated within the proposed strategy is that attention should be drawn to the complexity of the cross-functional team identity. 'Fit', which is contingent on background knowledge and the amount of variability within and between categories (McGarty, 2004) may be addressed through manipulating the socio-structural complexity (Waldzus et al, 2003; Jetten et al, 1998). Furthermore, a complex superordinate prototype enables a broader idea of who can validly be included within a multiple identity framework to be generated.

The cross-functional team identity needs to become sufficiently salient and situationally relevant to overcome the potency of lower order social categories. The third safeguard built into the strategy is intended to utilise fluidity in self-definition to increase salience and relevance of the cross-functional team. According to SCT, self-categorisation depends on the interaction of 'fit' with the perceivers' readiness to use a specific social category (accessibility) (McGarty, 1999). Judgement of the 'fit' or 'accessibility' is determined by the social reality as perceived with reference to contextual features (Reynolds et al, 2004). Only self-categories that make good contextual sense will be adopted for use in any given context (Haslam et al, 2003). This means multiple identification is unlikely if it is not contextually adaptive or if it violates socially shared ideas of reality (Pittinsky et al, 1999). 'Fit' and 'accessibility', by virtue of contextual sensitivity are malleable. This suggests changes in the social frame can broaden 'fit' and increase the 'accessibility' of a given social category (Reynolds et al, 2004). Multiple identification can therefore be facilitated by contextual manipulation. It is proposed that the introduction of an intergroup competition, with the multiple identity group striving against another multiple identity group, will increase salience, accessibility and broaden the inclusiveness of the cross-functional

team (Turner et al, 1994; Broemer & Diehl, 2004; Rothgerber, 1997; McGarty, 1999).

Intergroup competition has been suggested as a means of encouraging acceptance of an organisation as a social identity shared by organisational subgroups (Ashforth & Johnson, 2001; Hogg & Terry, 2000; Lau & Murnighan, 2005; van Dick, 2004). However the current research appears to be unusual in actually examining whether intergroup competition will have the expected positive effect in a cross-functional team.

The first component of the intervention to be discussed will be that of increased complexity. Intergroup competition will be the subject of a subsequent discussion. The effect of pre-task social identification will not be addressed as the positive association between shared social identification, trust, and improved intergroup contact has been covered in previous chapters.

Social complexity.

It has previously been demonstrated that neither 'nested' (see Figure 13) nor 'crosscutting' (see Figure 14) approaches to multiple identification are sufficiently complex to have proven universally useful (Hornsey & Hogg, 2000c). The following strategy design is based in a hybrid (see Figure 15) of 'nested' and 'cross-cutting' subgroup relations (Brewer & Gaertner, 2001; Hewstone et al, 2002). The hybridised conceptualisation (by virtue of adding an extra locus of social identification) better caters for the need for social complexity than 'nesting' or 'crosscutting' alone. The traditional approaches have two loci of social identity available for multiple identification (the subgroup and the cross-functional team) (Sethi, 2000b; Brewer, 1996a) while the hybrid strategy has three social identities available for simultaneous multiple identification: functional subgroup, the cross-functional team as a middle range social identity and the organisation as the superordinate identity. Attention (of participants) will be drawn to the fact functional subgroup memberships are fundamentally external to the cross-functional team, and therefore crosscut the team. At the same time,

participants will be made aware the cross-functional team is nested within the superordinate organisational identity.

This conceptualisation of social structure is advantageous by virtue of two inherent processes. Firstly, needs for inclusion and differentiation are simultaneously acknowledged. Secondly, conflict management is strategically centred in normal social psychological processes that are potentially detrimental to cross-functional teams (Lembke & Wilson, 1998). These two features should be effective at creating a healthy cross-functional team social climate devoid of any basis for threat to subgroup distinctiveness and therefore inter-functional conflict (Hornsey & Hogg, 2000c). The rationale is that social identities untied within a complex social system can be reinforcing if the correct social frame prevails (Meyer, Becker, & van Dick, in press).

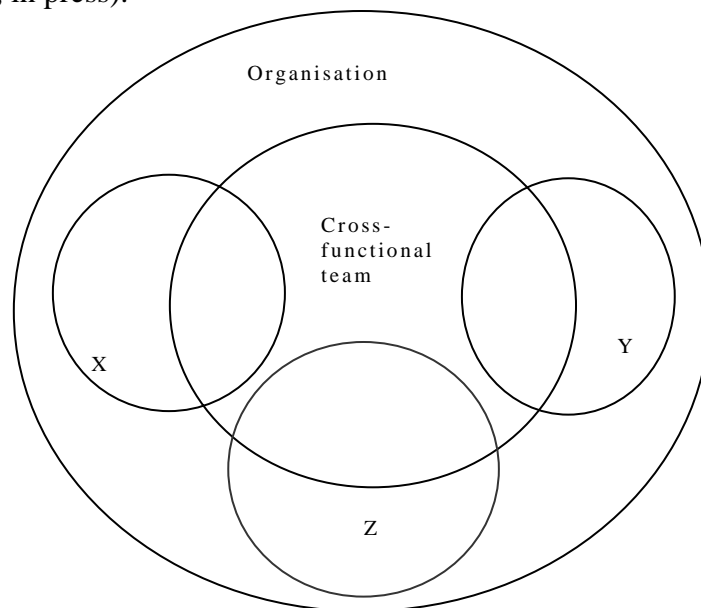


Figure 15. Hybrid conceptualisation of subgroup relations based in multiple identification and simultaneously nested and cross-cutting group memberships

Roles within the cross-functional team converge with the specialised knowledge, skills, and abilities of each functional subgroup. As role convergence reinforces the status quo in terms of properties and responsibilities of each functional identity, it does not contribute to perceived social complexity in an immediate sense (Brewer, 1996a). However, long term, as each functions specialised contribution adds to the efforts of the whole cross-

functional team, it is possible the value of functional diversity will be reinforced within the organisation (Huang & Newell, 2003; Eller & Abrams, 2004). From this perspective role convergence may actually contribute to the perceived complexity of the organisation.

Support for the use of role convergence within the proposed strategic design is evident in Deschamps and Brown (1983) who compared the effect of role convergence (subgroup performing a task consistent with the subgroup identity) to role comparability (both subgroups performing the same task) on intergroup relations between art and science students. Deschamps and Browns' (1983) findings suggest role convergence will lead to better relations between subgroups than assignment of comparable roles. For example, those in the comparable role considered the other subgroup less friendly, to have made a lower contribution, and found the task more difficult to complete than those in the non-comparable role condition. The suitability of a role convergence tactic within a broader multiple identity strategy is indicated by Dovidio et al (1998) where role convergence combined with multiple identification to completely eliminated ingroup bias.

Van Knippenberg and Ellemers, 2001; cited in van Leeuwen & van Knippenberg (2003) found identification with a superordinate post-merger group increased if the subgroup uniqueness was respected (consistent with a multiple identification strategy). Part of the preservation of subgroup distinctiveness was that each subgroup performed a distinct but complimentary role in the fulfilment of the group task. Where role convergence was not allowed the superordinate identity was not accepted. This was explained as a process of 'fit' mediating acceptance of the superordinate post-merger identity. 'Fit' of the subgroup to the post-merger group was found to increase if distinctiveness was preserved. The cited research suggests role convergence within a cross-functional team is consistent with a multiple identification strategy within a cross-functional team context.

At face value the findings of Marcus-Newhall, Miller, Holz, and Brewer (1993) may appear to contradict the proposed utility of role convergence. These researchers found that crosscutting was superior to role convergence in terms of reducing ingroup bias and lessening intergroup differentiation. However, this research may not extend to an organisational context since the groups used were artificially constructed for the purpose of the experiment. In organisations, knowledge skills and abilities can be expected to form the basis of inclusion within a functional sub-group (Brewer, 1996*a*). For example a lawyer can be expected to work in a law department while an accountant works in an accountancy department.

Pursuing this example, crosscutting could involve a lawyer taking an accounting role and vice versa. Such an arrangement would not only be of dubious pragmatic value to the organisation, but also be considered unrealistic by employees. As social categorisation is constrained by reality (McGarty, 1999) crosscutting provides little justification to modify properties of existing depersonalised subgroup stereotypes in order to include the functional outgroups within existing boundaries. Further, the apparent absurdity of crosscutting professional roles held within a function based subgroup may breed cynicism about the organisation change process. Cynicism has been found to decrease willingness to commit to organisational change, lower organisational commitment and increase organisational dissent (Wanous, Reichers, & Austin, 2000). It can also be suggested any incompetence displayed by the cross-functional team member in the crosscutting role would promote exclusion, detracting from the development of positive inter-subgroup relationships (Gaertner et al, 2000; Littelpage et al, 1997). Additionally, the improvement reported by Marcus-Newhall et al (1993) was due to increased personalisation (de-categorisation) of the outgroup member. This is significant as de-categorisation is less effective than multiple identification for reducing intergroup bias or promoting generalised change (Gonzalez & Brown, 2003).

On balance, crosscutting as the sole method of constructing a social context may not contribute to an improvement in intergroup relations within a cross-functional team. The suggestion is modification of intergroup relations will be more effective if reality is respected through role-category convergence (McGarty, 1999; Reynolds et al, 2004). However, not all elements of crosscutting should be abandoned. Crosscutting does allow an extra dimension of complexity than is provided by nesting (Brewer, 1996*b*). Complexity broadens the 'fit' of the superordinate social category in a multiple identification setting (Waldzus et al, 2003). Furthermore, drawing attention to the external memberships of the individual cross-functional team members, as the basis for inclusion in the cross-functional team, acknowledges the contribution that functional diversity makes to the cross-functional team. Acknowledgement of the contribution subgroup diversity makes to group performance sends the message that functional diversity is valuable to both the team and the organisation at large (Eggins et al 2003).

Positive evaluation of organisational diversity is necessary in cross-functional teams as organisational evaluation of diversity determines organisational outcomes from, and acceptance of multiple identification (van Knippenbeg & Haslam, 2003). Therefore role convergence and crosscutting utilised together may facilitate the development of multiple identification with a cross-functional team. However, it cannot be assumed that multiple identification within a cross-functional team and its subgroups transfers automatically to the wider organisation (Haslam et al, 2003). Interaction for instrumental reasons such as accepting pay from the organisation may equate to a common bond (Spears et al, 2004), but may not equate to identification with the organisation (van Knippenberg & Haslam, 2003). It is also possible for the cross-functional team, if left as the sole superordinate identity, to become as exclusive as the original subgroups over time (Brewer & Gaertner, 2001). This

suggests, as represented diagrammatically in Figure 15, that another level of inclusion needs to become salient.

Van Knippenberg and Haslam (2003) suggest the logical higher level social category in an organisation is the organisation. This makes sense if it is accepted management implement cross-functional teams to meet the needs of the organisation, not the needs of a cross-functional team or its constituent subgroups. One means of increasing the salience of a shared superordinate identity is through the use of symbols such as uniforms and logos (Ashforth & Johnson, 2001). Research methodology utilised when investigating multiple identification would suggest it is also possible to increase the salience of different levels of identity simultaneously through the use of symbolic means such as badges and coloured clothing (Brewer, 1996*b*). This suggests both superordinate and lower order identities can be brought to attention through symbolic means. That symbols can be used to draw attention to complexity within a multiple identity context is illustrated in qualitative research by Pratt and Raffaelli (1997) Nurses were found to use different uniforms to communicate professional and intra-organisational status, affiliation with a range of available loci of identity, which set of competing values were held by the wearer, and to represent integration of different subgroup identities and values within the hospital (and the profession) as a whole. Symbolism is significant for collective identification as each symbols unambiguously signifies the willingness to become involved in advancing the cause of the collective (Ashmore, Deaux, & McLaughlin-Volpe, 2004). In other words, symbols can be used to legitimise the plurality of identities available within a single organisation through demonstrating a basis for connection that overrides, but does not eradicate subgroup differences (Pratt & Raffaelli, 1997).

The author proposes symbolism can be complemented through the presentation of a context intrinsically well suited to broadening standards of inclusion and counteracting

pressures for exclusion (Brewer & Gaertner, 2001). In the next section the potential for intergroup competition to present such a context will be discussed.

Intergroup competition.

Intergroup competition is an underdeveloped avenue, in both research and application, for improving intragroup functioning (Bornstein & Erev, 2000). In SCT terms, manipulation of the social context changes the breadth of 'fit' and category 'accessibility', thereby altering the level of identity abstraction driving behaviour (Haslam et al, 2000). By purposefully working with 'fit' and 'accessibility' it becomes theoretically possible to predict which identities will govern behaviour in a given context (Reynolds et al, 2004). Hogg and Terry (2000) have noted that drawing attention to another organisation as a competitor increases the salience of the ingroup organisation identity. Rothgerber (1997) found intergroup competition led to psychological responses similar to those specified by SCT. More specifically, compared to a non-competitive condition, inter-group competition accentuated the perceived difference between the in-group and the out-group. In-group members were seen as more similar to each other than the out-group. Out-group members were seen as more similar to each other than the in-group. Individual group members perceived themselves to be more representative of the in-group in a competitive context. These findings suggest intergroup competition increases social attraction to the group (Hogg, 1996), encouraging intragroup trust (Kramer et al, 1996) and working towards group goals (Hogg & Terry, 2000). Holz and Miller (2001) is also consistent with a socially facilitative role for intergroup competition in terms specified by SCT. These researchers reported intergroup competition led to more attitudinal certainty relative to inter-group cooperation. Social comparison and uncertainty reduction are fundamental to SCT (Hogg, 2004). Taken together both of these studies are consistent with the idea that inter-group competition promotes intra-group connection as specified by SCT.

These results suggest intergroup competition increases accessibility of a particular self-category (Reynolds et al, 2004) and also broadens ideas of who can legitimately fit within the boundaries of a social category (Rothgerber, 1997; Wilder & Thompson, 1988; Haslam & Turner, 1995). It is possible to be faithful to many simultaneously salient, contextually adaptive social identities if they are perceived to be compatible (Brewer, 1999*b*). By being cognisant of the perceiver readiness and fit it should be possible to manipulate a context in such a way as to maximise the likelihood behaviour and perception will be guided by attachment to a desired set of identities (Reynolds et al, 2004; Riketta & van Dick, 2005). Therefore it is not unreasonable to suggest intergroup competition is potentially congruent with a multiple identification based identity management strategy in a cross-functional team.

In a multiple identification context, competition should be between social identities of the same basic structure or form. In other words the competitors should be comparable in terms of the numbers and levels of identity abstraction within each team. Differences between self and non-self categories at the same level of abstraction provide self-definition in terms of the specific social categories that underlie the focal social identity structure (Eggins et al, 2003). Therefore multiple identity contexts require simultaneous opportunities for differentiation at all relevant, contextually adaptive levels of identity abstraction. Visible symbols communicate to outgroup and ingroup members that the two identity structures are equivalent in form.

The competitive context gives a shared direction for the self-category containing the symbolically represented multiple identities. In doing, intergroup competition lessens the chance potentially negative consequences of increased subgroup salience (from contact within the cross-functional team) without a source of higher order unity are not realised (Haslam, 2001). A number of outcomes that signify 'good quality' intragroup relationships result from self-categorisation. These include the tendency to be more forgiving, trusting,

cooperative, motivated and open to input from those in the same category (Gaertner et al, 2000). Voci (2006) found self-categorisation with a highly accessible organisational identity was associated with reduced turnover intention, increased cooperation and increased perceived entitativity of the organisation. Research implicating intergroup competition in generating such positive outcomes will be presented below.

Erev, Bornstein, and Galili (1993) compared the relative efficacy of three conditions in eliminating social loafing, one of the least desirable aspects of group work in organisations due its deleterious effect on productivity. In a personal condition, payment was based on individual task performance. In a 'team' condition, individuals earned a quarter share from a collective pool, the total amount of which was based on the productivity of the team. The third condition involved inter-group competition. The losing group received no payment. The least productive condition was the non-competitive 'team', producing 30% less than the individual condition. The most productive participants were those in the intergroup competition condition. In particular the effort of participants from this condition increased over time, instead of remaining steady (individual) or decreasing (team). Intergroup competition appears to contribute to increased productivity. It may also be inferred that instrumentality in the form of pay-for-cooperative performance is a less effective means of increasing productivity than intergroup competition. Haslam (2001) suggests social loafing, as seen in the Erev et al (1993) 'team' condition, is due to a lack of self-enhancement gain, as opposed to instrumental gain, within a cooperative context. Haslam (2001) also suggests, and is supported by Tyler and Blader (2001), that 'social labouring' will be encouraged if self-enhancement needs were met through linking social identity to goal achievement.

Research is supportive of the proposed compatibility between inter-group competition and SIT/SCT. Riketta (2005a) reported participants with higher levels of social identification and who believed intergroup relations were conflictual showed strong tendencies to

assimilate themselves to the ingroup while stressing the difference between ingroup and outgroup. Wagner and Ward (1993) found intergroup conflict, as opposed to the presence of an outgroup, increased the self-categorisation and social identification with an ingroup. Research supportive of a connection between social labelling and intergroup competition can be seen in research.

Ouwerkerk et al (2000) reported intergroup competition increased individual efforts to redress the lower status of a social identity group. Veenstra and Haslam (2000) found people with low social identification to a union would become willing to work on behalf of the union when the context was competitive and when the union social identity was perceived to be under threat. Worchel et al (1998) found increased individual productivity when working towards a group-based incentive rather than individual reward. Symbolically increasing self-categorisation (through uniforms and an out-group competitor) motivated employees to increase their output relative to an individual identity condition where social loafing was observable. Worchel et al (1998) found no indication that the increased productivity could be attributed to increased visibility of individual participants, as may be expected if fear of punishment motivated increased effort. In Experiment Three Worchel et al (1998) combined the effects of self-categorisation through symbolism with intergroup competition. The highest improvement in group productivity was found when participants engaged in the intergroup competition while wearing uniforms. The lowest productivity resulted from participants in conditions of high category salience (wearing uniforms), but without a competitor. Mediation analysis revealed increased effort was due to the increase in social identification stimulated by competition (Worchel et al, 1998). The suggestion is that social categorisation is given meaning and direction through social identification, which, in turn, was encouraged by involvement in inter-group competition. This pattern of findings supports the proposition that inter-group competition, combined with symbolic acknowledgment of

social identity gave a reason to exert more effort for the collective than would otherwise be the case.

Support for the utility of inter-group competition as a means of uniting competing subgroup can be found in Kessler and Mummendey (2001). These researcher found two competing subgroups (East and West German) could become willing to join against a common outgroup if the common ingroup of German was made salient. Fu, Lee, Chiu and Hong (1999) found changing the target of social comparison changed the reaction to assimilation within a higher order ethnic category. Specifically, a disagreement with the Beijing based Chinese government was made salient. There was an interaction between contextual framing and social identity. Those strongly identified with the Hong Kong ethnic identity resisted assimilation into the superordinate category of Chinese. Participants who identified with a Hong-Kong Chinese identity were willing to assimilate. However, when the issue made salient involved an intergroup contest at the superordinate level (between mainland China & Japan) the Hong Kong identifying subgroup became as willing to adopt the superordinate Chinese social identity as the Hong-Kong Chinese subgroup. Importantly, higher order identification did not come at the expense of existing sub-group identities (Fu et al, 1999). Although it is acknowledged that non-competitive team development processes can sometimes prove superior to competitive processes in homogeneous groups (Ibbetson & Newell, 1999), the research cited above suggests multiple identification can be facilitated by introducing an intergroup competitor into the context. This serves to change the evaluation of each loci of identity.

The available research provides both a theoretical and practical basis for the design of a process intended to improve the functioning of a cross-functional team through multiple identification. Three features of the strategy have been included in order to address concerns expressed about multiple identification. These features incorporate SIT/SCT concepts into a

cross-functional team structure. One feature is to encourage a willingness to identify with the cross-functional team before the team actually meets in person through information in communications. A second feature is that participant attention will be drawn to the complexity of the cross-functional team. Complexity can be made salient and valuable to the team through combining role convergence, symbolic acknowledging of behavioural involvement of the subgroup (a basis for differentiation) with the nesting of the cross-functional team within the organisation (a basis for inclusion). The final principle is that intergroup competition will be an effective contextual manipulation for balancing the drive for differentiation with the necessary for inclusion. The combination of competition with 'nesting' and 'crosscutting' directs social psychological processes in a way that makes multiple-identification within a cross-functional team meaningful and adaptive. The resulting improvement in intergroup relations is expected to enhance cross-functional team outcomes.

Summary

All three strategies reviewed in this paper have found some degree of empirical support. Decategorisation may improve interpersonal contact between ingroup and outgroup, but this may not generalise beyond the immediate actors. Recategorisation may overcome limitations of decategorisation, yet people may feel threatened by the process of recategorisation resulting in resistance which may cause inter-group relations to deteriorate. Multiple-identification does not necessarily constitute a threat to subgroup identity, and therefore is less susceptible to the problems of recategorisation. Further, as the situation is at once intragroup and intergroup, positive inter-group contact may generalise to out-group members not directly involved in contact.

However, there are concerns that may be raised about the multiple identification strategy. The concern about universal applicability is valid. However, cross-functional teams and organisations in general are suitable contexts. Evidence contrary to this position is

restricted to one study (Bachman, 1993, cited in Gaertner et al, 1996). The statistical relationships within this study, when examined through relevant research, suggests that the merger in question does not constitute a multiple identity as much as a 'bond' based in pragmatic interdependence. It can be concluded that a 'bond' is not equivalent to an identity. Where multiple identification does exist organisations appear to benefit. The issue of status differences cannot be ignored. Employees are aware of status differences act in accord with their existing assessment of social reality. However, the available evidence suggests that differentiation engendered by status differences can be controlled with a multiple identity strategy. Explicit reference to, and equal value of, each sub-groups contribution compliments multiple identification. The issue of different preferences in social structure does detract from the attractiveness of multiple identification. However, increased complexity lessens the perceived differences in relative subgroup prototypicality, thereby increasing willingness to integrate rather than assimilate or compete.

A strategy has been proposed that is intended to develop the cross-functional team as a complex multiple identification structure. Complexity is made salient through simultaneous acknowledgement of 'crosscutting' and 'nested' relationships of functional sub-groups within the cross-functional team (by symbolic means) and nesting the cross-functional team inside an organisation. Complexity is complimented by inter-group competition. Intergroup competition conducted in the 'name' of the complex multiple identity system renders the multiple identity structure meaningful and adaptive. The resulting improvement in intergroup relations should, in turn, improve the effectiveness of the cross-functional team.

Overview of hypothesis

The researcher has advanced the argument that cross-functional teams should be thought of as both intra and intergroup contact. Intra-organisational intergroup contact should be managed through application of intergroup contact research and theory. Social

identity and self-categorisation theories were presented as valid conceptual platforms from which to base attempts at managing cross-functional workgroups to the benefit of employers and employees. The logic of the argument developed in preceding chapters will be examined through the following hypothesis. Please note that there are no hypothesis relating to gender differences. The reason for this is that gender differences are not necessarily a problem within work groups (Jehn et al, 1999; Pelled et al, 1999) unless gender becomes a salient intergroup boundary (Randell, 2002). The research will be divided into two studies. Study one will use internally homogenous (mono-functional teams) and study two will use cross-functional teams.

The first hypothesis is intended to examine if the introduction of an intergroup competition will increase the acceptance of a task group as a valid source of self-definition more than a cooperative intragroup context. Researchers have recommended the introduction of an intergroup competitor into organizational contexts as a means for increasing intra-organisational integration (Lembke & Wilson, 1998; Hogg & Terry, 2000; Cunningham & Chelladurai, 2004; van Dick et al, 2004). Integration should be represented by increased social identification after completion of a group task. Increased self-categorisation, in line with the uncertainty reduction hypothesis, should take the form of lower post-task uncertainty (Hogg, 2004).

Hypothesis 1a

Alignment of participant self-definition with the task group should be stronger post-task than pre-task. Therefore social identification should increase in both the intragroup and intergroup conditions. However there should be more post-task social identification in the intergroup condition.

Hypothesis 1b

As specified by the uncertainty reduction hypothesis, increased post-task alignment of self definition should be reflected in decreased levels of subjective uncertainty in both conditions. However, there should be less subjective uncertainty after the experience of the intergroup condition than the intragroup condition.

Research within the intergroup contact tradition has found multiple identification is potentially an effective means of reducing intergroup conflict (Gaertner et al, 1999c, Gaertner et al, 2000; Hornsey & Hogg, 2000c). The proposed identity management strategy is intended to foster the idea of the cross-functional team as a locum of simultaneously salient multiple identities. The current researcher will not just look for the highest single conceptualisation of the aggregate and conclude that this is how the ingroup is thought to be. For example, if the dominant post-task conceptualisation is subgroups connected within one group it will not simply be concluded that multiple identification has been achieved. The current researcher will take into account the change of the other conceptualisations. For example, did single group conceptualisation increase or decrease as multiple group conceptualisation increased?

The current research approach is similar to Eller and Abrams (2004) in that the interest is in participants' natural response to a particular context instead of cataloguing different outcomes in response to experimenter manipulated pre-task conceptualisations as is conventionally done. A second reason for taking this approach is that there are different ways to achieve dual identification. From the perspective of the CIIM a superordinate loci of identification will become meaningful while the perceived awareness of subgroups within the superordinate group is maintained (Gonzalez & Brown, 2003; Eller & Abrams, 2004). However, according to the dual identity approach of Hornsey and Hogg (2000c) both superordinate and subgroups connected within the superordinate group conceptualisations can increased. By paying attention to the movements of the different possible task group

conceptualisations, it should be possible see which form (if any) multiple identification is likely to assume. There are separate hypothesis for Study one and Study two due the absence of intragroup subgroups in mono-functional teams.

Hypothesis 2a.

In mono-functional teams, consistent with the basic common ingroup identity model there will be an increase in conceptualisation of the task groups as being a single group in both intragroup and intergroup conditions. This increase will be accompanied by decreased conceptualisation of the task groups as subgroups within the superordinate group, separate groups, or separate individuals. The increase in single group conceptualisation, and decrease in alternate conceptualisations, will be larger after an intergroup than an intragroup task.

Hypothesis 2b.

In cross-functional teams there will be a conceptual representation of the aggregate as a site of multiple identification. This will take the form of an increase in common identification and maintenance of the awareness of subgroups within the common ingroup (complex common ingroup identity model) OR an increase in both single group and subgroup within a single group conceptualisations. The perception that the team is made up of separate groups or of separate individuals will decrease. This effect will be more evident in participants that experience an intergroup than an intragroup context.

Jetten et al (1998; 2001; Jetten & Spears, 2003) suggest distinctiveness threat is the result of tension between similarity and difference within and between groups. There are separate hypothesis for mono-functional teams and cross-functional teams as there should be no reason for participants to feel intragroup distinctiveness within a mono-functional team but there may be in a cross-functional team.

Hypothesis 3a.

In mono-functional teams intragroup heterogeneity will increase and intragroup similarity will decrease after experiencing an intragroup context. This is expected due to the tendency to attend to individuating information. In the intergroup condition intragroup similarity will increase and intragroup heterogeneity will decrease. There will be a lower level of post-task intragroup heterogeneity and a higher level of intragroup similarity reported by those who experience an intergroup context rather than an intragroup context.

Jetten et al (1998) tested three levels of distinctiveness resulting from the interplay of intergroup difference and similarity with intragroup difference and similarity. High distinctiveness (low intragroup heterogeneity with low intergroup similarity) and low distinctiveness (large intragroup heterogeneity with large intergroup similarity) were found to motivate lower intergroup differentiation than moderate distinctiveness (low intragroup heterogeneity with large intergroup similarity or large intragroup heterogeneity with low intergroup similarity) (Jetten et al, 1998). Participation in an intergroup competition is expected to counteract any tendency to perceive subgroup distinctiveness is threatened by membership in a cross-functional team.

Hypothesis 3b.

There will be either a reduction in intragroup- intergroup distinctiveness (increase in intra-subgroup heterogeneity and intragroup-intergroup similarity) or an increase in intragroup- intergroup distinctiveness (reduction in intra-subgroup heterogeneity and intragroup- intergroup similarity) but not a pattern consistent with moderate distinctiveness (increased intra-subgroup heterogeneity and decreased intragroup- intergroup similarity OR decreased intra-subgroup heterogeneity and increased intragroup- intergroup similarity). Participants who experience the intragroup identity management strategy will report a pattern closer to moderate distinctiveness than those from the intergroup context.

The researcher assumes that an organisation will want increased performance from a cross-functional team in return for expending time and money in management of the cross-functional team at a social psychological level. In accord with this position the researcher has hypothesized that there will be changes in variables that have been shown by research to be positively related to employee performance. Effort is measured in accord with the argument of van Knippenberg and Ellemers (2003) that increase or decrease of 'effort' has higher validity than 'performance' when treated as an outcome of STI/SCT processes.

Hypothesis 4a.

It is expected both the intragroup and the intergroup identity management strategies will be associated with an increase in effort. However, participants who experience an intergroup identity management strategy will report a larger post-task level of effort than those from the intragroup condition.

The researcher has argued that part of the reason for manipulating social psychological processes stipulated by SIT/SCT is to maximise the value of the cross-functional team to the organisation. The researcher assumes maximising the pragmatic value of the cross-functional team requires maximising the perceived safety of the cross-functional team social climate. Previous research suggests that levels of trust signal both the perceived safety of the cross-functional team climate and the organisational usefulness of a cross-functional team (Webber, 2002; Tsai & Ghoshal, 1998; Malz & Kohli, 1996).

Hypothesis 4b.

It is expected both the intragroup and the intergroup identity management strategies will be associated with an increase in group trust. However, participants who experience an intergroup identity management strategy will report a larger post-task level of effort than those from the intragroup condition.

Intragroup-intergroup status differences are included for two reasons. Firstly, at a conceptual level, SIT theorists consider intergroup status differences one of the fundamental threats to the positive distinctiveness of an ingroup (Horney & Hogg, 2002). The meta-analysis of Bettencourt et al (2001) found intergroup contact draws attention to relative status and that the presence of these status differences does constitute a threat. Attempts to improve the relative status of the ingroup can lead to distrust and intergroup conflict (Brewer, 1999b). The competitive aspect of intergroup contact can detract from the functioning of a cross-functional team. For example, ingroup members may downplaying the relative competence of a member from another subgroup (Terry et al, 2001). Differences in status can mean a work group does not attend to information from another function which detracts from the worth of functional diversity to the workgroup (van Knippenberg et al, 2004). Members of low status functions may engage in covert conflict such as non-cooperation while verbalising support (Jassawalla & Sashittal, 1998). Hornsey and Hogg (2002) found the negative effect of status on the perception of outgroup members can be attenuated by following a multiple identity strategy. Researchers have suggested managing diversity hinges upon first managing the contextual salience of multiple social categories through manipulations of fit and accessibility (van Knippenberg et al, 2004). One potential method for achieving this is to instigate an intergroup competition (Hogg & Terry, 2000) which can increase the salience of a social identity, increase readiness of a perceiver to adopt a specific self-categorisation (McGarty, 1999) and flexibility in who fits the social category (Haslam, 2001).

Hypothesis 5.

There will be less awareness of intragroup-intergroup status differences after experiencing the intergroup identity management context than the intragroup identity management context.

In competition it is reasonable to expect there will be a winning group and a losing group. This raises the possibility that losing a competition may be detrimental to the development of the desired social self-definition (Carnevale & Probst, 2000). The suggestion is a cross-functional team may function worse rather than better if it experiences a loss incurred from participation in identity management process involving intergroup competition. For example McDonald (1995) found people enter cross-functional teams with a tendency to blame problems experienced within the cross-functional team on the actions and characteristics of outgroup subgroups. The apportioning of blame for failure contributes to the ineffectiveness of cross-functional teams (Husted & Michailova, 2002). Mucchi-Faina, Costarelli, and Romoli (2002) found that even where there is a concern for intergroup fairness, for example accepting a share of blame for loss, intergroup evaluations will still favour preserve positive affect of the ingroup. Affective tension underscores to the most enduring intergroup conflict (Brewer, 2001) which implies a cross-functional team which loses a competition may suffer lower inter-functional cohesion.

However, there is evidence to suggest the relationship between relative group performance and intergroup disintegration is not straightforward. For example, Cunningham and Chelladurai (2004) found superordinate identification with cross-functional team mediated the impact of relative intergroup performance on willingness to work for the group and satisfaction. Turner et al, (1984) reported that losing an intergroup competition resulted in an increase in self-esteem and ingroup cohesion due to commitment to a social identity. Doosje et al (2002) found only low identifiers would psychologically leave an ingroup in response to lower performance. High identifiers did not lessen commitment to the ingroup. The suggestion is social identification with the cross-functional team may provide some protect the ingroup from disintegration after defeat. It is possible losing the competition will

not necessarily have an adverse impact on the losing team if pre-task attempts at establishing willingness to identify with a task group are successful.

Hypothesis 6.

There will be no differences between groups that win the competitive component of the intergroup manipulation and groups that lose the competitive component of the intergroup contextual manipulation in terms of post-task levels of the dependent variables.

Chapter Six: Method Study One

Overview

The chapter outlines the procedure used to examine whether the presence of internal intergroup divisions should be accounted for when attempting to manage cross-functional teams. Two separate studies were conducted. Study One examines mono-functional groups. A mono-functional group is one where the task group is devoid of internal intergroup dimensions that may be derived from membership in a functional subgroup. This represents, for example, an organisational team where members of the same department or function work together to fulfil a task. The second study examines cross-functional teams. A cross-functional team has an internal basis for differentiation along departmental or functional subgroup boundaries, in the present case based in membership of different academic groups. Study two simulates conditions faced by members of cross-functional teams in organisations. Both mono-functional teams and cross-functional teams will perform the same tasks and be subjected to equivalent contextual manipulations. The focus on contextual manipulation is based in social identity theory and self-categorisation theory which hold that internalising self-definition of a specific social identity is made with reference to the prevailing context (Haslam, 2001; McGarty, 1999).

Participants

The sample consisted of undergraduate students from Griffith University. One hundred and ten participants (83 females, 26 males, and one participant did not specify gender) were recruited for this study. Age of participants ranged from 16 to 57 years ($M = 22.95$). Participation in the experiment was voluntary. Participants were recruited directly, through brief presentations before lectures and tutorials, or indirectly through mass electronic mail and sign-up sheets in common-use laboratories. At the time of initial contact participants were informed that there was payment for participation. Participants were able to

choose the form of their payment which was either academic course credit (one credit point per hour) or payment of \$10.00 per hour.

Forty-four (9 males and 35 females, age range 17-47, $M = 23.47$) participants were selected to experience an identity management strategy based in an intragroup context. The participants were placed in one of four task groups. Each team had 11 members. This group size is fairly representative of the size of task groups in organisations. For example, Campion et al (1993) report an average team size of 15 members and Campion et al (1996) report an average size of 9.36. In this instance intragroup should not be interpreted as suggesting participants are intended to be interacting at an interpersonal level of identity at any stage of the study. Participants are expected to enter the research context with pre-task levels of social identification above the scale midpoint. Intragroup refers to the fact there will be no competition within or between groups.

Sixty-six participants (17 males, 48 females, and one participant who did not provide gender identifying information, age range 16 to 57 years, $M = 22.6$ years) were selected to experience an identity management strategy in an intergroup context. Participants were divided into six 11 person task groups. In this context there was competitive contact between two different mono-functional teams.

Group assignment

Participants believed group assignment was by virtue of participant responses on a bogus measure of 'similarity' constructed by the experimenter (see Appendix C). The 'similarity' measure was not intended to be a statistically reliable or valid. Group assignment within the intragroup context was arbitrary in that no individual participant characteristic was factored into group assignment by the researcher. Similarity of personality has been used as a basis for social identification in past research (Spears, Jettten & Scheepers, 2002; Spears et al, 2004). Perceived similarity on common attributes and shared purpose, and the implied

existence of dissimilar others (implicitly intergroup even though the context is explicitly intragroup) provides basis for accepting social identification with the mono-functional team (Brewer, Hong, & Li, 2004; Billig & Tajfel, 1973). The belief that group members are similar allows individual participants to make social comparisons on the basis of the belief that they embody the prototypical standards of the ingroup. This allows intragroup perception to be based in social psychological processes contained within SIT/SCT (Yzerbyt, Estrada, Corneille, Seron, & Demoulin, 2004).

The group assignment process in the intergroup context differed from the intragroup condition in one detail. Group assignment was still purported to be on the basis of participant responses on the bogus 'similarity' measure. However, this procedure was augmented by ensuring (when possible) that opposing teams had an equal number of males. The reason for this was to control for any perceived or real advantage a group might gain by having more males than the opposing group in a competition with a large component of physical activity. This practice is supported by research demonstrating that stereotypical gender based advantages, in this instance greater strength and aggression in males compared to females, can affect participant behaviour and social psychological processes as reported by participants (Ouwerkerk et al, 1999). The assignment of any particular male to any particular team was arbitrary. Competition was between two different task groups. There was no competition within a team.

Design

The research employed a quasi-experimental between groups repeated measures design. The between groups independent variable was 'identity management strategy', which has two levels. One level is 'intragroup' and the other 'intergroup'. In the intragroup condition, participants only interacted with members of their team. There was no interaction with another group nor were participants be made aware of the existence of any other group

which may be performing, or have previously performed the same task. In the intergroup condition participants were competing against another mono-functional team. In both conditions the groups are given problem solving tasks, the completion of which requires cooperation between group members. In other words, interaction within groups was always cooperative. Competition only occurred between groups as part of the intergroup identity management strategy. There are three reasons problem solving tasks requiring cooperation between group members are used in the two identity management strategies.

Firstly, cooperation has long been considered a method for improving social interactions (Gaertner et al, 1999b). If sharing the experience of performing a problem solving task is sufficient of itself (as in the intragroup condition) for improving attachment to, and functioning of a task group (for example to increase 'post-task levels of trust or social identification) then there is no pragmatic reason for an organisation to expend resources on complex, and potentially risky strategies (Turner & Pratkanis, 2000) such as stimulating intergroup conflict. There may be some basis to discount the recommendation of a number of researchers to stress the presence of an outgroup competitor (Hogg & Terry, 2000; Ashforth & Johnson, 2001; van Dick, 2004) in order to promote identification with a task group. For example, Ibbetson and Newell (1999) found there was no difference in team building efficacy between competitive and non-competitive programmes. Secondly, cooperative interaction is a fundamental requirement of organisational teams (Cohen & Bailey, 1997). Thirdly, the use of a problem solving activity is consistent with past research concerned with manipulations of social categorisation and intergroup conflict reduction. This line of research normally employs 'The Winter Survival Problem' (or derivatives such as moon or desert survival). In these survival problems groups of participants are required to rank 12 items which in the order that would be most likely to ensure survival (Gaertner et al, 1989; 1990; Dovidio et al, 1995; Cunningham & Chelladurai, 2004). However, these types of exercises are also widely

employed for teaching purposes inside the university. Thus in order to control for practice effects the present study did not use the ‘winter survival problem’ or any similar exercises.

The problem solving task used in the intragroup condition was Albert Einstein’s ‘Who owns the fish’ problem (see Appendix D). The problem solving task used in the intergroup context condition took the form of a scavenger hunt. The scavenger hunt is comparable to the activity used in the intragroup condition in that intellectual activity was required. However, the intellectual activity was complimented by physical activity required for the scavenger hunt and the affective response of avoiding capture, or successfully capturing members of the opposing outgroup. These features are intentionally included as part of the contextual manipulation. The supporting rationale being that physical activity and the affective responses (experienced on behalf of a group) that may arise from competitive intergroup contact can be capitalised on to facilitate social psychological connectivity to the group (Drury & Reicher, 2000; Mackie et al, 2000). Furthermore, organisations interested in team development must often choose between processes based around different problem solving tasks, physical activity level and level of competition. This choice is made difficult by a paucity of research evaluating the effectiveness of alternate programs (Ibbetson & Newell, 1999). The present design addresses the need for evaluation of team development processes which, although differing from each other in terms of level of intragroup or intergroup context and sedentary or active problem solving activities, are of types that likely to be chosen between by organisations. It is possible some may consider the problem solving tasks in the two conditions to be too different for a direct comparison. Potential issues that may arise from the difference between the two tasks will be addressed in the General Discussion.

Dependent variables

In line with the principle of theory-practice integration the selected dependent variables (DV) are intended to serve both conceptual and pragmatic purposes. The conceptual facet of the research was addressed by DVs measuring psychological processes consistent with SIT/SCT and a multiple identification perspective (social identification, subjective situational uncertainty (representing SIT and SCT respectively), intragroup heterogeneity and intragroup similarity). In past research (Gaertner et al (1999b) the next DV has been referred to as the ‘conceptual representation of the aggregate’. The conceptual representation of the aggregate is represented by four different ways the social context could be perceived by participants in terms of various forms and levels of identification (single group, subgroup within single group, separate groups and separate individuals). As stated in the introduction the movement of each ‘conceptualisation’ will be interpreted with reference to movements in other possible conceptualisations.

The applied aspect of the current work is addressed through the measurement of two dependent variables indicating behavioural or psychological processes conventionally considered desirable by work groups and organizations (group trust and effort). Trust is a key indicator of the quality of the intragroup social dynamic and a precursor of effective cross-functional team interactions (Simons & Peterson, 2000; Costa et al, 2001; Weber, 2002). Effort is measured in accord with the argument of Van Knippenberg and Ellemers (2003) that increase or decrease of ‘effort’ has higher validity than ‘performance’ when treated as an outcome of STI/SCT processes. Taken together, these two DVs indicate whether the level of intragroup social functioning improves or deteriorates after experiencing either identity management strategy.

Materials

Group assignment task.

The bogus ‘similarity’ measure (see Appendix C) used for assignment to the mono-functional groups was designed for quick and easy self-administration without experimenter supervision. The task was suitable for use in both hardcopy and electronic forms which enhanced the flexibility of contact with participants. The ‘similarity’ measure is a collection of geometric shapes accessed from the selection of ‘Basic shapes’ from the ‘Auto shapes’ section of the Microsoft Word tool bar. The shapes were arranged in rows of three, labelled Row A, Row B, and Row C. Each row is intended to have some face validity as a thematically linked set but is not intended to be a psychometrically reliable or valid similarity measure. Written instructions informed participants that they would be assigned to groups on the basis of the degree of similarity revealed by their ranking, in order of preference, of the three rows. The following example was given; “*For example A, B, C would mean you like row ‘A’ the best, ‘B’ next, and row ‘C’ the least*”. Participants were informed (in writing) that there is no incorrect response and that all responses would be treated confidentially.

Intragroup condition.

A stopwatch was required by the experimenter to ensure every group had equal time to complete the task. A sufficient number of team uniforms (blue t-shirts) were required so that each participant could readily identify team membership. The problem-solving task employed in the intragroup condition was Albert Einstein’s ‘Who owns the fish’ (see Appendix D) logic problem, proposed by Einstein to be unsolvable by all but the top two percent of the population. The problem requires each group of participants to deduce the owner of a pet fish from among a number of potential owners, each of whom possess individually identifying characteristics. For example, “*The Swede keeps dogs as pets*” and “*The man who smokes Blend has a neighbour who drinks water*”. The problem was presented to each participant on a separate (numbered) handout. Numbering of each handout

was required to ensure every sheet was returned. This was done to avoid the problem being introduced into the population, thereby controlling for exposure to future participants.

Each session took place in a well-lit room equipped with whiteboard and suitable markers. Tables were arranged in a single block with participants seated around the edge of the rectangle to facilitate problem solving as a group. Separate pre and post-interaction pen and paper questionnaire booklets were required for each participant. Different materials were required for the inter-group context.

Intergroup condition.

A stopwatch was required by the experimenter to ensure time limits were consistent between trials and a referee's whistle was required for starting each trial. Three separate rooms were required for this part of the study. One room served as a common meeting space. The other two rooms were allocated to the teams for use as homerooms. The problem solving task in the intergroup context is fundamentally a scavenger hunt. Each team received one copy of a campus map and a handout detailing rules, goals and a fictional scenario where participants were cast in the role of tribal members being sent on a quest (see Appendix E).

The scenario, by virtue of its unusual yet entertaining nature, helps move participants into the experimental ingroup (Dick, 1991). The scenario stressed that each member had been chosen due to the knowledge, skills, and abilities they had displayed in the past, as is (supposedly) membership in organisational work groups (Cohen & Bailey, 1997). Participants were informed that their suitability for "elevation within the tribe" would be judged from their performance in a group test. The test involved the group following a set of clues to discover the location of pieces from their 'tribal idol'. Winning the game would also resolve a border dispute between the two tribes in favour of the winning team.

Within social identity research scenarios are an accepted and effective means of increasing the salience of a social identity through manipulating 'fit'. These scenarios often

emphasise the presence of an outgroup or competitive behaviour from an outgroup. Although increasing inter-group competitiveness can be an unintended confound created by a scenario (Haslam, 2001) in the current research the intent is to capitalise on any inter-group competitiveness. Therefore the scenario allows for the development of a context in which the desired self-categorisation becomes adaptive

The role of the scenario in enhancing the contextual adaptivity of the desired categorisations and identities begins with the introduction of the first inter-group element of the experiment. Specifically, participants were informed that their idol has been broken into pieces and hidden by elders from the opposing tribe. Secondly, a tribal scenario allows the introduction of an explicit basis for competition, 'head hunting'. The method by which heads are 'taken' allows for the introduction of a further means for heightening the salience of the inter-group nature of the social context. This is the provision of distinct team uniforms altered (by attachment of a removable ring-pull tag) to allow for safe symbolic 'removal' of 'the head' of an outgroup member. The use of team uniforms (coloured t-shirts) is consistent with past research where the aim was to delineate between teams and stress the inter-group nature of the social context (Worchel et al, 1998; Gaetner et al, 1999*b*).

The t-shirts were modified by the firm attachment of the 'hook' portion of a Velcro patch to the back of the shirt. A length of cord (in the same colour as the team uniform) of sufficient length (approximately 12 cm hanging off each shirt) for grabbing by a white (for easy visibility) ring tied to one end and the 'loop' section of the Velcro patch attached to the other end. It is the grabbing and removal of these tabs by a member of the opposing team that signifies the capture or loss of a 'head'. A similar system (of tab removal) is used with safety in club level touch rugby. The use of a removable tab requires competitors to actively pursue or avoid capture the out-group. This provides a basis for behaviour that emphasises inter-group competition. Combining overtly competitive behaviour, symbolised group

membership and physical activity and attempts to capture/ avoid capture were proposed as adequate means of heightening the immediacy of the intergroup competition (Brewer, 1999b). The t-shirt uniforms (either red or blue) had no other markings that might unintentionally increase the accessibility of other potential social categories or level of identification.

The experimenter developed sets of clues to guide the participants search efforts. Each clue was placed in a sequentially numbered (1-6) envelope. The seventh and final envelope had 'FINISHED' written on the front so groups would know all clues had been solved. Each envelope (except the first) contained a piece of the tribal idol. The clues were cryptic descriptions of specific on campus locations. Each clue led to the location of the next envelope (in numerical sequence). The clues were intended to be challenging enough to motivate, but not that difficult as to be perceived as impossible to solve.

Each group had their own set of clues to solve. Teams were not attempting to beat the other team to the same envelope nor did the envelopes of opposing groups contain identical clues. If both teams had been competing for one set of clues then the first team to solve a clue would be the only team to be able to solve the second clue. Further, if each group had the same clue it may have been tempting for one group to follow the other instead of working together in their own group to solve each problem. Equivalence of difficulty between clue sets given to opposing groups in each trial was controlled via an independent review process. The review process entailed a panel of three judges reading and commenting on the relative difficulty of each question set. Where there was agreement between reviewers that one set of questions was more difficult the items were changed between question sets. These question sets were then resubmitted for review to the panel. A pair of question sets was only used when the majority agreed both were of equal difficulty.

The idol.

The scavenger hunt required the use of the easily available toy figures of Mr and Mrs Potato Head to play the role of ‘desecrated’ tribal idol. There are three reasons for the use of Mr and Mrs Potato Head. Firstly, these toys are anthropomorphic without actually being revered as idols. The use of these commonplace toys is intended to control for any possible bias or offence that may have been incurred from the use of recognised religious symbols. The second reason is that they can be broken into separate pieces that can be easily reattached. Finally, each piece will fit in a standard sized envelope. These features made them ideally suited to play the role of the scattered tribal idol that must be completely rebuilt if a group is to gain maximum points.

Points.

The contextual adaptivity of the experimental groups is implicit in the points system. Participants add bonus points to the final team score for the successful capture of the ‘head’ of an opponent. Being caught incurred penalty (with each person caught points are removed from the final group score) and removes a participant from further participation in the game. Points are awarded for each piece of idol collected with extra points to the first team to complete their tribal (ending the game). The method of accruing or losing points stresses that the in-group benefits most if the out-group loses (zero-sum). Zero sum situations have been found to increase intergroup competitiveness (Brewer, 2001). Further, the explicit group goal of beating the out-group should mitigate any tendency for social loafing (van Leeuwen & van Knippenberg, 2002). The researcher provided a prize to each individual member of the winning group. Payment for participation was awarded regardless of whether a participant was a member of a winning or losing team.

Measures

All measures described below (see Appendix F) were administered both pre and post-task. Examples of item wording are from the pre-task phase of the experiment. In the post-task phase items were reworded to reflect the past-tense.

Social identity.

Social Identification was measured using the tri-dimensional measure of social identity developed by Ellemers et al (1999). The facets of social identification contained in this 10 item measure are 'group self esteem' (4 items), 'self categorisation' (3 items) and 'commitment to the group' (3 items). An example of a group self esteem question is "*I feel good about the group*". An example of a self categorisation question is "*I am like other members of this group*". An item reflecting group commitment is "*I would like to continue working with this group*". In research by Ellemers et al (1999) each factor had distinct relationships with different expressions of in-group bias yet when treated as a combined measure of social identity reliability was an acceptably high $\alpha = .82$. Scoring was on a conventional Likert type index scored from 1 = 'not at all' to 9 = very much. Higher total scores indicate more social identification with the in-group.

Subjective uncertainty.

The three item measure of subjective uncertainty was adapted from Mullin and Hogg (1998). The Mullin and Hogg (1998) measure includes one question assessing situational uncertainty ("*I feel uncertain about the experimental environment*") thereby extending the coverage of 'uncertainty reduction' provided by earlier measures (Hogg & Grieve, 1999; Grieve & Hogg, 1998) which only assessed task uncertainty (Mullin & Hogg, 1998). The two task uncertainty items are "*I am certain that I understand the instructions and the problem*" (reverse scored) and "*I am confident that I can work out the correct answer*" (reverse scored). Mullin and Hogg (1998) reported an average alpha (across three trials) of $\alpha = .86$. When used by Jetten et al (2000a) the average alpha across two studies was $\alpha = .83$.

These statistics suggest that this measure possesses superior internal consistency to the Hogg and Grieve (1999) uncertainty measure ($\alpha = .76$). All items are scored on a nine point scale ranging from 1 = 'not very much' to 9 = 'very much'. Higher scores indicate more subjective uncertainty.

Conceptual representation of the aggregate.

The items measuring 'conceptual representation of the aggregate' have been widely used in research where there is multiple possible loci of social identification (Dovidio et al, 1995; Dovidio et al, 1998; Banker & Gaertner, 1998; Gaertner et al, 1989). The four items are "*It feels most like one group*" (perception of team as a single group), "*It feels most like sub-groups connected within one group*" (perception that team is a single group uniting distinct subgroups), "*It feels most like separate groups*" (perception of team as psychologically separate groups working together) and "*It feels most like separate individuals*" (perception of the team as a collection of individuals connected only by task requirements). Consistent with the existing body of research, items are rated on 7 point scales (one = 'not at all' and 7 = 'very much'). Higher scores indicate a stronger perception that the aggregate is best exemplified by a particular conceptualisation.

Intragroup heterogeneity.

The heterogeneity was measured using the ingroup variability measure of Jetten et al (2000b). The scale consists of three items. These are, "*Members of this group can be seen as very different from each other*", "*Members of this group can be seen as very similar to each other*" (reverse scored) and "*Members of this group form a coherent group*". Jetten et al (2000b) reported a reliability statistic of $\alpha = .90$. Validity is suggested by Jetten et al (2000b) as participants in high or low heterogeneity conditions were found to differ from each other in a manner consistent with SIT. All items are rated from 1 = 'not at all' to 9 = 'very much' with higher scores indicating wider in-group variability.

Intragroup similarity.

Intragroup similarity (higher scores indicate more similarity) was measured with an adaptation of three items used by Hornsey and Hogg (2000a; 2000b). The three items are “*In terms of general attitudes and beliefs, I feel similar to other people in (group x)*”, “*I feel a sense of belonging with other people in (group x)*” and “*In general, I think I would like other people in (group x).*” An acceptable level of internal consistency was found by Hornsey and Hogg (2000a) with $\alpha = .76$ reported and Hornsey and Hogg (2000b) reporting $\alpha = .78$. Participants provide responses on a 9 point scale with 1 = ‘not at all’ and 9 = ‘very much’.

Effort.

Effort was measured using the five item work intensity subscale developed by Brown and Leigh (1996) as part of their two factor (time commitment and intensity) measure of workplace effort. In Brown and Leigh (1996) reported this subscale to have a mean alpha coefficient $\alpha = .825$ across two independent sample populations. Brown and Leigh (1996) found ‘effort’ explained an additional 10% of employee performance when included in a path analysis, with work intensity making a larger contribution than ‘time commitment’. A sample item is “*I will work at my full capacity*”. The time commitment sub-scale was not used due the unsuitability of questions for the research context. For example “*My clients know I’m in the office early and always leave late*”. Items are scored on a seven point scale ranging with ‘one’ representing ‘strongly disagree’ to seven, ‘strongly agree’. A higher score signifies a willingness to work harder for the group than a lower score.

Group trust.

Development of this measure was necessitated by lack of an existing measure for current research purposes. Specifically, the present research required a measure that is suitable for use in groups formed solely for the purpose of an experiment. This makes an available measure unsuitable if there is an explicit focus on dyads rather than a group. For

example, “*We would both feel a sense of loss if one of us was transferred and we could no longer work together*” (McAllister, 1995). Another factor that renders many existing scales unsuitable is items assuming repeated interaction at a place of work rather than the one off interaction required by the current research. Temporary groups, as in the current research, do not share a history of interactions and events (Meyerson, Weick, & Kramer, 1996). This may make it difficult for participants to provide realistic answers to items requiring some historical connection. Another factor that may make an existing scale unsuitable for use is the treatment of trust as at an individual level rather than a social level. For example, Costa et al (2001) measure an individuals ‘propensity to trust’.

In response to the characteristics of existing trust measures the researcher developed a scale designed to provide a global measure of the perceived group trustworthiness suitable for experimental settings. The definition of trust used by the researcher was formed by integrating the definition of trust proposed by Cummings and Bromiley (1996) and arguments regarding the social psychological underpinning of intra-organisational trust by Kramer et al (1996). Specifically, trust is defined as the belief held by group members that other members of the in-group will, to the best of their ability, behave in a manner consistent with their commitments as a member of the in-group.

In operationalising the stated definition the researcher was guided by a three factor model of trust proposed by Mayer, Davis, and Shoorman (1995). The three factors of trust as proposed by Mayer et al (1995) are ability, benevolence and integrity. Mayer et al (1995) consider ‘ability’ to be task and situation specific groups of skills, competencies, and characteristics. Integrity is defined as “adherence to a set of principles by the trustee that the trustor finds acceptable. Integrity includes a sense of justice, congruity between words and acts, reputation.” Benevolence is the “extent to which a trustee is believed to be want to do good to the trustor”

The Mayer et al (1995) model is based on a review of trust literature from which three characteristics of trustworthiness common to the various models were drawn. The model is intended to capture the essence of trust in a more parsimonious fashion than alternative models. For example, Butler (1991) developed 10 separate factor measure of trust and Mishra (1996, cited in Mayer et al, 1995) proposed a four factor model (competence, openness, caring and reliability). Mayer et al (1995) demonstrated that these, and other models of trust can be successfully incorporated within their three factor model. For example, in terms of Mishra (1996: cited in Mayer et al, 1995) ability incorporates competence, benevolence incorporates openness and concern, while integrity encompasses reliability.

Item content within the researcher developed group trust scale is behaviourally based. The behaviours contained in items are intended to represent the exercise, or withholding, of ability, integrity and benevolence as it may be observed within the experimental in-group. It is recognised that in recent research trustworthy behaviours have been considered distinct from perceived trustworthiness (Costa et al, 2001). However, it can be argued that this distinction is of little practical value. For example, in Costa et al (2001) the scale inter-correlation between perceived trustworthiness and trust behaviours was $r=.68$. At this magnitude of association the two scales could have been combined into a single scale (Tabachnik & Fidell, 2001). Further, it is assumed that trust, although an every day concept, is intuitively understood but difficult to intellectually dissect as indicated by the many definitions and models available (Hosmer, 1995). The behavioural basis of items should allow participants to draw directly from concrete experience (within the experimental in-group) as the observed actions of others informs belief as to the level of trustworthiness that can be safely invested (Kramer et al, 1996; Cummings & Bromiley, 1996). The behavioural item content should allow a contextually accurate indication of the true level of intra-group

trust as experienced with the experimental context by decreasing the need for conjecture (Bhattacharya, Devinney, & Pillutla, 1998). Some support for the researchers' argument can be drawn from employee selection literature where behavioural based interview questions increase validity of employment interviews (Campion, Palmer, & Campion, 1997).

Pilot testing of the 12 item group trust scale (see Appendix F) was carried out with a sample of 60 Griffith University students. A seven point (1 = strongly disagree to 7 = strongly agree) rating scale was used. Lower numbers equate to less intra-group trust. Analysis using SPSS revealed an acceptable level of inter-item reliability ($\alpha = .84$) for a unitary measure. A sample item is "*The group pays equal attention to the ideas of all group members*". Item number three ("*There is no risk of the group not listening to members input just because they are different*") and number four ("*No one in this group would deliberately act to undermine my efforts*") are adapted from Edmondson (1999). Item number five ("*There is a destructive competitiveness among members of this group*") is from Friedlander (1966).

Procedure

Group assignment.

In this mono-functional group based study the experimenter randomly assigned participants to groups, although, as part of the manipulation of pre-task social identification, participants were led to believe membership was based on their responses to the bogus similarity measure (see 'Materials' section). Participants were informed of the time and place for participation. They were not told the identity of any other in-group member. This process did not differ between intragroup or intergroup conditions.

Intragroup condition.

One hour was allotted for each trial. In the intragroup condition the problem solving task was performed in a university training room. Desks were arranged in a single

rectangular block. When participants were seated the experimenter distributed pre-task questionnaire booklets to each individual participant. Participants were requested to read the study information sheet and sign informed consent forms. Once this was completed participants were requested to read the following instructions

“This is the first phase of your participation in this research. I am interested in the way you presently feel about the work group you have been assigned to. Remember: Respond with the choice that most accurately reflects your feelings as they are now. You do not need to ‘be nice’ or ‘not nice’, just honest. No one will see your data and you cannot be wrong. After completion of this survey we will move onto the next phase of the research.”

These instructions were supplemented with these scripted verbal instructions.

“It may be that there are individuals you like, or individuals you do not like in this group. It is possible that you are with people you have never met before. I stress that the questions are asking about the group as a whole. Not the person or people with whom you are most familiar or have the strongest feelings towards. It may be difficult to respond to some questions as this group has no prior existence outside of this experiment. Try your best to give an honest response. It may help to think of the middle scores as representing either ambivalence or no strong opinion either way. Think of the lower scores as indicating a low opinion of the group as a whole. Think of the higher scores as indicating a more favourable opinion of the group as a whole. Be aware that some of the items are reverse scored so pay attention to the wording to make sure you are actually saying what you mean. Do you have any questions? I will now leave the room for 15 minutes while you complete the questionnaire.”

The experimenter left the room, returning after 15 minutes. Participants were given the team uniform of a plain blue t-shirt to wear for the remainder of the study. After collecting the pre-task questionnaires, the researcher placed (face-down) a copy of the

problem in front of each participant. Each copy was numbered to ensure all copies were returned to the experimenter. The following verbal instructions were issued.

“When I instruct you to do so, please turn over the sheet of paper in front of you. This is the problem your group will be working on. You will have 20 minutes available. At the end of this time you will be asked to give a mutually agreed upon answer. The method you use to solve the problem is a matter for the group to decide. You may use any equipment in the room that you like and you can write on your personal sheet. Each handout is numbered and will be returned to me at the end of the 20 minutes. I cannot tell you if the answer you give is correct as I must use the same problem with every group taking part in my experiment. Are there any questions? I will now leave the room and return in 20 minutes for your decision”.

When 20 minutes had elapsed the researcher asked for the group decision. The problem-solving activity handouts were then collected and checked to make sure all 11 were returned. The participants were then given the post-task questionnaires. The following supplementary instructions were written on the cover sheet of the post-task questionnaire booklet.

“This is the final phase of your participation in this research. I am interested in the way you feel about the work group now that you have worked together. Don’t worry if the questions look similar to those you filled out earlier. This is intentional. Please note that there are some additional demographic questions on the final page of this survey. You do not need to be consistent with your answers on the first survey. Respond with the choice that most accurately reflects your feelings as they are now. You do not need to ‘be nice’ or ‘not nice’, just honest. No one will see your data and you cannot be wrong.”

Participants were given 15 minutes in which to complete the questionnaires. During this time the experimenter left the room. On return, the experimenter collected the post-task

questionnaires. Participants were then thanked for their cooperation and paid \$10.00 or with 1 course credit point as per pre-participant request.

Intergroup condition.

Two hours were allotted for each trial. All participants were requested to meet at a room which would serve as the neutral zone for the duration of the trial. Before being separated into groups the participants were requested to read the study information sheet and sign informed consent forms. Once this procedure was completed, the following scripted verbal instructions were issued.

“You are about to be placed into one of two groups. It may be that there are individuals you like, or individuals you do not like in this group. It is possible that you are with people you have never before. I stress that the questions are asking about the group as a whole. Not the person or people you are most familiar with or have the strongest feelings towards. Its may be difficult to respond to some questions as this group has no prior existence outside of this experiment. Try your best to give an honest response. It may help to think of the middle scores as representing either ambivalence or no strong opinion either way. Think of the lower scores as indicating a low opinion of the group as a whole. Think of the higher scores as indicating a more favourable opinion of the group as a whole. Be aware that some of the items are reverse scored so pay attention to the wording to make sure you are actually saying what you mean. Do you have any questions?”

The researcher then took each group to its own separate room (one group at a time). Each room had tables arranged in a single rectangular block with chairs along the sides and both ends. The questionnaires were identical to those used in the intragroup context pre-task condition. Participants were instructed to read the following instructions.

“This is the first phase of your participation in this research. I am interested in the way you presently feel about the work group you have been assigned to. Remember:

Respond with the choice that most accurately reflects your feelings as they are now. You do not need to 'be nice' or 'not nice', just honest. No one will see your data and you cannot be wrong. After completion of this survey we will move onto the next phase of the research. Do you have any questions? I will now leave the room for 15 minutes while you complete the questionnaire."

The experimenter then repeated the process with the other group in their home room. After all participants had completed their pre-task questionnaires the two groups were brought together again. The researcher gave each group (see 'Materials' section) its uniform. One group wore unadorned blue shirts and the other group wore red shirts. For safety reasons participants were made to wear the tag to the back of the shirt. Each group was then given a manila folder containing a map of the campus and one copy of the rules for the scavenger hunt activity. The rules (see Appendix E) began with an outline of the tribal scenario. This was followed by a description of the object of the game, an explanation of the points system, and instructions to return to the 'judgement zone' (the 'common' room where participants had been split into groups) for the final assembly of their idol. Finally, a limitations section listed the time limit (one hour) and other restrictions. The instructions were read out aloud by the experimenter. After this, a demonstration of the tag removal process was given. Participants were led to believe 'undercover referees' were patrolling the campus to ensure the rules were adhered to and that no unnecessary roughness was exercised against other participants.

The groups were then taken to their respective starting points. The relative placement of the group start positions was based on the need of the experimenter to see both groups (to ensure there was no reading of clues before the one hour began) and the need for both groups to be able to clearly hear the whistle balanced by the need to ensure some workable distance between groups. The experimenter decided 'space between groups' was

necessary for a number of reasons. Firstly, to allow participants a chance to practice working out the clues without the threat of early capture. Secondly, and relatedly, to remove any temptation for groups to just ‘take heads’ (as may have occurred if they were starting at proximal points) before there had been a chance for intra-group interaction. The same thinking underlined the further early separation of the groups by virtue of the answer to the first clue sending each group to opposite ends of the campus. When both groups signalled their readiness the researcher blew a starters whistle and returned to the neutral zone to wait for any captured participants

When either of the groups had collected all pieces they returned to the ‘judgement zone’ and assembled their idol. This ended the activity. Where possible, those participants unaware the game had ended were contacted by mobile phone, asking them to tell any other participants to return to the neutral zone. The game typically lasted between 35-40 minutes. The participants were allowed a 15 minute break for a chance to rest. The experimenter also provided refreshments (cold fruit juices, water, lollies, biscuits and fresh fruit) for participants to consume during this period. The reason for this was to control for any effect fatigue may have on participant responses. There was no attempt to prevent intergroup interaction during this rest period. The experimenter tallied the points of each team and proclaimed a winner. Uniforms were collected at this point to avoid influencing participant responses on the post-task questionnaires. Questionnaire booklets had the following instructions printed on the cover sheet.

“This is the final phase of your participation in this research. I am interested in the way you feel about the work group now that you have worked together. Don’t worry if the questions look similar to those you filled out earlier. This is intentional. Please note that there are some additional demographic questions on the final page of this survey. You do not need to be consistent with your answers on the first survey. Respond with the choice that

most accurately reflects your feelings as they are now. You do not need to 'be nice' or 'not nice', just honest. No one will see your data and you cannot be wrong."

As in the intragroup condition, participants were informed they had 15 minutes in which to complete the questionnaires, during which time the experimenter left the room. On return, the researcher collected the post-task questionnaires. Participants were requested to meet in the neutral room once more. The winning group was awarded their prizes and all participants were thanked for their cooperation. Payment took the form of \$20.00, 2 course credit points, or an even split between the two forms of payment as per their pre-participation request.

A graphic summary of the research procedure is presented below (see Figure 16). Both the intragroup (left hand side) and intergroup (right hand side) conditions are outlined.

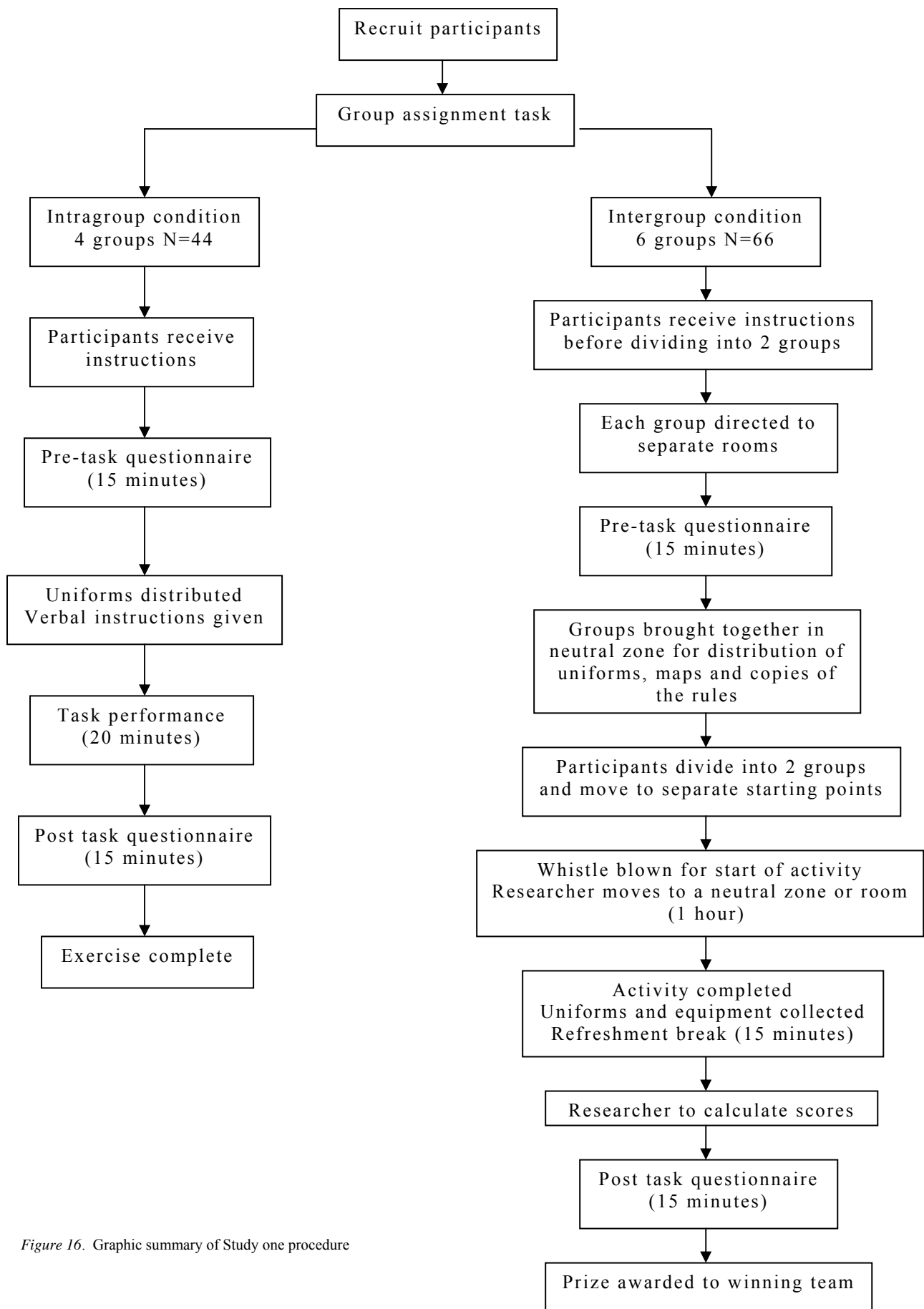


Figure 16. Graphic summary of Study one procedure

Chapter Seven: Results Study one

Screening

The following practise was followed when analysing the data set. Data was screened for univariate normality. Outliers were defined as $z = 3.3$ (Tabachnik & Fidell, 2001). If outliers were found to be present a number of analyses were run to assess the impact of outliers on final results. Distortion of interpretation is the major concern when including outliers in analysis while deleting cases unnecessarily is unethical (McClelland, 2000). Analyses were run with transformed scores, untransformed raw scores, and with outliers removed (McClelland, 2000). Neither removal of outliers or transformation of scores improved interpretability or changed the significance of the results, therefore all analysis was based in raw untransformed scores (including outliers). As a safeguard against inflated type 1 error, $p \leq .01$ was used in *all* analysis as the minimal criteria for indicating a statistically significant change (Hair et al, 1998). There was no missing data.

Descriptive statistics

Table 3 presents descriptive statistics for the sample as a whole, including the mean pre-task total, mean post-task total, scale internal consistency (Cronbachs α) and the standard deviation. All scales with the exception of the heterogeneity ($\alpha=.44$) scale possessed acceptable levels of internal constancy reliability. However, the low level of internal consistency reliability is not incontrovertible evidence that the intragroup heterogeneity scale is unreliable as Cronbach's alpha can be misleading when scales have few items (John & Benet-Marinez, 2000). In short scales, the mean inter-item correlation may be a better guide to scale reliability with Briggs and Cheek (1986; cited in Pallant, 2001) proposing that inter-item correlations between .2 and .4 are acceptable. However, both the internal consistency and inter-item correlation of the three item scale were both unacceptably low. Examination of the reliability analysis suggested scale reliability would improve if item three (*Members of*

this group form a coherent group) was removed. Removal of item three resulted in a two item heterogeneity scale with an acceptable (once the brevity of the scale is considered) of $r=.28$ and so is sufficiently reliable for inclusion in the present analysis (can be considered acceptable once scale length is taken into account (John & Benet-Marinez, 2000; Briggs & Cheek, 1986; cited in Pallant, 2001). The resulting two item measure is very similar (in terms of item content) to the ingroup homogeneity measure used by Jetten et al (2000a) although in the current research the scale was used as a heterogeneity indicator by reverse scoring the item gauging intragroup similarity.

Table 3

Study one descriptive statistics

DV	α	Pre-task M	Pre-task SD	Post-task M	Post-task SD
Social identity	.75	48.20	7.23	54.27	8.34
Subjective uncertainty	.68	13.82	4.28	9.81	4.33
Intragroup heterogeneity	.44	10.15	2.40	9.00	3.11
Intragroup similarity	.67	14.53	4.02	16.95	4.53
Effort	.95	24.62	6.62	28.40	4.97
Group Trust	.80	58.39	10.43	65.18	9.73
Single group		3.75	1.47	5.18	1.45
Subgroups in single group		3.22	1.73	3.21	1.77
Separate groups		2.48	1.41	2.29	1.38
Individuals		3.92	1.97	2.47	1.76

Note. Scale reliability statistics derived from pre-task responses. N= 110

Analysis

This chapter outlines the findings of Study one. In the current research there were two statistics of particular interest. One was the within groups difference between pre-task and post-task scores. This statistical significance of the difference was assessed through repeated measures analysis of variance (ANOVA). Separate analyses were performed for each identity management strategy (intragroup and intergroup). The second statistic of interest was the difference between the intragroup and intergroup conditions. The difference in post-

task scores was used as the dependent variables (DV). Analysis of covariance (ANCOVA) was used to remove the influence of individual differences in pre-task scores on post-task scores (Tabachnik & Fidell, 2001). Using pre-scores as a covariate is consistent with the required independence of covariate and treatment effect (Tabachnik & Fidell, 2001).

ANCOVA requires sample sizes be equal (Tabachnik & Fidell, 2001). While different group sizes (66 participants in the intergroup condition and 44 participants in the intragroup) might suggest a violation of this assumption, given that the bigger sample can be divided by the smaller sample 1.5 times (following the guidelines of Hair, Anderson, Tatham, and Black (1998) a sign of approximately equal sample sizes). ANCOVA can still be considered an appropriate analytical technique.

In the current research the individual is used as the unit of analysis which may constitute a violation of the requirement of independence of observations which increases the likelihood of a type 1 error (Kashy & Kenny, 2000). A common method for guarding against violation of the independence assumption is to use the group (rather than the individual) as the unit of analysis (Kashy & Kenny, 2000). However, this strategy would be impractical in the current research due to the small sample size (the total sample size would be reduced from 110 observation points to five). This number would then be further partitioned into subsets of $n=2$ and $n=3$ which would be insufficient for adequate quantitative measurement. In terms of the concepts underlying the research, commonality of participant experience (in terms experience of the contextual manipulations as members of a group) is fundamental to the social psychological outcomes being analysed. However, in recognition of potential statistical problems the researcher has adopted a conservative criterion of $p \leq .01$ for rejecting the null hypothesis. Hair et al (1998) propose this is an acceptable means of controlling the risk of type one errors if it is possible the independence assumption is unmet. Unless otherwise stated, all assumptions have been met for each statistical analysis.

Social Identification.

H1a proposed a within groups increase in social identification with the group would be found in both the intragroup and intergroup conditions. However, it was predicted there would be a greater reported level of social identification on the part of those who experienced the intergroup identity management strategy than the intragroup context. A repeated measures ANOVA was performed to examine whether the increase in social identification observed generally within the sample was statistically significant. The results of this analysis showed that the increase in social identification was significant ($F(1, 109) = 33.68, p = .000, \eta^2 = .24$). Repeated measures ANOVA were then performed for each condition. In the intragroup condition (see Figure 17) there was a significant increase in social identification ($F(1, 43) = 15.45, p = .000, \eta^2 = .26$) from $M = 46.27$ ($SD = 6.51$) to $M = 52.36$ ($SD = 7.88$). The same pattern (see Figure 17) was revealed in the intergroup context with post-task social identification ($M = 55.55, SD = 8.46$) being significantly larger ($F(1, 65) = 18.36, p = .000, \eta^2 = .22$) than pre-task social identification ($M = 49.49, SD = 7.44$). Social identification with a monofunctional increased in response to either the intragroup or intergroup identity management strategy. It should be noted that the pre-task levels of social identification are above the scale midpoint, suggesting that the researcher was successful in encouraging pre-task social identification as required by both the intergroup and intragroup identity management processes.

The possibility that winning or losing the scavenger hunt may have affected the post-task level of social identification was examined with a post-hoc analysis. ANCOVA was performed on participants from the intergroup condition ($n = 66$). The IV was ‘outcome’ (win vs. lose), pre-task level of social identity was the covariate and post-task social identity was the DV. Participants from the intragroup condition were not considered in this analysis as there were no winning or losing teams. The difference in post-task social identification

was not statistically significant ($F(1, 63) = 1.66, p = .203, \eta^2 = .03$). The covariate (pre-test social identification) did not have a statistically significant relationship with post-task social identification ($F(1, 63) = .17, p = .68, \eta^2 = .003$). The outcome (win or lose) attained by the group did not detract from the increase in social identification found in the intergroup condition.

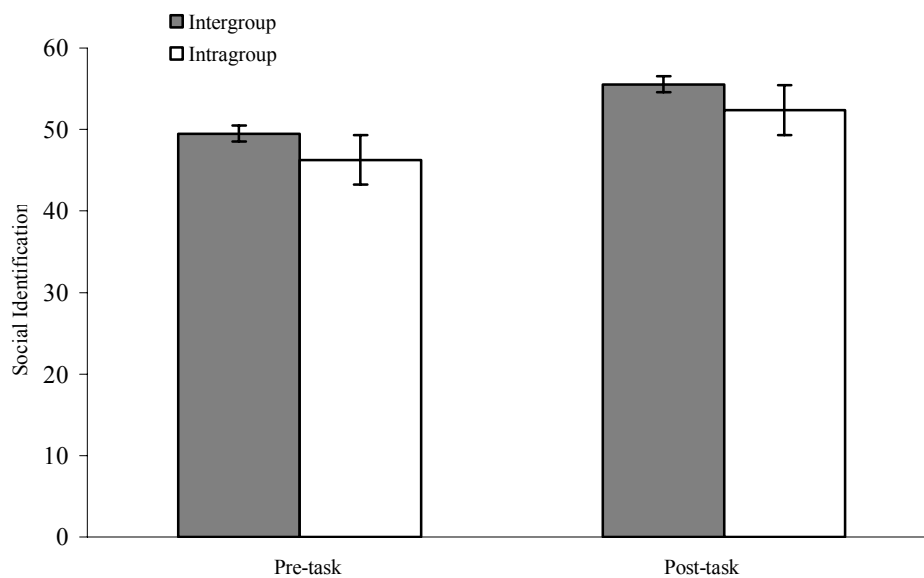


Figure 17. Difference pre-task and post-task mean (+ SE) social identification within and between conditions (N = 110)

An analysis of covariance (ANCOVA) was used to examine whether social identity was higher in mono-functional teams after experiencing either an intragroup context or an intergroup context while controlling for individual difference in pre-task levels of social identity. The covariate was members' pre-task social identification level. The DV was the post task level of social identification. The IV was 'social context' (intragroup vs. intergroup). The difference was not statistically significant ($F(1, 107) = 3.99, p = .048, \eta^2 = 0.04$) at the conservative criteria for statistical significance ($p \leq .01$) used in this study. The pre-test level of social identification had a minimal, non-significant impact ($p = .75, \eta^2 =$

.001) on the post-task levels of social identification. The intragroup and intergroup contexts were equally effective for increasing social identification with monofunctional teams.

Subjective uncertainty.

H1b proposed subjective uncertainty would reduce in both conditions, with the lowest level to be found in the intergroup condition. Repeated measures ANOVA revealed that the pre-task to post-task difference was statistically significant ($F(1, 109) = 44.41, p = .000, \eta^2 = .29$), suggesting a general downward trend in subjective uncertainty. Separate repeated measures ANOVA were then used to examine the movement of subjective uncertainty within each condition. In the intragroup context (see Figure 18) there was a reduction in subjective uncertainty (pre-task $M = 14.41, SD = 4.44$, post-task $M = 8.00, SD = 2.70$). This decrease was statistically significant ($F(1, 43) = 84.42, p = .000, \eta^2 = .66$). In inter group contexts (see Figure 18) the downward trend (pre-task $M = 13.42, SD = 4.16$, post-task $M = 11.02, SD = 4.79$) was also statistically significant ($F(1, 65) = 8.31, p = .005, \eta^2 = .11$). Subjective uncertainty decreased after experiencing either an intragroup or an intergroup contextual manipulation.

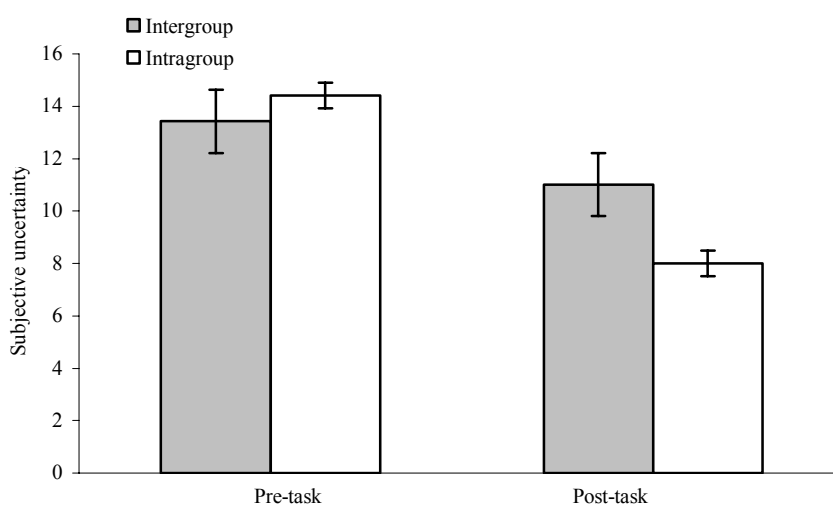


Figure 18. Difference pre-task and post-task mean (+ SE) subjective uncertainty within and between conditions ($N = 110$).

The possibility that subjective uncertainty fluctuated due to the effects of membership in a winning or losing mono-functional team was examined with ANCOVA (see Figure 19). Again, only participants in the intergroup condition could be included in the analysis. The IV was outcome (win vs. lose), pre-task subjective uncertainty was the covariate and post-task subjective uncertainty was the DV. The difference was statistically significant ($F(1, 63) = 10.40, p = .002, \eta^2 = .14$). Members of winning mono-functional teams (see Figure 19) reported a lower level of post-task uncertainty ($M = 9.26, SD = 4.07$) than did members of losing teams ($M = 12.88, SD = 4.84$). The covariate did not have a significant relationship with the DV ($p = .28$) and accounted for only 2% of the variance ($\eta^2 = .02$). Members of more successful mono-functional teams felt less subjective uncertainty than members of less successful groups.

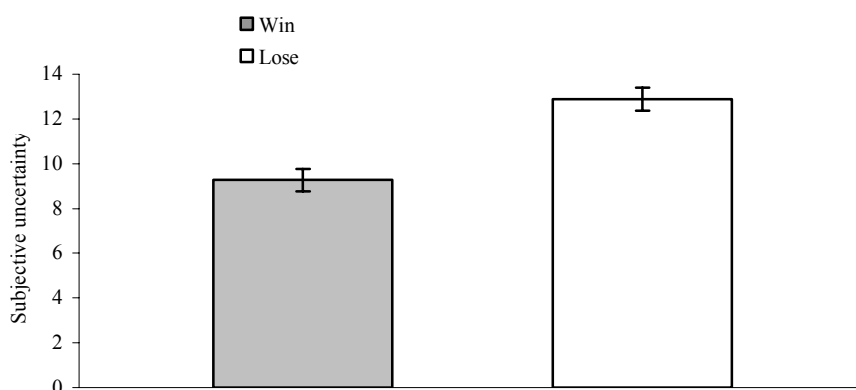


Figure 19. Difference post-task mean (+ SE) subjective uncertainty between winning and losing teams in an intergroup context (N = 66).

ANCOVA was used to examine whether members of mono-functional teams would report lower levels of uncertainty after experiencing an intragroup or an intergroup context once pre-task differences in uncertainty were controlled. The IV was ‘social context’ (intragroup vs. intergroup), the DV was subjective uncertainty and the covariate was pre-task subjective uncertainty. A statistically significant Levene’s test indicated that the

homogeneity of variance assumption was violated. The ANCOVA indicated participants felt significantly ($F(1, 107) = 13.76, p = .000, \eta^2 = .11$) less uncertain after experiencing an intragroup context ($M = 8.00, SD = 2.70$) than an intergroup context ($M = 11.02, SD = 4.79$). Participants felt less subjective uncertainty after experiencing an intragroup than an intergroup contextual manipulation.

The possibility that the difference between conditions was due to the effect of relative success or failure with regards to the task outcome in the intergroup condition was checked. A new 'outcome' variable with three levels (win, lose, no competition) was created for use as the IV in a one-way ANOVA with post-hoc (Tukeys HSD) tests. The DV was post-task subjective uncertainty. Note that the homogeneity of variance assumption was not met, as signified by a significant Levenes statistic ($p = .008$). The results showed a significant difference between groups ($F(2, 107) = 15.32, p = .000, \eta^2 = .22$). Post-hoc tests found no significant difference ($p = .33$) between members of winning teams and those in the intragroup condition. However, there was a significant difference ($p = .000$) between members of losing teams ($M = 12.88, SD = 4.84$) and those from the intragroup condition ($M = 8.00, SD = 2.70$). Membership in a successful mono-functional team led to an post-task level of subjective uncertainty as participation from the intragroup context. However, overall, there was less post-task uncertainty in the intragroup condition than the intergroup condition because members of losing teams reported significantly more uncertainty than participants from the intragroup condition.

Conceptualisation of the aggregate.

Perception of group as a 'single group'.

The overall trend was for an increase in the perception that the task group was psychologically meaningful as a single group (see Table 3). A repeated measures ANOVA revealed that this general increase was statistically significant ($F(1, 109) = 62.16, p = .000, \eta^2$

= .36. The difference within each contextual group was examined with repeated measures within groups ANOVA. Consistent with H2a a statistically significant ($F(43, 1) = 29.77, p = .000, \eta^2 = .41$) increase from ($M = 3.61, SD = 1.43$) to ($M = 5.11, SD = 1.32$) was found in the intragroup context. In the intergroup condition there was also a statistically significant ($F(1, 65) = 32.68, p = .000, \eta^2 = .34$) increase from pre-task ($M = 3.83, SD = 1.49$) to post-task ($M = 5.21, SD = 1.53$) in the perception that the task group felt like one group. Either strategy was effective in increasing the sense that participants in the group shared a superordinate identity (see Figure 20).

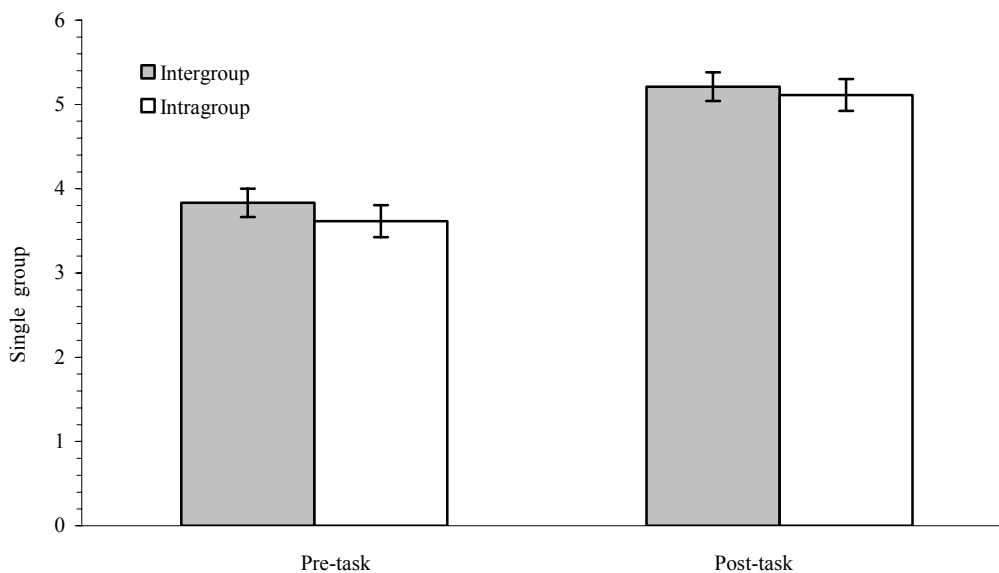


Figure 20. Difference pre-task and post-task mean (+ SE) single group conceptualisation of the aggregate within and between conditions (N = 110).

The possibility that losing the competition would detract from the increased single group conceptualisation was examined through ANCOVA. The IV was outcome (win vs. lose), the covariate was the pre-task level of single group conceptualisation and the DV was the post-task level of single group conceptualisation. Results of this analysis indicated that there was no significant difference ($F(1, 63) = .491, p = .49, \eta^2 = .008$). The covariate (pre-task superordinate identification) had no significant relationship with the DV. Outcome did not affect the post-task level at which the team was perceived to be a single group.

A final ANCOVA was performed to examine whether the intergroup or the intragroup context would lead to a higher level of single group conceptualisation. H2a predicted the highest single group conceptualisation would be reported by those from the intergroup condition. The IV was social context (intragroup vs. intergroup), the covariate was pre-task level of single group conceptualisation and the DV was post-task level of single group conceptualisation. There was no significant difference ($F(1, 107) = .055, p = .81, \eta^2 = .001$). Pre-task levels of single group conceptualisation did not have a significant ($p = .12, \eta^2 = .02$) impact on post-task levels of feeling that the task group was one group. The intergroup and intragroup identity management strategy were equally efficacious for increasing the conceptualisation of a mono-functional team as a single group.

Perception of group as 'subgroups in single group'.

According to H2a, conceptualisation of the task-group as meaningful sub-groups within a single group was expected to decrease in both conditions. Examination of Table 3 shows a minimal decrease in the perception that the task groups can be psychologically represented as having meaningful subgroups within a meaningful superordinate group. Repeated measures ANOVA indicated this decrease was not statistically significant ($F(1, 109) = .002, p = .97, \eta^2 = .00$). This suggests there was no general reduction in the salience of subgroups within the superordinate group. The possibility that this pattern would be found in the intragroup condition was examined with a repeated measures ANOVA. There was no significant difference ($F(1, 43) = .005, p = .94, \eta^2 = .00$). The descriptive statistics in the intergroup context show there was no pre-task ($M = 3.61, SD = 1.64$) to post-task ($M = 3.61, SD = 1.82$) difference. There was no statistically significant decrease in conceptualisation of the mono-functional teams as 'subgroups inside a superordinate group' in either the intergroup or intragroup condition.

The possibility that membership in a winning or losing team may have contributed or detracted to the level of multiple group conceptualisation in the intergroup condition was examined with an ANCOVA. The IV was outcome (win vs. lose), the covariate was pre-task recognition of subgroups within a single group and the DV was post-task multiple groups conceptualisation. The difference was not significant ($F(1, 63) = .43, p = .51, \eta^2 = .01$). The covariate did not have statistically significant relationship with the DV ($p = .51, \eta^2 = .02$). The outcome of the contest did not account for post-task levels of the conceptualisation of a mono-functional team as ‘subgroups connected within a single group’.

The test for the difference between conditions (see Figure 21) was performed with ANCOVA. The IV was social context (intragroup vs. intergroup), the covariate was pre-task levels of ‘subgroup within a single group’ conceptualisation of the aggregate. The DV was post-task levels of subgroups within a superordinate group. Contrary to the previous analyses there was a significant difference ($F(1, 107) = 8.15, p = .005, \eta^2 = .07$) between intergroup ($M = 3.61, SD = 1.82$) and intragroup ($M = 2.61, SD = 1.51$) conditions. The effect of the covariate was non-existent ($\eta^2 = .000$). Contrary to H2a, participants from intergroup condition reported higher post conceptualisation of a mono-functional team as a ‘subgroups in a single group’ than participants from the intragroup condition.

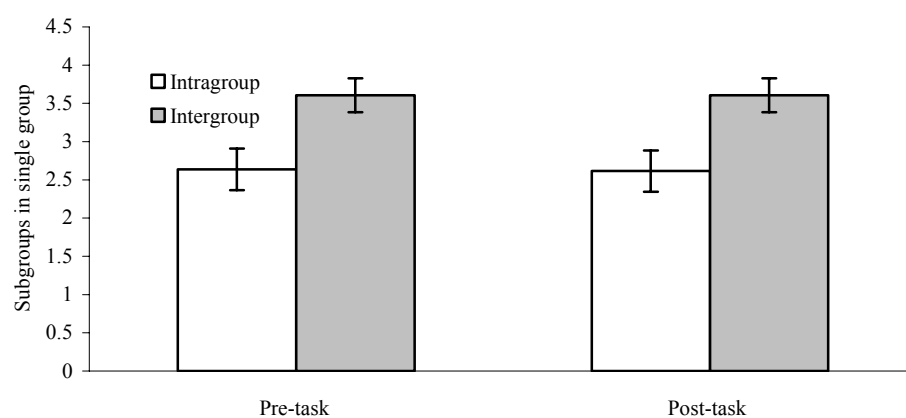


Figure 21 . Difference pre-task and post-task mean (+SE) subgroups in single group within and between conditions (n= 110)

A one-way ANOVA with post-hoc tests (Tukeys HSD) was performed to examine whether the difference between conditions could be attributed to a difference between those from the intragroup condition and participants who lost the competition.. The IV was outcome (win, lose, no contest) and the DV was the post-task conceptualisation that the MFT was formed of subgroups inside the superordinate group. There was a statistically significant difference between the three levels of the IV ($F(2, 107) = 5.082, p = .008, \eta^2 = .09$). Post hoc comparisons (see Figure 22) revealed the only significant difference ($p = .007$) was between members of losing teams ($M = 3.84, SD = 1.85$) and those from the intragroup condition ($M = 2.61, SD = 1.51$). Members of winning teams reported an equivalent level of ‘multiple groups’ conceptualisation as those from the intragroup condition. However, members of losing teams were more aware of subgroups within the single group than members of winning teams or those from the intragroup condition.

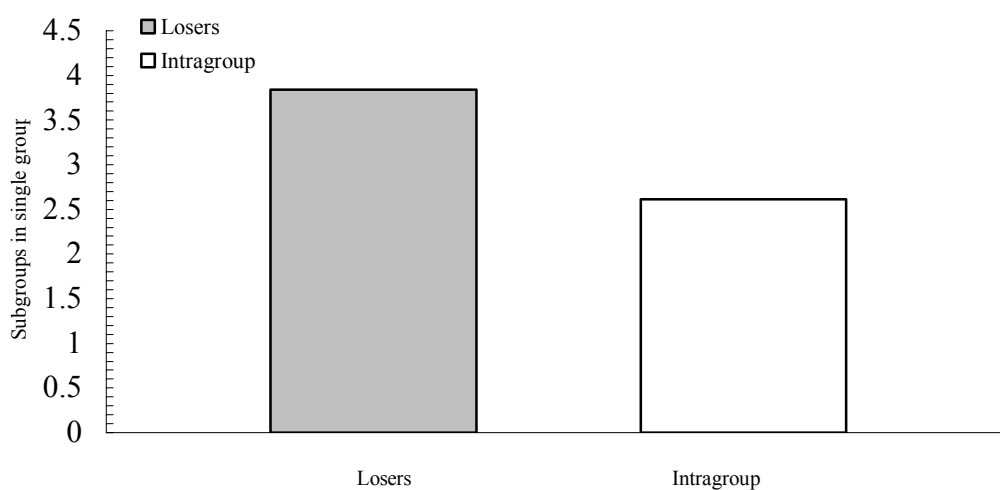


Figure 22 . Difference post-task mean sub-groups in single group between intragroup context and losing intergroup participants

Perception of groups as ‘separate groups’.

Examination of Table 3 shows a small downward trend in perceiving mono-functional teams as ‘separate groups’. A repeated measures ANOVA showed this broad trend was not significant ($F(1, 109) = 1.26, p = .26, \eta^2 = .01$). Within groups differences were examined with repeated measures ANOVA. In the intragroup context the difference was not significant

($F(1, 43) = .079, p = .78, \eta^2 = .00$). The difference was also non-significant in the intergroup condition ($F(1, 65) = 1.36, p = .25, \eta^2 = .02$). Counter to H2a, neither contextual manipulation was effective for reducing the level of separate groups conceptualisation.

The possibility post-task levels would be influenced by winning or losing the contest in the intergroup condition was checked through ANCOVA. The IV was outcome (win vs. lose), the covariate was pre-task separate groups conceptualisation and the DV was the post-task perception of the mono-functional team as separate groups. This difference was not significant ($F(1, 63) = 1.34, p = .25, \eta^2 = .02$). The pre-task perception of separate groups did not contribute to the difference ($p = .44, \eta^2 = .01$). The outcome of the contest did not impact on post-task perceptions that a mono-functional team is composed of 'separate groups'.

The difference between conditions was assessed through ANCOVA. The IV was social context (intergroup vs. intragroup), the covariate was pre-task perception of separate groups and the DV was post-task perception of separate groups. The difference was not significant ($F(1, 107) = 2.39, p = .13, \eta^2 = .02$). The covariate did not have a significant relationship with post-task levels of perceived intragroup separateness ($p = .14, \eta^2 = .02$). Neither context will be more effective than the other for reducing the perception of a mono-functional team as psychologically separate groups.

Perception of group as 'separate individuals'.

H2a predicted a decrease in the conceptualisation of the mono-functional team as being composed of separate individuals. Consistent with this prediction the broad trend was for a decrease (see Table 3) in the perception of the mono-functional team as 'separate individuals'. Repeated measures ANOVA showed the pre-task to post-task difference to be statistically significant ($F(1, 109) = 36.46, p = .000, \eta^2 = .25$). The difference within each condition was also examined through repeated measures within groups ANOVA. In the intragroup condition the difference between the pre-task mean ($M = 4.45, SD = 1.98$) and the

post-task mean ($M = 3.07$, $SD = 1.97$) was statistically significant ($F(1, 43) = 12.44$, $p = .001$, $\eta^2 = .22$). In the intergroup condition the same basic pattern was revealed with the difference between the pre-task ($M = 3.56$, $SD = 1.88$) and post-task levels ($M = 2.08$, $SD = 1.49$) being statistically significant ($F(1, 65) = 23.98$, $p = .000$, $\eta^2 = .27$). The perceived level of intragroup individualism was reduced after experience of either context (see Figure 23).

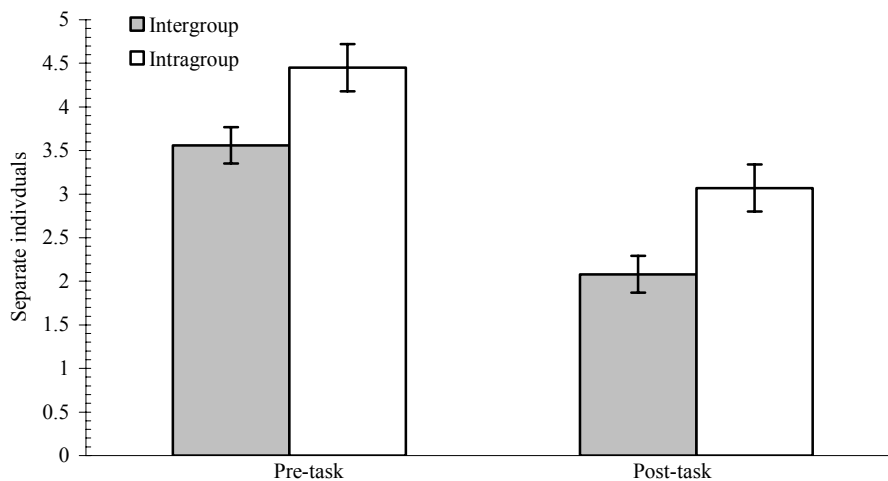


Figure 23. Difference pre-task and post-task in mean (+SE) separate individuals within and between conditions ($n = 110$).

The possibility that winning or losing the contest in the intergroup condition was associated with different levels of separate individuals conceptualisation was examined through ANCOVA. The IV was outcome (win vs. lose), the covariate was pre-task conceptualisation of individualism, and the DV was post-task levels of individualism. Result of this analysis showed the between winning and losing participants was non-significant ($F(1, 63) = .122$, $p = .73$, $\eta^2 = .00$). The covariate did not have a significant relationship with the DV ($p = .72$, $\eta^2 = .00$). The outcome of the contest did not affect the post-task level of conceptualisation of the group as separate individuals.

The difference between conditions was assessed through ANCOVA. The IV was contextual condition (intragroup vs. intergroup), the covariate was pre-task levels of perceived individualism and the DV was post-task levels of perceived intragroup

individualism. The results (see Figure 22) show a significant difference between conditions ($F(1, 107) = 8.05, p = .005, \eta^2 = .07$). Consistent with H2a, participants from the intergroup condition reported a lower post-task mean ($M = 2.08, SD = 1.49$) than participants who experienced an intragroup identity management context ($M = 3.07, SD = 1.97$). The intergroup identity management strategy was more effective than the intragroup strategy at reducing the conceptualisation of the mono-functional team as composed of separate individuals.

Intragroup heterogeneity.

Examination of the descriptive statistics (see Table 3) suggests the possibility of a downward trend in intragroup heterogeneity across the sample. A repeated measures ANOVA was performed and revealed that the trend was statistically significant ($F(1, 109) = 10.58, p = .002, \eta^2 = .088$). A set of repeated measures within groups ANOVA was performed to ascertain whether there was a difference within each contextual condition (see Figure 24). Contrary to H3a, the difference was not significant in the ($F(1, 43) = .56, p = .46, \eta^2 = .11$) intragroup condition. In the intergroup context the reduction in intragroup heterogeneity (pre-task $M = 10.60, SD = 2.24$, post-task $M = 8.96, SD = 3.15$) was statistically significant ($F(1, 65) = 13.59, p = .000, \eta^2 = .17$). The level of heterogeneity reduced in the intergroup condition but not the intragroup condition.

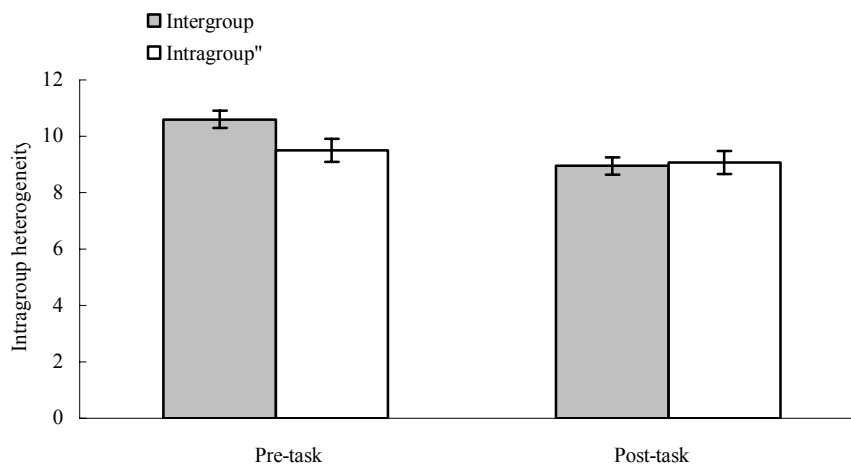


Figure 24. Difference pre-task and post-task mean (+ SE) intragroup heterogeneity within and between conditions (n = 110).

An ANCOVA was performed on participants from the intergroup condition to examine the impact of winning or losing the scavenger hunt. The IV was ‘outcome’ (win vs. lose), the covariate was pre-task heterogeneity and the DV was post-task heterogeneity. Outcome did not have a statistically significant impact ($F(1, 63) = .30, p = .59, \eta^2 = .01$) on post-task heterogeneity. The covariate did not have a significant relationship with the DV ($p = .24$) and did not account for a large amount of variance ($\eta^2 = .02$). Outcome did not affect the post-task level of heterogeneity in the intergroup condition.

An ANCOVA was performed to examine whether post-task intragroup heterogeneity scores would differ between conditions. The IV was ‘social context’ (intragroup vs. intergroup), the covariate was pre-task intragroup heterogeneity and the DV was post-group intragroup heterogeneity. The results of this analysis showed post-task heterogeneity did not differ significantly ($F(1, 107) = .20, p = .66, \eta^2 = .00$) between conditions. The covariate did not have a significant relationship with the DV ($p = .24$) and accounted for only a small amount of variance ($\eta^2 = .02$). Neither identity management strategy resulted in lower perceived intragroup heterogeneity than the other.

Intragroup similarity.

Examination of the descriptive statistics (see Table 3) suggests a broad trend for increased post-task intragroup similarity. Repeated measures within groups ANOVA found the increased intragroup similarity to be statistically significant ($F(1, 109) = 18.13, p = .000, \eta^2 = .14$). The difference within each condition was examined with further repeated measures ANOVA. The increase in intragroup similarity in the intragroup condition (pre-task $M = 14.14, SD = 3.69$, post-task $M = 16.80, SD = 3.97$) was statistically significant ($F(1, 43) = 15.82, p = .000, \eta^2 = .27$). The same was found in the intergroup condition (pre-task $M = 14.79, SD = 4.24$, post-task $M = 17.05, SD = 4.90$) ($F(1, 65) = 7.25, p = .009, \eta^2 = .10$). Intragroup similarity increased after experiencing either identity management strategy (see Figure 25).

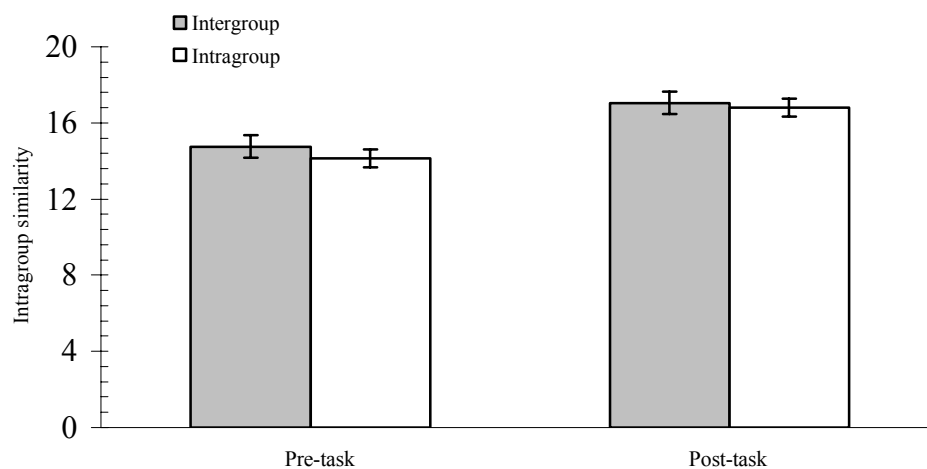


Figure 25. Difference mean (+ SE) pre-task and post-task intragroup similarity within and between conditions (N = 110)

An ANCOVA was performed to see if contest outcome would affect the level of intragroup similarity in reported by participants from the intergroup condition. The IV was ‘outcome’ (win vs. lose), the covariate was pre-task intragroup similarity and the DV was post-task intragroup similarity. There was no significant difference ($F(1, 63) = .000, p = .99, \eta^2 = .000$) between members of winning and losing teams. The covariate did not have a

significant relationship with the DV, nor did it account for a large amount of variance ($\eta^2 = .011$). The increase in intragroup similarity was not conditional on prevailing in the contest within the intergroup condition.

The test for the difference between conditions was performed via ANCOVA. The IV was social context (intragroup vs. intergroup), the covariate was pre-task intragroup similarity and the DV was post-task intragroup similarity. There was no significant difference ($F(1, 107) = .064, p = .800, \eta^2 = .001$) between intergroup and intragroup strategies. The relationship between the covariate and the DV was non-significant ($p = .74$) with a minimal effect ($\eta^2 = .001$). Contrary to H3a, perceived intragroup similarity increased to an equivalent level in either condition.

Effort.

H4(a) predicted increased intended effort would be found for both conditions. The repeated measures ANOVA that was performed found the difference between pre-task effort and post-task effort to be statistically significant ($F(1, 109) = 20.62, p = .000, \eta^2 = .16$). The significance of the difference within each condition was then assessed in separate repeated measures ANOVA (see Figure 26). The difference within the intragroup context was significant ($F(1, 43) = 11.85, p = .001, \eta^2 = .22$) with an increase from pre-task ($M = 22.98, SD = 6.88$) to post-task ($M = 27.61, SD = 4.35$). The same pattern was found within the intergroup context. The pre-task level of intended effort ($M = 25.71, SD = 6.26$) was lower than the post-task level of intended effort ($M = 28.92, SD = 5.32$) with the difference being statistically significant ($F(1, 65) = 9.16, p = .004, \eta^2 = .12$). Effort intent increased in both conditions.

The possibility that membership in a losing mono-functional team would affect post-task levels of effort in the intergroup condition was examined through ANCOVA. The IV was outcome (win vs. lose), the covariate was pre-task levels of effort and the DV was post-

task levels of effort. The difference was not statistically significant ($F(1, 63) = .82, p = .37, \eta^2 = .01$). Pre-task levels of effort did not have a significant relationship ($p = .36, \eta^2 = .01$) with post-task intended effort. The outcome of the contest did affect post-task levels of effort intent reported by participant from the intergroup condition.

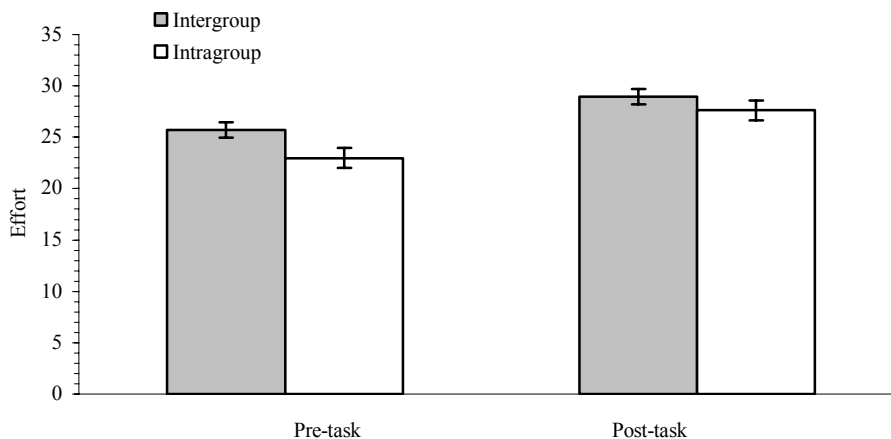


Figure 26. Difference pre-task and post-task mean (+SE) effort within and between conditions ($n = 110$).

The difference between contextual conditions was assessed through ANCOVA. The IV was social context (intragroup vs. intergroup), the covariate was pre-task effort and the DV was post-task levels of effort. This difference was not significant ($F(1, 107) = 2.74, p = .101, \eta^2 = .03$). The covariate did not have a significant relationship ($p = .12, \eta^2 = .02$) with effort. Both strategies were equally effective in increasing members reported willingness to expend effort on behalf of a mono-functional team.

Group trust.

H4(b) predicted a general increase in trust, and that this increase would be particularly pronounced in the intergroup context. A repeated measures ANOVA indicated the difference between pre-task and post-task levels of intragroup trust (see Table 3) was significant ($F(1, 109) = 34.51, p = .000, \eta^2 = .24$). Each contextual condition (see Figure 27) was then assessed separately through repeated measures within groups ANOVA. In the intragroup

condition the pre-task mean ($M = 57.77$, $SD = 7.25$) was significantly lower ($F(1, 42) = 17.33$, $p = .000$, $\eta^2 = .29$) than the post-task mean ($M = 65.98$, $SD = 8.76$). In the intergroup condition a similar pattern emerged. The difference between the pre-task level of trust ($M = 58.80$, $SD = 8.7$) and post-task levels of trust ($M = 64.65$, $SD = 10.36$) was also statistically significant ($F(1, 65) = 17.21$, $p = .000$, $\eta^2 = .21$). Participants from both conditions believed other team members became more trustworthy.

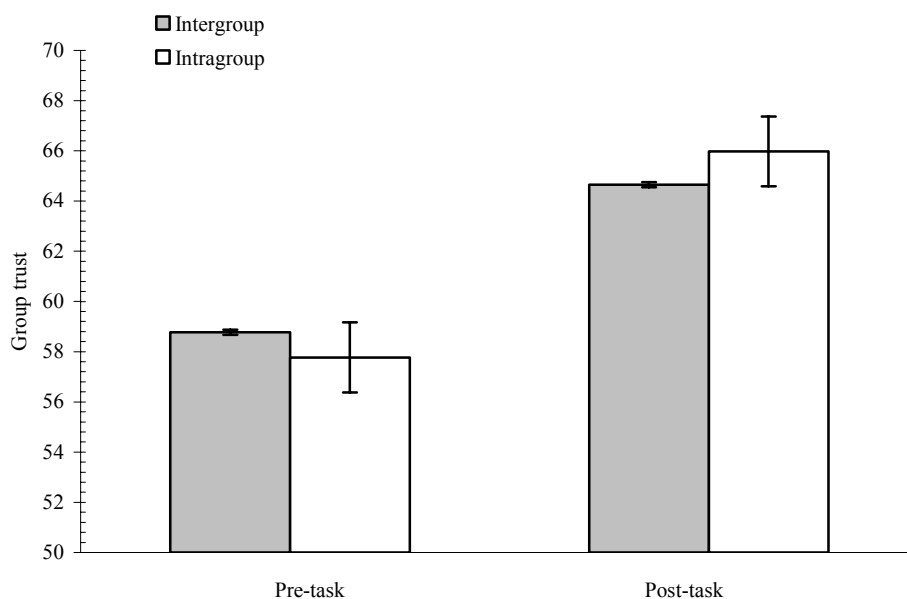


Figure 27. Difference pre-task and post-task mean (+SE) Group trust within and between conditions ($n = 110$).

The possibility that membership on a winning or losing team would affect the level of post-task trust reported in the intergroup condition assessed with an ANCOVA. The IV was ‘outcome’ (win vs. lose), the covariate was pre-task levels of trust and the DV was post-task levels of trust. The difference was not statistically significant ($F(1, 63) = 1.24$, $p = .27$, $\eta^2 = .02$). The covariate did not have a statistically significant impact ($p = .47$, $\eta^2 = .01$) on post-task levels of intragroup trust. The outcome of the contest did not affect post-task levels of intragroup trust.

The difference between contexts was examined by ANCOVA. The IV was social context (intragroup vs. intergroup), the covariate was pre-task levels of intragroup trust and the DV was post-task levels of trust. The difference between conditions was not significant ($F(1, 107) = .57, p = .45, \eta^2 = .01$). The covariate did not have a significant relationship with post-task levels of trust ($p = .34, \eta^2 = .01$). Neither identity management strategy was more effective at increasing intragroup trust in a mono-functional team than the other.

The results of the separate analyses performed for this study are graphically summarised in Table 4.

Table 4

Summary of Study One Results

Dependent Variable	Within groups difference	H?	Between groups difference	H?	Outcome	H?
Social identity	Intragroup S increase	Y	NS more in intergroup	N	NS	Y
	Intergroup S increase	Y				
Subjective uncertainty	Intragroup S decrease	Y	S less in intragroup	N	S less for winners	N
	Intergroup S decrease	Y				
Single group	Intragroup S increase	Y	NS between conditions	N	NS	Y
	Intergroup S increase	Y				
Subgroup in single group	Intragroup NS decrease	N	S between more in intergroup	N	NS	Y
	Intergroup NS decrease	N				
Separate groups	Intragroup NS decrease	N	NS less in intragroup	N	NS	Y
	Intergroup NS decrease	N				
Separate individuals	Intragroup S decrease	Y	S less in intergroup	Y	NS	Y
	Intergroup S decrease	Y				
Intragroup heterogeneity	Intragroup NS decrease	N	NS between conditions	N	NS	Y
	Intergroup S decrease	Y				
Intragroup similarity	Intragroup S increase	N	NS between conditions	N	N	Y
	Intergroup S increase	Y				
Effort	Intragroup S increase	Y	NS between conditions	N	NS	Y
	Intergroup S increase	Y				
Group trust	Intragroup S increase	Y	NS between conditions	N	NS	Y
	Intergroup S increase	Y				

Note. Within = pre-post difference within condition, Between = difference between conditions, Outcome = difference between winners and losers, H? = Hypothesis supported?, S = statistically significant, NS = statistically non-significant, Y = Hypothesis supported, N = Hypothesis not supported, P = partially supported

Chapter Eight Discussion: Study one

Overview

Study one was intended to be the first step in examining whether problems within cross-functional teams could be prevented or minimised if conceptualised as being simultaneously intragroup and intergroup. The use of mono-functional teams in Study 1 (rather than cross-functional teams) was predicated on the need to establish a benchmark condition from which the intragroup intergroup dimension characteristic of cross-functional teams was absent. Two different identity management strategies were employed in this study.

One strategy was based solely in intragroup interaction. It should be reiterated that 'intragroup' should *not* be interpreted to mean an interpersonal level of psychological processing. The manipulation of participant identification began before entry into the research environment proper and results indicate participants did accept a social identity with their task group. Therefore intragroup interactions should be considered to be complimentary intragroup reflections of intergroup psychological processes (Hogg, 1996). The second strategy combined intergroup interaction (in the form of a competition) with intragroup interaction (cooperative problem solving) that was necessary if the ingroup was to be successful in the competition. When discussing the intergroup condition the current researcher is referring to the combined effect of intragroup and intergroup interaction within the intergroup condition. Assessing which contextual manipulation will be superior for the management of social psychological processes and behaviour in a mono-functional team will be based in interpretation of the results in relation to the stated hypotheses.

*Social identity and subjective uncertainty**Social identity.*

The present results support H1a in that participants from both the intragroup and intergroup conditions reported statistically significant increases in social identification from pre-task levels to post-task levels. Unexpectedly, however, the difference between intragroup or intergroup contexts was not statistically significant. Results were consistent with H6 as winning or losing did not affect the difference in post-task levels of social identification between members of successful or unsuccessful teams.

Social identification represents a movement from an individualised self-concept towards a group based self-concept (Turner, 2000; Bettencourt & Hume, 1999). Acceptance of a group as a source of social identification can be expected to align the interests of the individual with that of the social identity group (Ellemers et al, 2002). An increased level of social identification implies that the target group has become more important for deriving a sense of self, for evaluation of self and other, and more worthy of affective commitment (Ellemers et al, 1999) than before the level of social identification increased. Failure to find a significant difference between the contextual manipulations suggests that either social frame may be equally useful in moving people to a space where a mono-functional team is considered to be a valid source of evaluation, definition, and worthy of commitment.

The organisational value of increased social identification has been demonstrated in past research. For example, increased social identification can be expected to coincide with increased loyalty to the group (van Vugt & Hart, 2004). Tyler and Blader (2001) found that social identification provided a more powerful inducement to cooperate than utilitarian social exchange considerations. Employees who feel higher levels of affective higher commitment to a social identity are more likely to perform organisational citizenship behaviours (Bergami & Bagozzi, 2000; Tyler & Blader, 2001). Social identification with a task group has also been seen to have a positive relationship with job satisfaction, job involvement and

motivation while negatively associated with turnover intentions (van Knippenberg & van Schie, 2000; Haslam et al, 2000).

The suggestion is that the increased social identification reported in the current study could be expected to have positive outcomes within an organisational environment. The current results also suggest that either the intragroup or intergroup social frames employed by the author would be equally efficacious at allowing employers and employees to benefit from increased social identification. Finally, it is possible to suggest SIT provides a useful guide for developing processes intended to manage relationships within mono-functional teams. However, it may be possible to argue that the failure to find a difference between intragroup and intergroup conditions actually contradicts SIT.

The reasoning would be based in the belief that SIT requires the presence of an outgroup with which to compete before social identification will increase. The author suggests this is a logical conclusion when considering the context (in terms of the personal experiences of Tajfel and the methodology) in which SIT was developed. It is also acknowledged that it would be easier to make an accurate social comparison if there is both an ingroup with which to assimilate and an outgroup from which to differentiate (Brown & Turner, 2002). It is also assumed that the salience of intergroup boundaries is higher when there is a competitor in the environment and that increased boundary salience should be related to increased social identification (Turner et al, 1994). In fact, the approach taken to cross-functional teams is based in the assumption that simultaneous intragroup and intergroup interaction will be an effective method for stimulating psycho-social integration between different functional groups. However, as noted by McGarty (2001), there is no theoretical reason why intergroup boundary salience should be always be considered a direct replacement, or even a very good linear predictor of social identification. Therefore, even given that there would be lower boundary salience in the intragroup condition this does not

mean that there would inevitably be a statistically lower level of social identification. If an outgroup presence were always needed for the development of a distinct social identity then it would be impossible for isolated groups to develop a social identity. It may not be realistic to claim a small town in the country does not develop a sense of identity because there is no other town to provide a contrast.

The current researcher suggests that the main theme of SIT is the adoption of a self-definition with a contextually relevant social group (Turner, 2000), not that there must invariably be a competitive outgroup within the social frame. It is also assumed that there is a functional complementarity between intergroup processes and intragroup processes if intragroup interaction is predicated in a social identity (Abrams, Marques, DeMoura, Hutchinson, & Brown, 2004). Turner (2000) notes that the salience of a social identity can be increased by many contextual factors present within the current research setting. For example, similarity, intragroup cooperation and physical proximity may all contribute to self-categorisation. The present results may indicate that the presence of an outgroup is one of a number of contextual features that contribute to social identification.

Alternatively, the current results may be explained in terms of interpersonal interdependence. For example Gaertner and Schopler (1998) claim to have demonstrated that it is not intergroup relations, but interdependent intragroup interaction that motivates connection of the individual to the group. Gaertner and Schopler (1998) compared participants from an intragroup context (common category membership, positive interdependence, self disclosure) with an intergroup condition (competition for \$3.00). Participants were more likely to see the experimental context as two groups, the ingroup as more entitative, and were more likely to display ingroup bias in the intergroup condition. The impact of intergroup boundary salience on bias was mediated by ingroup entitativity, which was higher in intragroup than intergroup conditions. Gaertner and Schopler (1998)

asserts this demonstrates that it is intragroup interdependence, rather than intergroup competition, that creates a social bond which in turn creates ingroup bias.

If Gaertner and Schopler (1998) are correct it may be plausible to suggest the reason for failure to find a significant difference between conditions (in the current research) is that intragroup interdependence was the key to establishing connections between self and the group, rendering the presence of an outgroup moot. In contrast, the current researcher asserts there was no difference between conditions in the current research because the basis for accepting interdependence, and behaving interdependently, was that they shared a social identity (Turner, 1996). Gaertner and Schopler (1998) can be reinterpreted to support this case. For example, their 'intragroup' condition is actually an intergroup context. The experimenters referred to participants on as members of group 'A' or 'B' and both groups were performing their tasks at the same time. Those in the intragroup condition performed an intragroup self-disclosure task while competitive groups did not. Self disclosure can increase the affective attachment to group members (Dovidio et al, 1997). Research has shown that it is the affective component that motivates ingroup bias or offensive action (Ellemers et al, 1999; Yzerbert, et al, 2003). Furthermore, a mean level of 3.09 (on a 7 point scale) for perceived competitiveness (Gaertner & Schopler, 1998) may suggest that the competition used in the research was inadequate for establishing a perception that participants were in an intergroup context. Given that affective arousal on behalf of an ingroup increases or decreases in conjunction with the level of perceived competitiveness of intergroup contact (Brewer, 2001) it is possible to suggest that the lower level of bias found by Gaertner and Schopler (1998) reflects a low level of affective attachment to groups from the intergroup condition, not that interpersonal interdependence drives psychological group formation.

Furthermore, shared social identification has been associated with displays of ingroup bias even without interdependence or even any chance of receiving a reciprocal personal

benefit from displaying ingroup bias (Turner, 1996; Perrault & Bourhis, 1998; Bourhis & Gagnon, 2001). Intergroup level psychological processing can manifest during intragroup interaction if there is a basis for shared social identification (Abrams et al, 2004; Yzerbert et al, 2004). If this is so, then increased levels of ingroup entitativity may reflect increased social identification rather than interpersonal attraction (Spears et al, 2004). Therefore, the mediation of the relationship between group boundary salience and ingroup entitativity reported by Gaertner and Schopler (1998) is consistent with the idea that intragroup interaction and intergroup interaction can both reflect intergroup psychological processes (Platow et al, 2000). It should also be noted that participants from the current research accepted social identification with their teams at pre and post-task stages, and that individual difference in social identity did not impact on post-task levels of social identity. Therefore there is no evidence that participants from either condition approached the present research from an individualistic level. Considered as a whole, the cited research suggests that the failure to find a difference between the intergroup and intragroup condition is because internalising the mono-functional team as part of the self was equally adaptive in either context, not because interpersonal interaction was a feature of both contexts.

In addition, the current results cannot easily be attributed to a mechanical reciprocation of favours in the hopes of accruing some personal gain. Participants in the intragroup condition were not rewarded for the performance of the group or themselves, or even told if the group solution was correct. This would suggest that there is little source of individual gain that would underlie cooperative individualised behaviour within the intragroup context (Wageman, 2001). Research by Van Vugt and Hart (2004) found that social identification provided a better explanation for group loyalty than individuals attempting to justify the investment on behalf of an experimental group. Tanis and Postmes (2005) found the basis for reciprocation was shared social identification. Therefore there is

evidence to support the contention that intragroup interaction can affirm social identification and that participants from the current research were not interacting on the basis of interpersonal interdependence.

A further possible point of contention is that there was statistically significant difference between winning and losing teams. The fact 'outcome' did not lead to a difference between groups within the intergroup condition could be considered a contradiction of SIT. Positive self-evaluation is considered a fundamental human need by SIT theorists. The positive self evaluation of the socially identified self rests in making favourable intergroup comparisons that allow for a separation between ingroup and outgroup in areas that are important to the social identity of the ingroup.

An overly deterministic interpretation of this need would suggest membership in a losing mono-functional team should result in a psychological distancing between an individual and the mono-functional team. This would be reflected in a reduced level of social identification. SIT does allow for this possibility when describing the conditions that would motivate an individual to pursue a social mobility strategy. For example, when outgroup superiority is accepted and intergroup boundaries are permeable an individual may leave the ingroup for a 'superior' group (Haslam, 2001).

While people can de-identify with and leave groups that do not meet this need for positive distinctiveness, this is not inevitable (Branscombe et al, 1999). Military defeats (for example Gallipoli or Dunkirk) can serve as a foundation for building greater commitment to a social identity. If groups dissolved whenever members failed to overcome a challenge then the possibility for developing social connections beyond a series of short-lived economically rational attachments would be limited. That this is not the case is suggested by displays of loyalty and the incurring of personal cost for the greater good can also be observed (Van Vugt & Hart, 2004; Zdaniuk & Levine, 2001). People will maintain social identification and

effort on behalf of groups society at large consider undesirable if they are committed to the idea of the group as a distinct social identity (Branscombe et al, 2000). It is when a group is facing a trial that commitment is most needed and social identification can serve as the basis for allowing the group to survive the trial (Van Vugt & Hart, 2004; Doosje et al, 2002). For example, Kamikaze pilots can be thought of as enacting behaviour which exemplifies identification with an ethnic social identity (Ellemers et al, 2002) because of, not despite, impending defeat.

It should be noted SIT does not suggest positive distinctiveness can only be met through displaying superiority over an outgroup in all areas of comparison at all times. The response to a situation is one that reflects reality. Reality is judged with reference to the facet of comparison, the stability of the intergroup boundaries and the legitimacy of the basis for a status differential (Haslam, 2001). SIT proposes that when group boundaries are secure and status differences are seen to be legitimate that positive distinctiveness needs can be met through socially creative interpretations means (Haslam, 2001). The concept of social creativity allows SIT sufficient flexibility to for explanation of the current results.

In the current study there was no chance for a draw. There was not one instance where a member of the losing team challenged the decision to award the win to the outgroup. This suggests status as winner or loser was accepted as legitimate, and therefore an objective statement of reality within the experimental context. Further, the boundaries of the groups were impermeable in that there was no possibility of moving between groups. In other words conditions within the current research are those proposed by SIT to be conducive to the enactment of a socially creative identity management strategy.

Turner et al (1984) socially creative responses to defeat included increased attraction to the group, increased ingroup favouritism and increased self-esteem among those who are highly committed to the group (but not those with low group commitment). Highly

committed participants, unlike participants with lower levels of commitment, attributed defeat to characteristics of the ingroup. The effort exerted on behalf of the group was a socially creative way of claiming positive distinctiveness from acting on behalf of the group even though it was not good enough to succeed (Turner et al, 1984). Doosje et al (2002) found that whether or not an individual group member would distance themselves from an ingroup faced with an imminent loss of status was dependent on the level of identification. Low identifiers would not claim affiliation with an ingroup unless an increase in status occurred or was likely to occur. High identifiers maintain their identification even if a loss in status is a real possibility.

In the current research pre-task levels of social identification suggest that participants accepted the idea of the research group as a contextually relevant social identity. This implies that there was some commitment to the mono-functional team as a social identity (as intended) before task performance. Social identification has been seen as both cause and effect by other researchers (Doosje et al, 2002; McGarty, 1999; Ellemers, Barreto & Spears, 2000). Turner et al (1984) suggest increased social identification after defeat is a socially creative way of justifying the amount of effort that was expended on behalf of the group. So it is not unreasonable to suggest that members of losing mono-functional teams could meet positive distinctiveness needs by the socially creative strategy of increasing social identification.

Alternatively, it may be some social psychological need (other than positive distinctiveness) was met while immersed within the intergroup condition. The rationale is consistent with a SIT based taxonomy proposed by Ellemers et al (2002) (see Table 5). At the heart of the taxonomy is the idea that the thoughts, feelings and behaviours surrounding a particular social identity are dependent on the perception of the group within the prevailing social environment. The context informs people of their place within a group, the status of

the group relative to other groups, and of the real constraints or resources that may affect efforts to deal with threat. Ellemers et al (2002) have built their taxonomy around the interaction of commitment to the group and the presence or absence of threat. Responses to the threat are held to be the outcome of the type of threat to the group and the individuals' commitment to the group.

Table 5.

Primary concerns and motives of the social self: a taxonomy (Ellemers et al, 2002)

	Group Commitment	
	Low	High
No threat	1	2
Concern:	Accuracy/efficiency	<i>Social meaning</i>
Motive:	Non-involvement	<i>Identity expression</i>
Individual-directed threat	3	4
Concern:	Categorisation	Exclusion
Motive:	Self-affirmation	Acceptance
Group-directed threat	5	6
Concern:	Value	Distinctiveness, value
Motive:	Individual mobility	Group affirmation

In the current research pre-test level social identification (see Table 4) was above the mid-point. Therefore there was some degree of commitment to the mono-functional groups before any tasks were performed. Further, the boundaries of the groups were distinct and impermeable. This suggests there was little to threaten the nascent social identity as a distinct group, and little evidence (see Table 4) that participants considered the imposition of membership in the group as a threat. No competitive intergroup interaction had occurred before the scavenger hunt, giving no reason to expect group members believe that their group's 'value' had been undermined. Therefore, there is no evidence that the pre-task experimental context was overtly threatening. Given these conditions the current researcher proposes the experimental groups can be located in the second cell of the taxonomy.

According to the classification, people in Cell 2 have a sufficient level of commitment to the group to be involved with the group in affective and behavioural terms, but feel no threat. Ellemers et al (2002) propose that people in this cell will be concerned with establishing the distinctiveness of a nascent group identity. The idea is that those who are committed to the existence of a newly formed, or potentially forming group, will find the affirmation of the group as a distinct social identity sufficient motivation for differentiation (Ellemers et al, 2002).

Another feature of the current experimental context likely to encourage the need for creative distinctiveness is that the safety of the environment coincides with limited explicit content for the mono-functional team based social identity. The available content was in the form of the common uniform, supposedly similar personalities and the role of the group within the external social structure, this being as competitor (Wegge & Haslam, 2003). In other words, the information contained in the experimental context would favour the creation of a distinct social identity, with the mono-functional team as the group identity that would be most adaptive within the environment. This suggests increased social identification could signify the meeting of a need for creative distinctiveness rather than positive distinctiveness.

Spears et al (2002) claim the drive for creative distinctiveness would facilitate effort on behalf of an implied social identity group as means of gaining a conceptually meaningful self-concept. Effort was found to increase in both conditions in the current research. The creative distinctiveness need can be met even if positive distinctiveness (in terms of winning the scavenger hunt) needs are not met by some obvious standard of comparison (Ellemers et al, 2002). Creating distinctiveness for the ingroup is sufficient motive for increased social identification until the group becomes more established (Ellemers et al, 2002). In other words, the increased social identification on the part of the less successful team may be due to the affirmation of the mono-functional team as a distinct social identity.

Social identity summary.

In summary, social identification with a mono-functional team can be increased through either an intragroup or an intergroup based identity management strategy. This suggests either strategy is useful for moving people from the interpersonal to the intergroup level of psychological processing as a member of the mono-functional team. The current results suggest applied setting could be well served if steps are taken to establish social identification with task groups prior to task prior to actual interaction. Experiencing a loss does not mean social identification will not increase. The current research context is consistent with that specified by SIT as motivating socially creative means of meeting positive distinctiveness needs. Increased social identification on the part of less successful teams may be one socially creative means for meeting positive distinctiveness. Alternatively, it may be that social identification with the mono-functional team meets a need for creative distinctiveness. Subjective uncertainty is the subject of the next section of this discussion.

Subjective uncertainty.

The current research was partially consistent with H1b as subjective uncertainty reduced in both the intragroup and intergroup contexts. H1b was contradicted when the statistically significant difference between the groups was in favour of the intragroup context. In other words, those who experienced the intragroup identity management strategy reported lower post-task levels of subjective uncertainty than those who experienced the intergroup strategy. The difference between conditions was found to be due to the 'outcome' of the contest (contradicting H6). Participants from the team that lost the intergroup competition had significantly higher post-task uncertainty than members of winning teams and those from the intragroup condition. There was no difference between members of winning mono-functional teams and participants from the intragroup condition. These results will be

discussed with reference to participants' internalisation of a mono-functional team as a contextually valid locus of self-definition.

SCT extends the socio-motivational focus of SIT by addressing the role of intragroup comparisons (largely developed via intergroup comparisons) in informing the cognitive transformation from individual to group member (Turner, 2000; Hogg & Williams, 2000; Spears et al, 2004). According to Hogg and Grieve (1999) the reduction of subjective uncertainty, rather than individualised self-esteem, is the intrapsychic motive satiated by depersonalised comparison with an evolving group prototype. As such, subjective uncertainty is held to be a bridge between the individual as a psychologically discrete asocial being and the same individual as a being who defines him or herself in terms of a social identity. Uncertainty in relation to the self-concept, the perceivers place in the social field, and confusion over correct ways to think and behave are considered aversive. The reduction of subjective uncertainty is therefore considered a basic motivation, a motivation fulfilled through the process of self-categorisation (Hogg, 2004). In the current research uncertainty and social identification were found to have a negative post-task correlation (intragroup $r = -.36$, intergroup $r = -.45$). If decreased levels of subjective uncertainty are considered in conjunction with the previously discussed increased social identification then the current research is consistent with SCT through the uncertainty reduction hypothesis.

Past research has not always found strong evidence that uncertainty is reduced after social identification or categorisation (Bourhis & Gagnon, 2001; Hogg & Mullin, 1999; Hodson & Sorrentino, 2001). One of the problems noted by Bourhis and Gagnon (2001) was a lack of convincing pre-post evidence that supported the uncertainty reduction hypothesis. The current research joins Hogg and Sussman (1999; cited in Hogg, 2004) in showing an increase in social identification at the same time as a reduction in subjective uncertainty.

Therefore the current research goes some small way to addressing a concern regarding the uncertainty reduction hypothesis.

Prototype construction

According to SCT, the construction of a prototype is necessary if self-categorisation is to serve an uncertainty reduction function. If an available prototype is irrelevant to the cause of the uncertainty, or if it is impossible to construct a prototype, then alternate self-categorisations that can reduce uncertainty will be used (Hogg, 2004). SCT also suggests a reduction in uncertainty indicates an increase in the salience of a social category through an interaction of 'fit' to, and accessibility of a prototype (Hogg & Mullin, 1999; Hogg, 2004). The likelihood a particular self-categorisation will be effective for uncertainty reduction is constrained by the contextual fit and accessibility of a category (Hogg & Mullin, 1999; McGarty, 1999). SCT considers people able to make 'online' social decisions while actually engaged in a social interaction by actively interpreting information relevant to judgements of fit, accessibility, and prototypicality. Due to the dynamic nature of self-categorisation, it is possible to construct an ingroup prototype for a newly formed group with reference to expectancies of what would fit the notional ingroup (Brown & Turner, 2002). This process enables a situation specific social category to become an accessible self-category (Hogg & Mullin, 1999).

The current results, when conceptualised from an uncertainty reduction perspective, suggest participants were able to construct a prototype of their mono-functional team while performing the group tasks. This implies there was sufficient information available for participants to construct a mono-functional team prototype. This would require the mono-functional team to be situationally accessible, and for there to be a basis from which to judge 'fit'. As the research groups were unfamiliar, the lack of a concrete social self-definition would motivate a search for group defining properties from which to construct the prototype.

Hogg (2004) suggests a prototype can be constructed from a very low quantity of information. Given that participants tend to consider experimenter presented information as credible (Bernsden, McGarty, van Der Pligt, & Spears, 2001) and that participants use task specific information presented by researchers to make categorical judgments (Abele & Petzgold, 1998), it is reasonable to suggest participants made use of the information within the present research as a basis for uncertainty reduction. In the current research there were the following sources of information.

Firstly, participants were told the basis of group assignment was similarity (on the bogus assignment task. Telling participants they share a perceptual type can provide sufficient information for participants to see themselves as homogenous, more similar than a control group and rate themselves as highly prototypical (Yzerbert, et al, 2004). The methodology of the current research would not increase the accessibility or fit of any category other than the mono-functional team. For example, no mention was made with regards to any potential intergroup differences, such as gender, that may have existed within the mono-functional groups. Nor was any effort made to emphasise any basis for intragroup differentiation by symbolic means. Pre-task levels of social identification indicate were above the scale midpoint and social identification can also increase perceiver readiness to adopt a particular self category (McGarty, 1999). Secondly, the boundaries of the mono-functional teams are clearly defined and contextually impermeable. Contextual relevance and unambiguous category boundaries are necessary for self-categorisation to reduce subjective uncertainty (Hogg, 2004).

Thirdly, normative expectations would be formed with regard to the information within the prevailing social frame. Shared goals (for example to cooperate to complete the problem solving task (intragroup context) or beat the outgroup (intergroup context)) can promote the readiness of a perceiver to adopt a specific category (Brown & Turner, 2002).

Insko, Kirchner, Pinter, Efav, and Wildschut (2005) found that shared categorisation predicates an assumption of intragroup cooperation, while in intergroup contexts it is expected that those who share categorisation will demonstrate intragroup cooperation and intergroup competition (Brewer, 2001). Situational accessibility of a novel social category can increase on observation of behaviour that would be normatively fitting if the novel group were already established as valid source of contextualised self-definition (if we are a team we will all work for the teams interests) (Wegener & Klauer, 2004).

In the current research, participants (in the pre-task phase) were presented with information that would encourage preconceived expectancies of cooperative intragroup behaviour (and competitive outgroup behaviour in the intergroup context) on the basis of the pre-task acceptance of what is assumed to be a shared social identity. However, as there was no basis to confirm the accuracy of these expectancies (beyond being informed by the researcher that they are psychologically similar and therefore a genuine ingroup), these expectancies are a potential source of uncertainty, until confirmed through direct experience. The content of the prototype can be constructed from the observed role performance and behaviour of category members (Hogg, 1996). Behaviour of targets provides information utilised in spontaneous categorisation (Wegener & Klauer, 2004). Cooperation or non-cooperation can reflect the normative standards of an ingroup (McAuliffe et al, 2003). Post-task responses were provided at a time when participant would have behavioural information which could be compared with normative pre-task expectations (Brown & Turner, 2002). The suggestion is there was sufficient information available to render mono-functional teams situationally accessible, which would allow judgements of fit to a prototype that was constructed online while performing the task. The reduced post-task levels of subjective uncertainty suggest that integration of expectancy with experience facilitated self-categorising with the task group (Hogg, 2004).

The lowest post-task level of uncertainty was found in the intragroup context, implying that the intragroup contextual manipulation was more relevant to the construction of the ingroup prototype. There are two implications that can be drawn from this result. The first implication is practical. If the condition without an obvious intergroup comparison leads to lower levels of uncertainty then it is plausible that there is no advantage to be gained from designing and implementing a complex intergroup context. The second implication is conceptual. Specifically, there was no intergroup comparison in the intragroup context, and therefore no basis for comparative fit. It may then become possible to question both the application of SCT to mono-functional teams and the veracity of the uncertainty reduction hypothesis.

'Fit' and uncertainty reduction

The reason why the absence of an obvious intergroup comparison may invalidate SCT is that 'fit' is conceptualised to have two complimentary facets, comparative fit and normative fit. In the intragroup condition there was no outgroup present, nor prospect of an outgroup becoming present in the future. The absence of another group in the comparative context would remove the possibility of comparing those in the group with others who are not of the group. Therefore there was no basis for inferring comparative fit (Turner et al, 1994). However, it should be noted that SCT represents an extension of SIT into the intragroup level of social psychological processing (Hogg, 1996; Turner, 1999; Hogg & Grieve, 1999). The social psychological processes found at an intragroup level supplement the more explicitly intergroup processes of SIT (Abrams et al, 2004). The implication is that neither the process of self-categorisation, or SCT, always require the presence of an outgroup in the immediate context as long as self-definition is based on depersonalised self-perception (Abrams et al, 2000; 2004). When, as in the current research, there is only limited background knowledge, a depersonalised stereotype can be constructed by interpreting information in the environment

that would signify normative fit to a novel category (Brown & Turner, 2002; Wegener & Klauer, 2004).

Normative fit is judged by comparing what is observed with what would be expected of a member of a particular category (Turner et al, 1994). Work based in the SIT/SCT derived Subjective group dynamics model demonstrates how normative fit in an intragroup context may serve purposes of self-definition and uncertainty reduction (Abrams et al, 2004). Marques et al (2001) reported that the motivation for evaluating normative fit of purported ingroup members was to ascertain the validity of their status as ingroup members. Marques et al (1998) found that confirmation of a norm expected on the basis of an experimenter imposed social identity reinforced social identification. In neither of these two studies was the judgment of normative fit dependent on an intergroup comparison. The suggestion is that ascertaining normative fit can fulfil both an uncertainty reduction function and a social categorisation function even if comparative fit cannot be judged (Abrams et al, 2004).

In the present study, the observation and performance of cooperative intragroup behaviour predicated in shared membership in a mono-functional team would represent good normative fit to the experimental groups, engaged as they were in tasks requiring a coordination of effort (Turner et al, 1994). Therefore uncertainty reduction in the intragroup condition would reflect self-categorisation facilitated by observing and performing behaviour that normatively fits the notional (pre-task) ingroup prototype.

An argument that may be advanced against this idea is that cooperative behaviour may represent behaviour motivated by a generic norm of interpersonal reciprocity, and therefore may not be useful for judging normative fit. For example, Hertel and Kerr (2001) found the priming a 'loyalty' script led to more ingroup bias, increased expectation of loyalty from ingroup members, and more self-esteem after displaying ingroup favouritism than members of a group with an equality (fairness) prime. Ingroup bias displayed by those with a

fairness prime predicted a decrease in self-esteem. Hertel and Kerr (2001) claimed that the reduction in self-esteem after displays of ingroup favouritism by those in 'equality groups' means that neither SIT nor SCT can explain their results.

It can, however, be argued that Hertel and Kerr (2001) actually demonstrates information provided by the researchers being used by participants to discern which qualities normatively fit the ingroup (Bernsden et al, 2001). For example, an ingroup norm of fairness was shown by Jetten et al (1996) to lead to less ingroup favouritism while norms of discrimination contributed to more ingroup favouritism. The reason for displaying either behaviour was that one behaviour was seen as more prototypical of the ingroup. The ingroup norm was more influential than the outgroup norm in motivating behaviour (Jetten et al, 1996). Therefore the differences noted between loyalty and equality groups reported by Hertel and Kerr (2001) would be consistent with participants using the experimenter prescribed normative ingroup standards to provide self-defining information (Spears, 2002) rather than following a generic script.

Furthermore, Turner and Onorato (2004) found the nature of the social frame was more important than a group prime in predicting self-stereotyping. It can be argued that Hertel and Kerr (2001) maintained an intergroup social frame. For example, the researchers deliberately kept the ingroup category salient. Questions were framed in terms of the expectations of ingroup members rather than expectations of the 'other people given the same label by the experimenter'. In other words, it is possible that the experimental context was incorporated into information used by participants to align behaviour with the norms of a temporally salient self-category. Therefore, Hertel and Kerr (2001) can be reinterpreted as supporting the use of cooperation as a basis for gauging normative fit (and therefore reducing uncertainty in the service of self-categorisation within the intragroup condition) rather than cooperation based in interpersonal reciprocation.

Furthermore, there is no evidence that the present results can be explained by individualistic psychological processing. For example, social identification was found to increase, which does not occur when individual level need for certainty is satisfied (Hodson & Sorrentino, 2001). This suggests participants have moved from the individual level of self-definition to the intergroup level of self-definition (Turner, 1996). Research by Barreto and Ellemers (2002) would suggest social identification would decrease rather than increase if it were otherwise. It could also be noted that the current methodology parallels that of past researchers who have succeeded in establishing an ingroup (Gaertner et al, 1989, 1990; Branscombe et al, 1999). Further, social identification, although positively related to self-categorisation, is not self-categorisation (McGarty, 2001). Pre-task social identification therefore does not mean there was no need for uncertainty reduction in the service of self-categorisation. It becomes reasonable to suggest that the present results are not consistent with intra-psychic or interpersonal psychological processes, but reflect intergroup psychological processes being expressed within an intragroup context as specified by SCT (Hogg, 1996; Hogg & Grieve, 1999).

Outcome and uncertainty reduction

A logical conclusion suggested by the current research is that an intragroup context is inherently superior to the intergroup context in terms of facilitating uncertainty reduction in mono-functional teams. However, this conclusion would be more convincing if both winning and losing groups from the intergroup condition reported higher levels of uncertainty than those in the intragroup context. Winning groups reported an equivalent post-task level of uncertainty as those from the intragroup condition. Only members of losing teams reported higher levels of post-task subjective uncertainty than those from the intragroup context. This suggests it is not intergroup interaction that makes it difficult to construct an ingroup prototype, but the experience of a loss.

Spears et al (2002) suggest self categorisation follows a reality principle. One possible reason why experiencing a loss would be associated with more uncertainty than experiencing a win is that the reality of the situation suggests a lower level of understanding on the part of the team that lost. This idea is supported by the item content of the uncertainty measure used in the present research. The items of the subjective uncertainty measure refer to understanding of the experimental environment and understanding of the task (Mullin & Hogg, 1998). Members of winning and losing teams would be able to draw on behavioural observation when ascertaining normative aspects of the ingroup prototype. Winning teams would also be able to make a favourable intergroup comparison. Notions of task competence and contextual understanding could then be appropriated as displaying a good level of comparative fit to an ingroup prototype. In contrast, intergroup comparison would not allow members of losing teams to reduce uncertainty (with regards to the situation or task competence) to the same extent as the winning team without denying the reality of the situation.

It may be possible winning and losing teams would have reported an equivalent post-task level of uncertainty if there had been more scope for social creativity in responses to the uncertainty scale. Research has found that low status groups can acknowledge a lower level of task competence, while incorporating non-task related elements such as likeability into the ingroup prototype (Terry & Callan, 1998; Jetten & Spears, 2003; Mucchi-Faina, Costarelli, & Romoli, 2002). This would be consistent with the social identity approach as lower status groups (the losing team) are held to maintain positive distinctiveness through socially creative intergroup comparisons when social structure resembles that of the current study (Haslam, 2001). However, the present data does not allow for the exploration of this possibility, as the uncertainty scale did not allow more measurement of non-task related sources of uncertainty.

Subjective uncertainty summary

In summary, the current results are consistent with the uncertainty reduction hypothesis of SCT. The differences between the pre-task and post-task levels of subjective uncertainty, and correlation between post-task levels of uncertainty and social identification show uncertainty reduced as levels of social identification increased. Research suggests absence of an outgroup comparison in the intragroup context does not invalidate the application of SCT to teams from the intragroup condition or contradict SCT. The rationale is research has demonstrated judgements of normative fit can be depersonalised even without the presence of an outgroup. There was no evidence to suggest an individual differences could explain present results. Although uncertainty reduced in both intergroup and intragroup conditions, a higher level of post-task uncertainty was found in the intergroup context due to the effect of 'losing' on uncertainty reduction. It is possible that inclusion of more social aspects of the situation may have revealed uncertainty reduction in non-task related areas, thereby allowing for the expression of socially creative uncertainty reduction..

Conceptual representation of the aggregate.

Support for H2a was found in the increased single group conceptualisation reported by participants from both intergroup and intragroup conditions, but contradicted by the failure to find a difference between conditions. Conceptualisation of the mono-functional team as subgroups within a single group did not match H2a as the reduction in this conceptualisation was not statistically significant in either intragroup or intergroup conditions. Further, H2a was contradicted when participants from the intergroup condition showed a greater awareness of subgroups in the single group than participants from the intragroup condition. This was due to a higher level of multiple group conceptualisation reported by members of losing teams compared to participants from the intragroup condition.

Post-task conceptualisation of the task group as separate groups was inconsistent with H2a as no significant decrease was reported in either condition. H2a was also contradicted as there was no difference in separate groups conceptualisation between conditions.

Conceptualisation of the mono-functional teams as comprised of separate individuals matched H2a. Specifically, there was a significant reduction in individualised conceptualisation of mono-functional teams in both intragroup and intergroup contexts. Further, participants from the intergroup condition reported a significantly lower level of individualised conceptualisation than those from the intragroup condition. H6 was supported as there was not a single instance where winning or losing contributed to a significant difference between teams within the intergroup condition.

At first glance, the results would appear inconsistent with the basic common ingroup identity model, and therefore not consistent with H2a. The most striking divergence from the basic common identification perspective is that the increased level with which task groups were described as being a single group was not accompanied by a significant decrease in multiple group conceptualisation or separate groups.

However, the pattern of results in the intragroup condition is consistent with the simple version of the common ingroup identity model (as predicted in H2a). The basis for this statement is the mean pre-task level of multiple group conceptualisation ($M = 2.64$) and separate groups ($M = 2.05$) found in the intragroup context. Both of these conceptualisations are beneath the midpoint of the scale and in both cases the reduction from pre to post was not significant. A pre-task level below the scale mid-point signifies a particular conceptualisation was not deemed a contextually relevant way of perceiving the group (Gonzalez & Brown, 2003). In contrast, description of a group as being separate individuals reduced from a point above the mid-point ($M = 4.45$) to one below the midpoint ($M = 3.07$) while conceptualisation of the group as being a single group increased from pre-task ($M =$

3.83) to post-task ($M = 5.21$). Both of these pre-post differences were statically significant and in the hypothesised direction. The implication is that only those conceptualisations participants considered contextually relevant alternatives would be expected to either increase or decrease to a statistically significant degree.

A number of reasons may be proffered to explain why single group and individualised conceptualisations of the aggregate were deemed more conceptually relevant than multiple group or separate group conceptualisations. One reason is there is a tendency for participants to accept that the information presented by the researcher is accurate and truthful (Bernsden et al, 2001). The information presented by the current researcher stressed similarity (as the basis for group assignment), cooperation (behaviour needed to fulfil the task) and symbolic emphasis of interconnection in the form of the uniforms. The combined effects of these contextual features can be used to account for the belief that the mono-functional group could be accurately described as a single group (Turner, 2000; Gaertner et al, 2000; Brewer, 2001).

The level of pre-task conceptualisation of the mono-functional group as a collection of individuals may have a number of explanations. For example, participants would have had ample opportunity to form personal opinions of other group members during normal interaction on the university campus and no effort was made to separate friends or those who disliked each other. It would be naïve of the current researcher to believe participants leave pre-existing knowledge, opinions, and relationships outside the research context. So it is possible participants may know group members as individuals outside of the experiment, and not considered themselves to be truly similar to all ingroup members. Another possibility is that perceiving the mono-functional team in an individualised fashion reflects a tendency for people from western cultures to think in more individualised terms (McCauliffe et al, 2003). For example, Smith and Leach (2004) found that less than 10% of routine social comparisons were intergroup. Jetten, Postmes, and McAuliffe (2002) found that individualist norms lead

to individualist behaviour from those who had higher social identification with individualistic groups. Therefore the current participants (university students) may have had a tendency to see an individualised conceptualisation of the mono-functional groups as normative within the broader context. It is acknowledged these potential explanations are highly speculative as it not possible to directly support any of these possible explanations for the apparent pre-task contextual relevance of an individualised conceptualisation of the mono-functional team.

According to SCT social perception is an active process of divining the nature of the social frame and the place of themselves and others inside the frame (Hogg, 2004; Turner, 2000). The post-task changes in conceptualisation of the aggregate (increased single group conceptualisation $M = 5.11$ and decreased individualisation to below the midpoint $M = 3.06$) would be consistent with an active reinterpretation of the frame of reference where the single group conceptualisation was judged the most accurate way of perceiving mono-functional teams in the intragroup context. This idea was developed previously in the discussion of subjective uncertainty, suggesting that the conceptualisation of the team as a single group would reflect an uncertainty reduction process. Uncertainty reduction reflects a judgment based on intragroup comparison (Abrams, Wetherell, Cochrane, Hogg, & Turner, 1990) and, as such, would apply to the intragroup condition.

In resolving uncertainty as to the true nature of the group by depersonalised interpretation of intragroup interaction (see previous discussion of subjective uncertainty in the intragroup context) participants in the mono-functional team moved further from the interpersonal end of the theoretical interpersonal-intergroup continuum (increased social identification) with a group that could be accurately described as most like a single group. The maintenance of the pre-task level of multiple group conceptualisation does not, in this instance, signify that mono-functional teams were considered to be both a single group and subgroups within the single group at the same time. The reason is that the pre-task level of

multiple group conceptualisation was already below the scale mid-point and therefore discounted as an accurate description of the mono-functional team before performing the group task. In other words, members of the mono-functional teams in the intragroup condition decided that the single group conceptualisation of the aggregate made the most sense from the perspective provided by group membership within that context.

However, in applying the same logic to the results from the intergroup context it becomes impossible to say H2a was supported. Results from the intergroup condition were consistent with the more complex version of the common ingroup identity model, rather than the hypothesised simple model. The more complex version allows for the level of awareness of subgroups within the single group to be maintained as the level of single group conceptualisation is increased (Gonzalez & Brown, 2003; Hornsey & Hogg, 2000c; Gaertner et al, 1999c). Both pre-task and post-task levels of conceptualisation of the aggregate as subgroups within a superordinate group were identical and above the midpoint (pre-task $M = 3.61$, post-task $M = 3.61$). Conceptualisation of the group as separate groups was never greater than the scale midpoint. Description of the mono-functional team as separate individuals started just above the scale midpoint ($M = 3.56$) but decreased to a point below the midpoint ($M = 2.08$).

It was unexpected that participants in mono-functional teams would describe their team as having internal subgroups or separate individuals. Yet pre-task results suggest participants entered the intergroup condition recognising some basis for individuation and subgroup based differentiation within the shared membership in the mono-functional team. Decreased individualised conceptualisation would be expected on the basis of the increased fit and accessibility of the mono-functional team after the expectations engendered by shared group membership, uniforms, interdependence, similarity and common purpose were confirmed during the intergroup competition (Hogg & Terry, 2000). For example, the pre-

task level of comparative fit of individualised relative to group based self-definitions can be reevaluated based on features found within the social frame. The presence of a competitive outgroup would emphasise that there is more within group similarity compared to the differences between the groups, thereby encouraging a depersonalised self-conceptualisation (Haslam et al, 2000).

The normative fit of what was observed would be gauged with reference to what would be expected of those who genuinely identify with the team. If what was observed did not meet the normative standards of socially identified group members engaged in intergroup competition then the social category may be considered contextually invalid, and so either an interpersonal level of categorisation or an alternate social category would be adopted. In contrast, behaviour made in the service of the ingroup against the outgroup would meet expectations and would constitute a good level of normative fit (Haslam et al, 2000). The effect of intergroup competition on fit is demonstrated in research by Oakes, Turner, and Haslam (1991). These researchers found an ingroup social category (based in area of study) became most salient as a source of self-definition and contextual interpretation in a conflictual intergroup context where comparative and normative fit could be gauged relative to contexts where fit could not be judged as easily. The increased social identification, decreased subjective uncertainty, decreased heterogeneity and increased similarity reported by participants from the intergroup condition in the current research is also consistent with an increase in comparative and normative fit of the mono-functional team as a group rather than separate individuals.

This suggests the intergroup context facilitated an increase in accessibility of the mono-functional team at an intergroup level of psychological processing rather than an interpersonal level. This would imply that an intergroup contextual manipulation is an effective means of aligning individual team members self-definitions within a mono-

functional team. However, the results also suggest that the contextual manipulation was not effective at reducing the fit and accessibility of the multiple group conceptualisation to the mono-functional team. Given the absence of reference to alternative group memberships in the recruitment and pre-task phase of the research it was expected there would be no basis for a multiple group conceptualisation. However, research by Smith and Leach (2004) found students were likely to use membership in different student groups as a basis of social comparison rather than a demographic categorisation. Given that the present research was performed using university students, Smith and Leach (2004) would suggest academic subgroups would constitute contextually relevant subgroups within the research groups. That participants *did* consider a multiple group conceptualisation to be a potentially valid means of describing the group (despite the lack of explicit researcher presented evidence to suggest this) illustrates the folly of organisational management believing staff always define themselves in line with management expectations (Haslam et al, 2000).

In the current research it was found that the reason for the higher post-task multiple group conceptualisation in the intergroup condition relative to the intragroup condition was the outcome obtained by the team in the intergroup competition. Although there was no difference between winners and losers *within* the intergroup condition, there was a difference between members of unsuccessful teams and those from the intragroup condition. There was no difference between members of winning teams and those from the intragroup context. Only members of the less successful mono-functional teams maintained a post task conceptualisation of the aggregate as subgroups within a single group above the scale midpoint. Being relatively unsuccessful contributed to the maintenance of conceptualisation of the mono-functional team as subgroups within a single group. It becomes possible to suggest the reason for failure of the multiple group conceptualisation to decrease was the attribution for the team's loss to the incompetence of a salient intragroup subgroup (Gaertner

et al, 1996). If this were so, it is assumed there would be signs of inter-subgroup blame (Li & Hambrick, 2005; Lau & Murnighan, 2005; Husted & Michailova, 2002).

Blame between subgroups is a sign of poor social integration that detracts from the willingness of team members to work cooperatively towards group goals (Jassawalla & Sashittal, 1999). Those assigned blame (on the basis of subgroup) membership by members of other subgroups perceive less psychological safety within the group (West, 2002). Blame detracts from the development and maintenance of intragroup trust (Jassawalla & Sashittal, 1999) which sets the scene for relational conflict that may detract from team performance (Pelled et al, 1999; Jehn & Mannix, 2001). The present result implies that an intergroup context may be less useful than an intragroup context for the development of mono-functional teams as blame between subgroups (within losing teams) may worsen intragroup relations. However, a number of results from the current study suggest there was little blame between subgroups within the mono-functional team.

Firstly, intragroup subgroups who are engaged in reciprocal blame for a negative outcome have a tendency to differentiate themselves in the face of failure (Brewer, 1996). However, conceptualisation of the mono-functional team as separate groups did not increase from pre to post-task. Losing the competition did not have a significant effect on the level of separate group conceptualisation. Secondly, intragroup trust increased after the intergroup competition. Experiencing a loss during the competitive phase of the contextual manipulation did not detract from the increase in trust. It is reasonable to assume that blame for less successful task performance involves a judgement of relative competence between subgroups (Haunschild et al, 1994; Gaertner et al, 1996). However, trust is extended to those who are seen to be competent (Mayer et al, 1995). As intragroup trust increased in the intergroup condition (with no difference attributable to 'outcome') it can be inferred that all members of the losing mono-functional teams were seen to be competent. Trust implies

reciprocal intragroup benevolence (Mayer et al, 1995; Brewer, 2001). This could mean that those who feel another subgroup was responsible for a poor result are willing to accept that the subgroup did the best they could for the team under the circumstances. Trust also implies an acceptance of a level of vulnerability due to the actions of another (Mayer et al, 1995). Increased post-task trust therefore implies a willingness to accept the vulnerability that may come from association with the less competent subgroup.

One reason why a subgroup blamed for a loss could still be seen to be competent, and why team members were willing to accept the vulnerability that comes from association with those perceived to responsible for a loss, can be attributed to the shared social identity. For example, both Vonk and Konst (1998) and De Cremer (2000) reported ingroup member failures are attributed to contextual causes while outgroup member failures are seen to be dispositional. This suggests intragroup trust may increase, even if increased subgroup awareness could be attributed to blame for a loss when a shared social identity is salient.

In addition, there were increases in social identification and conceptualisation of the mono-functional team as a single group. These increases were not significantly lower in unsuccessful mono-functional teams. Shared social identification has been noted as reason why trust can be extended between organisational subgroups when there is no other prior reason to do so (Kramer et al, 1996; Kramer, 2001; Brewer, 2001). The implication is that shared social identification served to attenuate the severity of any intragroup negativity based in inter-subgroup blame (Jetten & Spears, 2003; Jetten, Spears & Postmes, 2004).

Further support for the argument that the intergroup identity management strategy is not less useful than the intragroup strategy is that the pattern of results is consistent with the more complex version of the common ingroup identity model, a strategy for improving intergroup contact that allows multiple loci of identification to be simultaneously salient. Encouraging multiple identification is expected to allow subgroups to feel safe from threats

to subgroup distinctiveness, while building a bridge between subgroups in the form of the superordinate social category (Hornsey & Hogg, 2000c). The argument that the functioning of teams that were unsuccessful in the intergroup condition teams will not necessarily degenerate due to the loss experienced within the process is supported by research that has found multiple identification to be beneficial in intergroup contact situations. For example, Gonzalez and Brown (2003) found multiple identification was as effective as a single group conceptualisation (found in the intragroup condition) for motivating generalised improvement in intergroup attitudes. Eggins et al (2002) found multiple identification improved intergroup negotiations. Van Knippenberg and Haslam (2003) found multiple identification was associated with increased group creativity. Dovidio et al (1995) and Gaertner et al (1999b) found a multiple group conceptualisation lowered intergroup bias and improved outgroup evaluation. Haslam et al (2003) suggest allowing of expression situationally relevant subgroup identities within the frame of a shared superordinate identity is necessary to enhance the effectiveness of organisational teams. The cited research suggests that a safe climate may be maintained even if the ingroup experiences a failure within the intergroup identity management process, because (rather than in spite of) the intergroup aspect allows increased awareness of the subgroups within the shared social identity of the mono-functional team.

Conceptualisation of the aggregate summary.

In summary, results from the intragroup condition were consistent with predictions as teams were perceived to be single groups. In the intergroup contextual condition the results were more complex. The single group conceptualisation increased, individualised conceptualisation decreased to beneath the midpoint, separate group stayed beneath the midpoint and the multiple group conceptualisation remained stable above the midpoint. Participants were less likely to describe the team as separate individuals, implying that the

intergroup context would be better for moving people from the individual to the social level of processing. However, participants from the intergroup condition also reported a higher awareness of subgroups within the single group. The reason for the difference between conditions was that members of unsuccessful teams reported higher levels of multiple group conceptualisation than winners or those in the intragroup context. This suggests there was some potential for disintegration within losing groups. However, the cited research is consistent with the idea that any intragroup intergroup negativity based in blame for the loss was negated by virtue of the simultaneous preservation of subgroup distinctiveness and superordinate connection. Therefore, the fact it was only possible to 'lose' within the intergroup identity management strategy does not mean there will be inferior intragroup functioning than would be achieved if the intragroup strategy were used.

Intragroup heterogeneity and similarity.

H3a predicted a decrease in intragroup heterogeneity and an increase in intragroup similarity in the intergroup condition. Participants from the intragroup context were expected to report increased intragroup heterogeneity and decreased intragroup similarity (pre to post). It was also predicted that there would be a lower level of post-task heterogeneity and a higher level of similarity reported by participants from the intergroup condition compared to those from the intragroup condition. The results partially support H3a. As expected, post-task levels of similarity were found to be significantly higher, and heterogeneity significantly lower, in the intergroup condition. The results from the intragroup condition contradicted H3a. Instead of the predicted increase (Hogg, 1996) the level of intragroup heterogeneity was found to remain stable. Similarity was found to increase when a decrease had been expected (Turner et al, 1994). An additional result that contradicted H3a was the lack of statistically significant differences between conditions in post-task levels of intragroup

similarity or heterogeneity. H6 was supported in that the result obtained by a mono-functional team did not affect the post-task level of either heterogeneity or similarity.

The participants in the intergroup condition responded in line with the prediction of SCT and SIT. Increased similarity and decreased heterogeneity in the presence of an outgroup is expected as an intergroup context increases the likelihood that a social identity will be adopted rather than a personal identity (Turner et al, 1994). The adoption of the social identity implies an increase in the readiness of perceivers to use a social category accompanied by an increase in perceived levels of comparative and normative fit (Reynolds et al, 2004). Judgement of fit (in terms of both comparative AND normative) of self and other to a social category is thought to be easier when there is an alternate group available from which to gauge the ratio of intergroup difference to intragroup similarity (Turner et al, 1994). Increased intragroup similarity and decreased heterogeneity (as in the current research) would therefore indicate the intergroup identity management process proved an effective means of increasing the fit and accessibility of the mono-functional team to participants (Reynolds et al, 2004). Research by Haslam et al (1998) and Haslam et al (1999) can be used to support this conclusion.

In Haslam et al (1998) agreement with the content of an ingroup stereotype was greater in an intergroup context, wherein interaction was on the basis of a shared social identity, than in an intragroup context. In Haslam et al (1999) manipulation of social identity salience facilitated a change in the content of self-stereotypes when comparing response based in individual or group identification. The results of these two studies indicate changes in the social frame change self-definition through judgements of the fit of a social category to self (Turner et al, 1994).

Given the shared social identification reported by the current participants, and that social interaction was predicated in shared identification with the mono-functional team,

results from the intergroup context are consistent with predictions of SIT and SCT. Broemer and Diehl (2004) corroborate this reasoning when reporting assimilation occurs when a shared social identity focuses attention on similarity rather than heterogeneity. Blanz (1999) has shown situationally accessible social categories do not become salient unless there is good fit to the context.

Overall, the current results suggest inclusion of an intellectually and physically involving intergroup competition, accompanied by symbolic acknowledgement of loci of social identity within the social field, is suitable for increasing the sense of connection to a mono-functional team in a manner consistent with SIT/SCT. It is also worth noting that the result of the contest did not have an effect on the post-task levels of either heterogeneity or similarity.

In contrast, the results attained in the intragroup context are not consistent with the hypothesis that was derived from SCT. SCT would predict that the absence of an outgroup would not only make it difficult for a social perceiver to gauge comparative 'fit', but also make an interpersonal standard of similarity more contextually relevant (Reynolds et al, 2004). This would suggest that the intragroup condition would be marked by personal identification, and therefore an emphasis on intragroup differentiation (McGarty, 1999). However, the current results are inconsistent with this traditional SCT derived prediction as intragroup similarity increased while there was no difference between pre-task and post-task intragroup heterogeneity. The researcher will argue that the results are still consistent with principles derived from SCT.

The basis of the argument is that although the absence of an outgroup makes it difficult calculate comparative fit, it should still be possible to judge normative fit (Abrams et al, 2004). Therefore similarity would be likely to increase but intragroup heterogeneity could remain stable. This idea is based in the distinction that can be drawn between comparative fit

and normative fit. Comparative fit is required to judge whether the difference within groups is smaller than the difference between groups (as specified by the meta-contrast principle). Normative fit refers to the meaning given to what is observed, which can be judged through conformity to ingroup standards (Reynolds et al, 2004; McGarty, 1999). For example, in Blanz (1999) 'issue relevance' served as the criteria for degree of normative fit but comparative fit was manipulated with information regarding a ratio of intergroup difference. For reasons outlined in the discussion of the uncertainty reduction hypothesis, normative fit can be a depersonalised intragroup judgement based in active interpretation of information available within the social field (Abrams et al, 2004; Brown & Turner, 2002). However, for intragroup contexts to be interpreted with reference to an intergroup influence on social perception it must be shown there is reason to accept that group members were acting from the perspective of a shared social identity (Hogg, 1996; Abrams et al, 2004).

The first suggestion that group member responses are social psychological, and not intrapsychic, is observable in the absence of any effect of individual differences in pre task levels of similarity and heterogeneity on post-task levels. This was true with reference to either within or between conditions. Support can also be derived from the correlation between variables. Post-task similarity was positively correlated in both intragroup ($r = .66$) and intergroup ($r = .57$) with social identification. Heterogeneity was negatively correlated with social identification in both intragroup ($r = -.43$) and intergroup ($r = -.46$) conditions. These results would appear consistent with social psychological rather than an interpersonal level of identification (McAuliffe et al, 2003).

According to SCT, social self-categorisation is always based in reality, with judgment of what is real contextualised with reference to fit (Brown & Turner, 2002). SCT also considers the act of categorisation to be in the service of making sense of the environment through active, shared interpretation of the information available within the context

(McGarty, 1999). If it is accepted that participants possessed some pre-existing commitment to the group (based in pre-task social identity scores above the midpoint) then some expectancies framed within the presumption of shared social identification would exist from which to gauge normative fit (Spears et al, 2004; Yzerbert et al, 2004).

Importantly, normative fit is the aspect of fit connecting observed data with existing expectancies (Brown & Turner, 2002) while shared social identity creates an expectation of intragroup cooperation (Brewer, 2001). In categorising other participants the social perceiver is also categorising themselves (Brown & Turner, 2002). Research by Abele and Petzold (1998) found judgements of group variability reflect a pragmatic response to the 'task purpose'. Van Knippenberg and Haslam (2003) presented research demonstrating that heterogeneity can be a normatively fitting aspect of an ingroup prototype. This suggests that participants could enter the research groups with expectations of the types of behaviour that would be displayed and performed by themselves and others as representatives of a social identity (Yzerbert et al, 2004).

Reference to behavioural expectations is a good sign of contextual self-definition. Behaviour consistent with expectations of a social category serving as a guide to normative behaviour helps prescribe ingroup normative intragroup behaviour (Abrams, 1996). Given the item content of the intragroup trust scale, and that intragroup trust did increase, there is some evidence that such behaviour did occur and was attended to in making a social judgment. Increases in intragroup similarity in the intragroup condition can be interpreted as a sign of a post-task increase in the level of normative fit (Blanz & Aufderhiede, 1999; Abrams et al, 2004). The suggestion is that there was sufficient information in the intragroup context that could be interpreted with reference to pre-task expectations (framed within a presumed shared social identity) to evaluate normative fit. Therefore increased similarity

suggests an increase in post-task levels of perceived normative fit of self and other to the mono-functional team.

Research in computer mediated communication (where no physical intergroup interaction occurs) supplements the previously cited research into the SCT derived subjective groups dynamics model (Abrams et al, 2004; Marques et al, 1998; 2001) by demonstrating that normative standards can develop without an immediate outgroup comparison. For example, Postmes et al (2000) reported prototypical norms of computer mediated groups developed through observation and experience of behaviours within the group. Ingroup members were seen to develop their own prototypical communication style that was preserved for use with the ingroup. For example, some groups were impersonal and business like while some groups sent messages to each other that would have been considered rude outside of the ingroup, but were considered appropriate within the group (Postmes et al, 2000).

In other words, meaning assigned to the content of a message was given a meaning inside the group. Interpretation of a message as appropriate (rather than offensive) represents a judgement of normative fit to the ingroup prototype (Brown & Turner, 2002). When the context changed to include communication with an outgroup the style of communication changed to one that was not normative for the ingroup. This implies that the style of communication observed in an intragroup interaction was not a generic style, but specific to the intragroup context (Postmes et al, 2000). Consistent with SCT, the evolution of prototypical standards of communication involved the integration of individual and social influences within the group (Postmes et al, 2000; McGarty, 1999; Hogg, 1996).

It should be noted that Postmes et al (2000) is similar to the intragroup condition in the current research as there was no explicit comparison group from which to judge comparative fit. Yet, it was still possible to develop communication that would normatively

fit only the specific group. Therefore it is not unreasonable to suggest members of the mono-functional teams from the current research would also be able to make judgements of normative fit while engaged in intragroup interaction. This interpretation of the current results would be consistent with the idea that self-categorisation represents an attempt to integrate as much contextual information as possible into the formation of a social judgement (Oakes, Haslam, & Reynolds, 1999).

An alternative interpretation of the current results is that increased similarity, but stable heterogeneity, represent a focus on a single facet of the social field in order to simplify the environment (Oakes et al, 1999). For example, participants were told that they were similar so they only noticed similarity. From this perspective social perception is constrained by the limited human capacity to cope with a large volume of information. It is considered quicker and easier to look at each individual as representing a stereotype of a group, a stereotype which is error prone as it is contextually invariant and therefore does not allow for accurate social judgments (Oakes, 1996). According to this view it is only interpersonal perception, perception that pays attention to the multiple characteristics of each individual rather than perception from a social stereotyped perspective, which allows accurate social judgement (Oakes, 1996; McGarty, 1999). Therefore social cognition is ultimately limited by cognitive capacity and the need to reduce cognitive load (Oakes, 1996; McGarty, 1999). Macrae, Bodenhausen and Milne (1995) conducted research that supports the existence of this 'cognitive miser' in social perception.

Macrae et al (1995) found that when it is possible to apply multiple categorisations to a target (Chinese or woman), one category is inhibited and another activated. For example, when eating with chopsticks the category of Chinese became more accessible. When the same target was seen to put on makeup the category 'woman' became more accessible than Chinese. Macrae et al (1995) suggested this was evidence social categorisation is meant to

simplify incoming information. This idea is inconsistent with SCT, which assumes social categorisation is a way of increasing the amount of information that can be used to make a social judgment (Oakes, 1996). A body of research would suggest the idea of social categorisation as a means of discounting information based (in order to avoid expending effort in social perception) may not be accurate.

Spears, Haslam, and Jansen (1999) examined whether varying levels of cognitive load would have an effect on categorisation. It was found that as load increased, categorisation decreased. These researchers concluded that categorisation is therefore effortful, and not an exercise in reducing cognitive demands. Nolan, Haslam, Spears, and Oakes (1999) examined how normative fit of targets and different levels of cognitive load affected social categorisation. Similar to Spears et al (1999), increased cognitive load decreased social stereotyping, even where normative fit was high (Nolan et al, 1999). This would seem to contradict the idea that stereotyping would increase under higher cognitive load as a means of conserving energy by discounting social information (Oakes, 1996). Coull et al (2001) found participants with higher levels of ingroup identification expend more cognitive energy to protect the ingroup from association with a negative deviant than low identifiers. These studies suggest social perception is not based on information minimisation, so much as information maximisation from a depersonalised perspective.

It is possible to reconsider Macrae et al (1995) as a context where the social category assigned to the target was the one that made most use of the available information. For example, priming alone did not influence reaction time. Categorical information in the form of observable behaviour (Macrae et al, 1995) was necessary before reaction times were affected. In other words, while priming may make knowledge accessible, the knowledge is interpreted in consideration of all information available within the context (McGarty, 1999; Brown & Turner, 2002). For example, when a woman was presented with chopsticks (high

normative fit to Chinese stereotype) she is seen as Chinese because the extra information (use of chopsticks) allows for differentiation between the target and other racial categories. The same target was categorised female when using make-up, because the observable data allowed for differentiation between men and women rather than ethnicity. The suggestion is that chopsticks or makeup were extra information that increased perceiver readiness to consider the target a member of either possible category (Brown & Turner, 2002). This idea is supported by Blanz and Aufderheide (1999) who found high normative fit increased the salience of a possible social category while low normative fit decreased the salience of a competing category. The suggestion is social reality provides data that informs the way a primed category is interpreted (Brown & Turner, 2002).

Support for this proposal comes from research showing stereotypes are not invariant. This is evident in research demonstrating that the same target can be seen as different depending on the social context in which the judgement is made. Reynolds (1995 cited Oakes, 1996) found the same female target was perceived to have different traits depending on presentation in either an interpersonal or intragroup context. In an intragroup context the target was seen in terms of stereotypical ingroup traits. However, participants used different traits to differentiate between themselves and the target depending on the social frame of reference (interpersonal or intragroup). For example, when the shared category of female was salient differentiation was based on 'male' traits. Male participants have been reported to see themselves as more individuated when there are no females present, but in more prototypical terms when females are present (Turner et al, 1994). The suggestion is it is not just the specific trait, but the meaning of the trait within the context that is implicated in the final social judgement (Oakes, 1996).

Further, there is evidence contextual features can effect judgements of group variability. For example, the relative power of a group can change the perceived amount of

variability perceived within groups (Doosje, Ellemers, & Spears, 1995; Guinotte et al, 2002). Groups can be seen as more homogenous when there is an external threat and less so in the absence of threat (Rothgerber, 1997). Bernsden, McGarty, van der Pligt, and Spears (2001) found participants attempt to make sense of the experimental context by actively interpreting information so that intragroup similarity and intergroup difference is exaggerated. Cornielle and Judd (1999) reported the amount of variability around a prototype that will lead to category inclusion or exclusion changes in response to the context framing the judgement.

The body of research cited above is in accordance with SCT as effortful processing and contextual adaptability of social perception represents a judgment of social meaning derived from perceived normative fit (Brown & Turner, 2002). In the current research, increased similarity and stable level of heterogeneity would represent optimal use of the information available in the intragroup context. Some suggestion of this can be derived from the large effect size (Pallant, 2001) of $\eta^2 = .27$ of 'intragroup context' on the difference between pre-task and post-task intragroup similarity. Furthermore, the difference between conditions was based in contextual manipulation. In the intergroup context there was enough information to allow for the judgement of comparative fit and normative fit. The post-task levels of similarity and heterogeneity reflect full use of all the information available within the context. In the intragroup context there was only information relevant to judgement of normative fit. Therefore full use of the information in the environment was relevant to judged levels of intragroup similarity, but not heterogeneity.

Heterogeneity and similarity summary.

In summary, the results from the intergroup context condition were as predicted by H3a, and as such easily explained with reference to SIT and SCT. In contrast, finding that heterogeneity did not increase, and similarity increased instead of decreased in the intragroup condition at first appears inconsistent with SIT and SCT, as would the lack of a significant

difference between conditions. It was argued that participants from the intragroup condition were processing information from a position closer to the intergroup end of the intragroup-intergroup continuum than the interpersonal end. The post-task level of similarity and heterogeneity reflect an active processing of the context from the perspective of a depersonalised group member. The intragroup context contained sufficient information from which to gauge normative fit, reflected in the increased similarity. There was no outgroup present from which to judge comparative fit. Therefore heterogeneity did not decrease, because in reality a degree of intragroup heterogeneity would have been observed. The current results are consistent with the position of SCT that group members are active processors of social information. A practical implication is that there may be no advantage to be gained from the use of either context if attempting to influence the perceived variability within a mono-functional team.

Effort and intragroup trust

According to H4 both effort (H4a) and intragroup trust (H4b) were expected to increase in both conditions. The largest post-task level in both variables was expected to be reported by participants from the intergroup condition, the context most likely to increase identification with the mono-functional team (Turner et al, 1994; van Knippenberg & van Schie, 2001; van Knippenberg & Ellemers, 2003). There was partial support for H4 in that each of the variables was found to reach a higher post-task than pre-task level. However, the expectation that the intergroup context would be associated with a larger increase than the intragroup context did not eventuate. H6 specified that participants from the intergroup condition would not differ in post-task levels of the dependent variables on the basis of the relative success of their team. H6 was supported in relation to both variables. The suggestion is neither context would be more effective than the other in terms of increasing effort or intragroup trust. The implications of these results will now be addressed.

Effort.

The intent to expend more effort found in the current research can be considered to have positive implications for organisations. For example, Brown and Leigh (1996) found that effort explained 10% of variance in employee performance. Yeo and Neal (2004) found a positive relationship between effort and skill acquisition that increased in strength over time. Weingart (1992) found that effort mediated a positive relationship between group goal and group task performance. Given there was no significant difference between intragroup and intergroup contexts, it can be suggested that either contextual manipulation would be equally useful for an organisation attempting to motivate members of mono-functional work teams.

The present research assumes that post-task levels of effort is related to post-task levels of social identification. It is acknowledged that the present analysis did not directly test the possibility of a causal role for social identification or self-categorisation in relation to the higher post-task level of effort. Therefore it cannot be stated unreservedly that the reason effort increased is that social identification and self-categorisation also increased. However, correlations between post-task social identification ($r = .45$ intergroup, $r = .38$ intragroup) with effort and post-task subjective uncertainty ($r = .44$ intergroup, $r = -.36$ intragroup) with effort do suggest an association between the intention to work harder for a team and defining oneself as a member of the mono-functional team. Note, a non-significant difference between the intergroup and intragroup contexts in terms of effort was also found for social identity.

The idea that movement from the interpersonal to the intergroup level of psychological processing may be conducive to an increased willingness to work for a group has recently been advanced by other researchers (Fiol, 2001; Ellemers, 2001; Haslam, 2001; van Knippenberg, 2000; Wegge & Haslam, 2003; van Knippenberg & Ellemers, 2003).

Furthermore, a body of existing research would support the assertion that the reported increase in willingness to exert effort can be attributed to a self-definitional shift consistent with the positive correlation between social identification and self-categorisation found in the present work.

Van Knippenberg and van Schie (2000) found work group identification to have a positive association with motivation. Ehrhart and Naumann (2004) and van Knippenberg and Ellemers (2003) have suggested increases in social identification will also increase organisational citizenship behaviours. Their suggestion is supported by Bergami and Bagozzi (2000) who found cognitive awareness of organisational membership mediated between antecedents of identification, social identification and organisational citizenship behaviours. Tyler and Blader (2001) found the performance of extra-role behaviour was predicted by social identification with their work groups.

Voci (2006) reported a positive correlation between depersonalisation and organisational citizenship behaviours, which were more likely to be performed when the ingroup was a highly accessible social category. The Voci (2006) results suggest expending effort on behalf of an organisation will be related to the process of self-categorisation as specified by SCT. Haslam et al (2000) found increased organisational identification encourages extra-role behaviour, loyalty, and expenditure of effort towards the organisations goals. Veenstra and Haslam (2000) found willingness to engage in industrial action was positively associated with level of identification as a union member. Veenstra and Haslam (2000) also found providing information solely in terms of intergroup conflict motivated low identifiers to withhold effort from advancing the union position. However, consistent with SCT, Veenstra and Haslam (2000) found an interaction between social identification and a manipulation of the contextual meaning of industrial action. Changing the perceived

contextual meaning of the industrial action resulted in low identifiers reversing their position, increasing willingness to engage in protest.

The lack of significant differences between winning and losing teams in terms of expressed effort intent can be interpreted as evidence of a social identification effect. For example, Turner et al (1984) suggested expending effort on behalf of an unsuccessful group is a socially creative way of claiming positive distinctiveness from acting on behalf of the group even though it was not good enough to succeed. Doosje et al (2002) reported that those with higher levels of social identification would maintain continue to affirm this identity even when the group was about to lose status. Low identifiers would not express identification unless the group was about to gain in status. Barreto and Ellemers (2000) found participants with high levels of ingroup identification were intrinsically motivated to expend effort on behalf of the ingroup. Low identifiers would not do so unless there were extrinsic pressures to do so. In other words, exertion of effort can serve to reaffirm the importance of a social identity even if the ingroup was not successful at one point in time. The suggestion is that the increased effort found in the current research is at least partly attributable to the transformation of individual self-interest to social self-interest (van Knippenberg, 2000).

Given the weight of the cited research, current results would be expected if effort increased in tandem with a shift to a more social self-definition, which in turn transforms individual self-interest into social self-interest (van Knippenberg, 2000). An alternate explanation that may be advanced for the reported increase in effort is that individual participants were motivated to increase their effort because they would meet their own individual needs by doing so (Haslam, 2001). If this were so, organisations would find that members of mono-functional teams would increase their work effort if the individual was rewarded. For example, Wageman (2001) noted that effort expenditure can be affected by

outcome interdependence. This implies the current result would be expected if each individual team member received a reward for the outcome achieved by the group. However, in the current research there was no outcome based reward given to any participant from the intragroup condition for reaching the correct decision, or even feedback as to whether the group was correct.

In the intergroup condition there was a reward for member of the winning mono-functional teams. No reward was given to members of unsuccessful teams. If increased effort was the result of each individual receiving a reward there should be a difference between those who were rewarded and those who were not. However, there was no difference between successful compared to unsuccessful mono-functional teams. This suggests receiving a reward for outcome was not an important contributor to the increased effort intention within the intergroup based participants. Turner et al (1984) would suggest that concerns for a social identity group can explain the increase in effort intent reported by members of losing mono-functional teams. In addition, there was no difference between intragroup and intergroup conditions. Given the absence of a reward in the intragroup condition, and the presence of a reward in the intergroup condition the absence of a statistically significant difference between contextual conditions suggests that reward was not a large factor in the reported increased effort intention.

In the current methodology there was a mismatch between the reward (presented to individuals) and the group level task. Research shows rewards are most effective as motivators when there is congruence between the reward and the level of social interaction required to perform the task (Wageman, 1996; Wageman & Baker, 1997; Haslam, 2001). The suggestion is that any positive effects of getting a reward for being successful in the intergroup condition are constrained by the mismatch between an individual level of reward and the social structure (uniforms, instructions, group as basic social unit, cooperative task)

inherent in the research context. Wageman (2001) notes structural interdependence may influence the level of perceived reward interdependence, thereby influencing effort levels, as well as driving cooperative behaviour. However, outcome interdependence does not increase cooperative behaviours. Wageman (2001) also observes that task interdependence leads to the perception that group members need each other. If, as in the current research, the basis for interdependence is membership in a shared social identity then effort can reasonably be related to the increase in social identification (Brewer, 1996; 1999b) more than a collection of individuals cooperating only so far as they get an individual reward for doing so (Turner, 2000; van Dick, 2004).

Research demonstrating the relative importance of social identification when compared to individual level motivation underscores the position that increased effort can be due to a shift in self-definition from interpersonal to the intergroup. For example, Tyler and Blader (2001) reported social identification accounted for 15% more variance in extra-role behaviour than was accounted for by individual rewards. Similarly, Haslam et al (2000) found group loyalty was negatively related to satisfaction of individual level motivators. Meeting individual needs failed to predict extra-role behaviour conducive to social identification did predict extra-role behaviour. Considered together, the cited research (Tyler & Blader, 2001; Bergami & Bagozzi, 2000; Haslam et al 2000) supports the contention that the increased effort found in the present study is related to a change in self-definition.

One methodological issue that may be raised to challenge this contention is that participants were not anonymous during the performance of the team tasks. The relevance of this observation is that being readily observable may inflate conformity, despite private disagreement (Noel et al, 1995). For example, Barreto and Ellemers (2000) reported that those whose level of social identification was below the scale midpoint were willing to work for a group as long as they were accountable. When low identifiers were able to avoid

accountability they worked for their own ends rather than the groups. High identifiers worked for the group regardless of accountability. In the current research pre-task social identification was above the midpoint and then increased to higher levels. Given the pre-task level of social identification in the current research it is reasonable to suggest that accountability did not artificially inflate the post-task levels of effort (Doosje et al, 2002; Barreto & Ellemers, 2000).

Effort summary.

The current results suggest either an intragroup or an intergroup identity management strategy will be equally effective in increasing willingness of mono-functional team members to exert effort on behalf of their group. Increased effort on behalf of an organisation has been shown to be beneficial to the organisation. Therefore managing a monofunctional team with either an intragroup or an intergroup contextual manipulation would be of equal benefit to the organisation. Explanations (individual reward or accountability) do not appear to fit the current results as well as an explanation couched in terms of increased social identification. Although the current analysis does not prove causality, the current data, when integrated with past research, would support the idea that inducing a shift from individual self-interest to social-self interest can increase effort on behalf of the ingroup.

Group trust.

Research suggests an increase in intragroup trust is likely to be good for the organisation and its employees. Koberg, Boss and Goodman (1998) found higher levels of intragroup increased the perceived quality of a mentoring relationship, which in turn predicted increased job involvement and self esteem while decreasing intent to leave the organisation. Content analysis by Kirkman et al (2000) suggests there would be less employee resistance to work on self-managing teams if intragroup trust could be increased. Costa et al (2001) reported a positive relationship between trust and relationship

commitment, team satisfaction and perceived task performance but a negative relationship with stress. Cunningham and MacGregor (2000) found higher levels of trust predicted decreased absenteeism and turnover intent but increased job satisfaction and performance. The effect of trust was found to be independent of and additional to satisfaction based in task characteristics. Chami and Fullenkamp (2002) found organisations where there was a high degree of trust had employees who exerted more effort, were more likely to help each other (without extrinsic reward) and felt higher job satisfaction than employee of low trust firms. The employees of the high trust firm cost less to employ, creating higher profits than were achieved by low trust firms who relied on financial incentives. Organisational citizenship behaviours have been found to be more prevalent where trust is high (Robinson, 1996; Korsgaard, Brodt, & Whitener, 2002; van Dyne, Vandewalle, Kostova, Latham, & Cummings, 2000).

Studies have found that where trust in supervisors or organisations is high the actions of the organisation or supervisor are seen to be fair, even where the individual employee has received a negative outcome from the supervisor or organisation (Aryee, Budhwar, & Chen, 2002; Brockner, Siegel, Daly, Tyler & Martin, 1997; Robinson, 1996). There is also evidence that high levels of intragroup trust are necessary if employers and employees are to be able to gain the potential benefit of task related conflict (Simons & Peterson, 2000; De Dreu & Weingart, 2003; Jehn & Mannix, 2001; Peterson & Behfar, 2003).

In contrast, where there is distrust there is more concern with impression management than with rational evaluation of opposing thought (Jehn, 2000). For example, Conlon and Hunt (2002) reported that negotiation characterised by high levels of emotional involvement were marred by lower trust and longer, more contentious, less satisfactory negotiations. Low levels of trust contribute to low perceived levels of psychological safety which interferes with the willingness of team members to admit errors or seek performance feedback (Edmondson,

1999). Anderson and Bateman (1997) found high levels of cynicism, assumed to be congruent with low levels of trust, predicted a decrease in organisational citizenship behaviour. Robinson found new employees with lower levels of trust had more extreme negative reactions (distrust, decreased effort, increased intent to leave) when an employer breached a psychological contract than employees with higher level of organisational trust on employment. Wells and Kipnis (2001) reported employees and supervisors would engage in antagonistic influence behaviours such as appealing to higher authorities, performing sanctions or forming antagonistic coalitions where there was a lack of trust. Low levels of intra-organisational fairness detract from commitment to the organisation, job related effort and customer satisfaction (Simons & Roberson, 2003; Masterson, 2001).

Consideration of the cited research in conjunction with the current results would suggest the increased trust reported by participants would be associated with positive outcomes for the mono-functional team and its membership. Given there was no difference between the intragroup or intergroup conditions, it can be suggested that either contextual manipulation would be as effective as the other at facilitating the increase in trust between members of mono-functional team. It is acknowledged that there is no evidence to suggest a causal role for social identification in the increase in trust. All that can be demonstrated by the current results is that where a social frame is conducive to the increase in social identification, a related increase in intragroup trust can be expected.

The statistical basis for this suggestion comes from the correlation found in the current results between post-task social identity (intragroup $r = -.68$, intergroup $r = .69$) and intragroup trust and post-task subjective uncertainty (intragroup $r = -.28$, intergroup $r = -.48$). Note that there is a positive association between trust and identification and a negative association between trust and subjective uncertainty. SIT/SCT would consider increased intragroup trust (after experiencing a context where social identity increased and subjective

uncertainty decreased) an outcome of depersonalised perception of self and ingroup members (Haslam, 2001). Brewer (2001) has suggested it is the domination of depersonalised trust over distrust that makes coordinated and mutually beneficial actions possible.

Depersonalised perception serves to reduce uncertainty as to motives of others in turn lowering the perceived level of vulnerability of exploitation while increasing the expectation that the trust will be reciprocated (Kramer et al 1996; Kramer, 2001). For example, Hwang and Burger (1997) found distrust decreased cooperation due to increased personal greed and fear of being exploited while reciprocal intra-organisational altruism increases with intra-organisational trust (Chami & Fullenkamp, 2002). Tanis and Postmes (2005) found shared social identity formed the basis for behavioural expression of trust because shared social identity lends a presumption of reciprocity. The suggestion is that shared social identification forms the basis for trust between people, thereby decreasing the fear of exploitation noted by Hwang & Burger (1997) while having the positive effects noted by Chami and Fullenkamp (2002).

Work group cohesion has been identified as an antecedent of organisational trust (Gilbert & Tang, 1998). Given that work group cohesion increases with social identification (van Knippenberg & Ellemers, 2003) there is an implied association between work group identification and trust of an organisation. Bettencourt et al (1999) found judgments of relative trustworthiness to be a component of intergroup bias. When social identification was salient, minority group members exhibited a self-positivity bias, implying that the ingroup was seen to be more trustworthy than the outgroup. Wit and Wilke (1992) and Polzer, Stewart, and Simmons (1999) found shared social category membership formed a basis for trust based cooperation while engaged in social dilemma games. Linnehan, Weer, and Uhl (2005) reported higher levels of social identification (with an ethnic group) predicted the

level of initial trust in mentors who shared membership in the ethnic category. When ethnic identity was low there was a belief that outgroup mentors would be more trustworthy.

There is evidence to suggest justice perception is related to intra-organisational trust (Pillai, Williams, & Tan, 2001) and that social identification is related to perceived justice. The implication is that social identification and trust will also be positively associated. For example, Wenzel (2001) found distributive justice was seen to be done if more prototypical category representatives were the recipients of a desired outcome while those less prototypical for the social category were denied the outcome. Research based in SIT and the SCT derived relational model of authority has shown that if police are seen to be 'morally' prototypical for the community, they are seen to be 'just' in their enforcement behaviour. Those who socially identify most with the community expressed moral solidarity with the police and believe police act fairly (Sunshine & Tyler, 2003).

Research in organisations has shown that employees who trust organisational authorities are more likely to feel justice has been done even if the employee incurred some loss from the action of the authority (Ambrose & Schminke, 2003; Korsgaard et al, 2002; Brockner et al, 1997). These studies can be considered together with research demonstrating a link between perceived fairness and social identification. For example, social identification affects the perceived fairness of group leaders (Platow, Reid, & Andrew, 1998). Chi, Tsai, and Tsai (2004) found organisations were more likely to use an independent arbitrator if there was a basis for shared social identity. Shared social identity was found to increase the perceived level of procedural fairness believed to be inherent in the decision making of the arbitrator, even if past decisions had not always been favourable. Tyler et al (1996) found disputants more willing to resolve a dispute (even if this means accepting instrumental losses) if they share a dimension of social identity with those resolving the dispute. In contrast, research shows that decisions from an out-group authority figure do not lead to conflict

resolution without consideration of the instrumental gain accrued from acceptance of a proposed solution (Chi et al, 2004; Ellemers et al, 1998a; Utz & Sassenberg, 2002; Stahl, Van Prooijen, & Vermunt, 2004). The suggestion is that social identity, perceived fairness and trust can be expected to co-occur.

The cited research is consistent with the idea that shared social categorisation increases the likelihood the intragroup climate would be characterised by the presence of intragroup trust (Brewer, 1999; 2001, van Knippenberg & Haslam, 2003). It can be suggested that just as expending effort towards group interest can be based in meeting the interests of the socially defined self, extension of trust to ingroup members may be considered extending trust to the social self.

The logic of this is reinforced by research where distrust and low social identification were found to be related. O'Brien et al (2004) found that cynicism towards an organisation to be most prevalent amongst employees from groups with the lowest social identification with the organisation. Lower levels of social identification coincided with resistance to engagement in organisational program due to distrust of the organisation. Groups with higher organisational identification were not cynical and were willing to participate in the organisational program. This result is similar to that of Andersson and Bateman (1997) who reported that cynicism bred distrust and decreased organisational citizenship behaviours. Injustice towards ingroup members sends the message that they are not valued by the organisation and therefore identify less with the organisation (Smith et al, 2003; O'Brien et al, 2004).

Further research linking distrust to loci and level of social identification is provided by Chattopadhyay and George (2001). Majority group members (internal employees) reported lower trust in response to dissimilarity between themselves and an organisational minority group (temporary workers) when the task group numerically dominated by the

temporary workers. Chattopadhyay (2003) was also consistent with SIT when finding a role for legitimacy of status differentials and intragroup trust. Specifically, minority group employees expressed greater intragroup trust when working with dissimilar majority group employees if they believed the basis of status differentials was legitimate. Minority group employees who believed the traditional status differences were illegitimate expressed trust towards similar employees, but not to those who were dissimilar

Considering the cited research as a body, it can be suggested that increased social identification appears to correspond with increased levels of trustworthiness within groups. It can be suggested that the increased intragroup trust reported in the current research is related to the social identity enhancing effects of the two identity management processes employed in the current research. SIT/SCT explanation would suggest increased trust in fellow members of the mono-functional team is due to depersonalised perception of self and fellow ingroup members making trust of the ingroup equivalent to trust of the self (Haslam, 2001).

An alternative explanation would logically be centred in the opposite direction. Reported levels of trust would reflect the personalised perception of other members of the mono-functional teams. For example, intragroup trust could have increased because individual team members have a high propensity to trust other individuals. Research has found high 'propensity to trust' can contribute to organisational citizenship behaviours cooperative (Van Dyne et al, 2000). However, in the van Dyne et al (2000) study the effect of propensity to trust on organisational citizenship behaviours was mediated by organisation based self-esteem. Organisation based self-esteem reflects one component of social identification with an organisation (Bergami & Bagozzi, 2000). The suggestion is that individual propensity to trust influences organisational citizenship behaviours as the sense of common social identification intensifies.

Costa et al, 2001 found propensity to trust contributed 10% of the variance in total trust as measured by multidimensional trust scale. However, two other facets of total trust were found to make a much larger contribution to the variance in the total trust score than propensity to trust. Perceived trustworthiness accounted for 83% of the variance in total trust (Costa et al, 2001). The second largest contributor to total trust was cooperative behaviours (57%). Perceived trustworthiness of another increases as a function of shared social identification (Williams, 2001; Tyler, 2003) while the sample items from the cooperative behaviour scale make explicit reference to normal intragroup behaviour (Cost et al, 2001). Intragroup norms reflect social psychological processes such as social identification (Abrams et al, 2004), possibly suggesting that trust was contributed to by the fit of cooperative behaviour to the normative group standard (McAuliffe et al, 2003).

Cadenhead and Richman (1996) expected to find that the intrinsic willingness to trust another person would reduce approval of aggression towards another individual. However, results suggested group membership was more predictive of prosocial behaviour than intrinsic willingness to trust. For example, participants were more likely to perform altruistic behaviours towards an ingroup member than an outgroup member, regardless of intrinsic willingness to trust. These researchers reported the likelihood of performing a prosocial behaviour increased linearly with trust. However, examination of means reveals those *least* inclined to trust reported a *higher* willingness to trust an ingroup member than those highest in propensity to trust were willing to trust an outgroup member (Cadenhead and Richman, 1996).

Gill, Boies, Finegan, and McNally (2005) have found that the influence of propensity to trust on intention to trust is not necessarily positive. These researchers found the positive association between 'propensity' to trust and 'intent' to trust depends on contextual ambiguity as to the trustworthiness of the 'other'. Only if there was uncertainty as to the

trustworthiness of the 'other' did a positive relationship between propensity to trust and trust intent occur. It should be noted that the scale items used by Gill et al (2005) reflect observation of a behavioural basis for item content representing benevolence, integrity, and competence. Ambiguity with regards to co-worker trustworthiness must then reflect a lack of behavioural evidence regarding the competence, integrity and benevolence of the co-worker. Betrayal is aversive (Koehler & Gershoff, 2003) lowering trust within a relationships (Finkel, Rusbult, Kumashiro, & Hannon, 2002; Chi et al, 2004). The Gill et al (2005) research suggests even if an individual is highly trusting before interaction, if the partners to the interaction do not exhibit benevolence, integrity and competence there would be a reduction in trust. In other words, an individuals propensity to trust would not prevent a decrease in post-task trust if trustworthy intragroup behaviour was not actually performed and reciprocated (Gill et al, 2005).

Considered together, the research cited above suggests individualistic propensity to trust is not as important as depersonalised trust when the social frame makes group level psychological processing relevant. Furthermore, there is little to suggest that the current participants were working from an interpersonal perspective. For example, there was no evidence that individual differences in pre-task levels of trust had a strong relationship with post-task levels in any mono-functional team in either condition. Furthermore, the items used in the intragroup trust scale explicitly refer to the 'group' or 'group members'. Turner (2000) states item wording that is individualistic accesses intrapsychic processes and group level wording accesses intergroup level processes. The suggestion is that post-task responses reflect depersonalised trust rather than individualised trust. It could also be noted that the content of items comprising the scale developed for the present research is similar to Gill et al (2005) by virtue of having items reflecting the observation of behaviours indicative of

competence, benevolence and integrity. This suggests the present scale has a sound conceptual base.

It is possible the performance of trustworthy behaviours was not based in concern for the mono-functional team as a shared social identity so much as personal accountability. In other words, participants feared to act without benevolence, integrity, or incompetently because they were concerned about possible recriminations. However, monitoring is associated with being controlled and distrusted (Costa et al, 2001; McAllister, 1995; Wells & Kipnis, 2001). This implies that there should be low levels of trust, both on the part of those who felt other group members needed monitoring and on the part of those motivated by personal accountability. However, increased intragroup trust suggests personal accountability was not a major factor in post-task levels of intragroup trust. Tanis and Postmes (2005) found that trust is extended to those who share a social identity regardless of identifiability or anonymity. Only those with low social identification are motivated by personal accountability (Ellemers et al, 1998b). The cited research, considered the pre-task and post-task levels of social identity, suggest current results reflect intragroup trust advanced on the basis social psychological affiliation rather than concern for punishment. The author therefore concurs with those researchers who have noted displays of trustworthy behaviour are a means of affirming connection to a shared loci of social identity (Kramer, 2001; Kramer et al, 1996; Brewer, 2001; Williams, 2001; Van Vugt & Hart, 2004).

Intragroup trust summary.

In summary, intragroup trust increased in both conditions. This can be expected to be beneficial for an organisation. Evidence suggests that experience of either identity management strategy will contribute to the development of an equivalent level of trust between members of a mono-functional team. It is reasonable to suggest that trust was advanced on the basis of shared social identity as a member of the mono-functional team.

Alternative explanations do not fit the current results and past research has shown group level variables may be more influential than individual difference variables in development of intragroup trust.

Conclusion

The current results suggest it is appropriate to manage intragroup interaction in mono-functional teams with reference to intergroup level psychological processes. SIT/SCT provides a useful conceptual lens from which to manage these processes when compared to individualistic explanations. In general, either the intragroup or intergroup identity management strategy would be of benefit to an organisation and employees. If there is one point of separation between intragroup or intergroup conditions it is in the effect of being unsuccessful in the intergroup context. Winning or losing was not related to a difference between groups within the intergroup condition. However, there were two occasions where a difference was found between losing teams and teams from the intragroup condition. Reported levels of 'subjective uncertainty' and conceptualisation of the group as 'subgroups within a single group' were higher in losing groups than was found in the intragroup context. Post-task levels of uncertainty may reflect acknowledgment of reality rather than unwillingness to self-categorise. It would be interesting to measure subjective uncertainty in both task and socially creative areas. The conceptualisation of the aggregate as subgroups in a single group may potentially be negative if the reason for identification of subgroups is for attribution of blame for the loss. However, the general pattern of results suggests there was little blame within losing groups. This was explicable with reference to past research where multiple identification has been found to preserve of subgroup distinctiveness while allowing some basis for benevolence between subgroups by virtue of joint membership in a superordinate identity. Results from both conditions could be explained with reference to SIT/SCT. Correlations suggest applied settings may benefit from taking steps to promotion

task group as a locus of social identification before the group is expected to perform.

Providing information regarding interdependence, group purpose and symbolic connections to those who will form the group before the group meets may be effective for establishing an initial willingness to identify with a mono-functional team.

Chapter Nine: Method Study Two

Participants

Study two examined which of the two identity management strategies (either intragroup or intergroup) would be most effective for improving the functioning of cross-functional teams. The sample was drawn from undergraduate students attending Griffith University. One hundred and ten participants (19 males and 91 females, age range is 17-50 $M = 22.27$) were recruited for this study. Participants were drawn from a number of different disciplines. This allowed the researcher to create cross-functional teams based around academic subgroups. There was no effort to recruit from specific academic subgroups. Participation in the experiment was voluntary. Potential participants were recruited either directly, through brief presentations, and through mass electronic mail or sign-up sheets placed in common-use laboratories. Participants were informed that there was payment for participation at the time of contact. The forms of payment offered were a choice of either academic course credit (one point of credit per hour) or a monetary reward \$10.00 per hour.

Forty-four participants (8 males and 36 females, age range of 17-50, $M = 23.11$) were assigned positions in the intragroup condition and were divided into four 11 person teams. Sixty-six participants were allocated to the intergroup condition (11 male and 55 female, age range 17-50, $M = 21.69$) and were divided into six 11 person cross-functional teams. The size of the groups in the current study is consistent with organisational practice as reported in past research. For example, Cordero et al (1998) reported an average of 9 members per cross-functional teams while Huang and Newell (2003) reported a range of 12-14 members on cross-functional teams.

Group assignment.

The cross-functional aspect is reflected in the composition of the group. Each cross-functional team in the intragroup condition was comprised of representatives from three

academic sub-groups. Two academic sub-groups had four representatives with the third discipline having three representatives. For example, a cross-functional team could have four participants studying criminology, four participants undertaking a Bachelor of Psychology with the remaining three participants studying for a Bachelor of Education. Although this leaves one group slightly under-represented on each team, recent research by Cunningham and Chelladurai (2004) found relative group size did not contribute to, or detract from, the development of either shared categorisation or particular affective outcomes in a simulated cross-functional team.

In the intergroup context condition the cross-functional teams were also divided into three 'functional' areas based in area of study. As in the intragroup context each cross-functional team consisted of two four person and one three person sub-group. For example, a team could have four members studying for a Bachelor of Behavioural Science, four members studying for a Bachelor of Psychology and three members undertaking a Bachelor of Education. The possibility that the presence of males on one team (but not another) may effect results was again controlled by keeping the number of males on opposing teams equal. There was no effort on the part of the experimenter to ensure each function had at least one male representative, only to make opposing teams gender balanced.

Design

The design employed in Study Two was a quasi experimental mixed between groups repeated measures design. As in Study One the between groups independent variable is 'social context'. The two levels of 'social context' remain 'intragroup' and 'intergroup'. In this phase of the research the label 'intragroup' refers to the absence of an out-group external to the cross-functional team, not the absence of intragroup intergroup boundaries. Similarly, the label 'intergroup' refers to the presence of an out-group external to the cross-functional team in addition to the internal intergroup boundaries. It is important to note the intention is

not to downplay the importance of the internal intergroup dimension in the intergroup context, to the contrary, the presence of an internal intergroup dimension in cross-functional teams is fundamental to the position taken by the present researcher. Rather, the labels assigned to conditions refer to the elements of the context that could be manipulated within an organisational setting.

The cross-functional teams performed problem-solving tasks. The rationale for the use of a cooperative problem solving tasks was the same as for Study One. Specifically, encouraging cooperative interaction has long been considered a method for improving intergroup relations in contexts like cross-functional teams where sub-group distinctiveness may be threatened (Jetten et al, 2004). Secondly, cooperative inter-group interaction is a fundamental requirement of a cross-functional team if it is fulfil the role required by the organisation (Cunningham & Chelladurai, 2004). Thirdly, the use of a problem-solving activity as the basis of interaction in cooperative groups is consistent with past research concerned with manipulations of social categorisation and intergroup conflict reduction.

It should be noted that the teams in the intragroup condition performed a different problem solving task to those in the intergroup condition. In the intragroup condition participants undertook the same 'Who owns the fish' problem solving task as participants in the intragroup condition of Study One. In the intergroup condition the same scavenger hunt exercise was used as in the intergroup condition of Study One. As in the first study, complimenting intellectual activity with physical activity and the affective response of avoiding capture, or successfully capturing members of the opposing outgroup in service of the experimental group, were intentionally engineered into the context. The intent is to capitalise on each of these contextual features to align the various social self-definitions present within a cross-functional team (Drury & Reicher, 2000; Mackie et al, 2000). Study two participants were provided with team uniforms that had labels were marked with the

university crest and had space for participants to write the name of their subgroup. The labels were intended to symbolise and draw attention to the complexity of the context represented by the cross-functional team.

It is assumed that if the comparatively simple context in the intragroup condition leads to similar or superior outcomes when compared to the more elaborate, and possibly risky contextual manipulation employed in the intergroup condition (Turner & Pratkanis, 2000) then some pragmatic purpose has been served. Specifically, that there is no reason to expend time, money and effort designing an identity management strategy similar to that employed in the intergroup condition. The pragmatic value of the present research is extended by comparing two problem solving tasks that differ in the level of physical activity and in the presence or absence of competition (Ibbetson & Newell, 1999). Any concern the dissimilarity between the two problem solving tasks is a potential confound will be addressed in the General Discussion.

Dependent Variables.

All participants were measured for pre-task to post-task differences on the same (or contextually equivalent) dependent variables (DV) as the mono-functional teams in Study One. The variables were social identity, subjective uncertainty, heterogeneity, similarity, conceptual representation of the aggregate (single group, subgroups within a single group, separate groups, individuals), effort and trust. Unlike Study One 'heterogeneity' and 'similarity will be interpreted (due to the composition of cross-functional teams) as indicating participant awareness of the existence of intragroup and intergroup boundaries. In line with Jetten et al (1998) heterogeneity refers to the level of variability within each subgroup and therefore is intra-subgroup heterogeneity. Similarity refers to the distance between subgroups within the cross-functional team (Jetten et al, 1998). Therefore it is intragroup-intergroup similarity. This practice is consistent with research demonstrating that employees are aware

of, and value, intragroup and intergroup boundaries inside cross-functional teams (Jassawalla & Sashittal, 1998; McDonald, 1995).

An additional dependent variable, 'intragroup intergroup status differences', was added to those measured in Study One. 'Status' was not included in the first study as the mono-functional teams were devoid of any experimentally manipulated internal inter-group dimensions. This meant there was no logical basis for differentiation predicated on relative inter-functional status. The reason for the inclusion of 'status' is that multiple identification is presumed to protect cross-functional teams from negative effects based in intra-organisational intergroup status differences (Hornsey & Hogg, 2002; Gaertner et al, 1999c) and is therefore of relevance to the current research.

Materials

Intragroup condition.

The researcher required a stopwatch, numbered individual copies of Albert Einstein's 'Who owns the fish' problem, and sufficient uniforms (blue t-shirts) to clothe each participant. Each session took place in a well-lit room containing a whiteboard (and markers) and a single block of tables with chairs arranged around the edge. A separate pre and post questionnaire was provided for each participant.

The uniforms in Study Two were embellished with adhesive labels stuck prominently to the chest of the t-shirt. These labels were distinctively marked with the university crest. The crest was used to symbolise the super-ordinate identity as a student of Griffith University. Manipulation of the social field by use of visible symbols is a plausible means of increasing the salience of a particular social identity (Hogg & Terry, 2001). Underneath the crest was space for participants to write the name of the academic group they were representing. Writing the name of the academic subgroup on the label placed on the chest of the distinctively coloured team uniform was done so that the cross-functional nature of the

group was obvious to participants. Membership in the cross-functional team was emphasised by team members wearing the same coloured t-shirt.

The intent was to make multiple levels of social identification available simultaneously. The inclusion of the university at the super-ordinate level is analogous with the organisational position in the identification hierarchy. The experimental group is equivalent to the position of a workplace cross-functional team that is beneath the organisation but above the departmental or functional group. The departmental or functional level of identification is equivalent to the faculty membership of participants in that the participants are representing their academic area in the multi-disciplinary team (Ashforth & Johnson, 2001). Drawing attention to the multiple loci of identification (and therefore a basis for distinctiveness and inclusion) is consistent with the stated design principle of increasing the perceived level of social complexity.

Intergroup condition.

The researcher required a stopwatch and a referees starting whistle. Three separate rooms were required. One room served as a common meeting point while each group was allocated a separate 'home' room in which to fill out the questionnaires. The problem solving task was the same competitive scavenger hunt scenario as used in the intergroup context of Study One. A separate copy of a campus map and a folder containing the rules, goals and the scenario was provided to each team. The scenario was identical to that used in Study One. A sufficient number of uniforms were needed to provide each individual participant with either a red or a blue uniform. A detachable cord and ring arrangement was affixed to the back of each shirt. Removal of the cord signalled the capture of an opponent. As in the intragroup condition an adhesive label was attached to the chest so that shared university membership and academic group membership could be displayed to other participants. Mr and Mrs Potato Head figures served as the tribal idols.

Similar to the intergroup context of Study One, a separate set of clues was developed for each team. The clue sets were placed in sequentially numbered (1-6) envelopes. The final envelope had the word 'FINISHED' written across the front. Apart from the first envelope there was a piece of the 'idol' in each. The groups did not have to compete with each other for the same envelope and clues were unique to each group. The reasons for this have been outlined in the 'Materials' section of Study One.

The content of the scavenger hunt question sets were intended to introduce an element of role convergence. Inclusion of the role convergence element is consistent with the stated design principle (see Chapter Five) of sub-group 'nesting'. Role convergence took the form of accessing knowledge unique to each sub-group. The combination of knowledge from one group with knowledge held by other sub-groups would enable the cross-functional team to fulfil the requirements of the task. Members of each sub-group were expected to have greater familiarity with their 'native' area on campus. Therefore item content was based around cryptic descriptions of 'geographical' features that members of a specific sub-group would be more familiar with compared to ingroup members from another subgroup. The intent was to make the informational diversity held within the cross-functional team an obvious and useful feature of the cross-functional team (van Knippenberg & Haslam, 2003). As there were three subgroups in each cross-functional team, two questions out of each set of six were intended to access the knowledge from a specific subgroup. For example, in a team with subgroups from criminology, education, and psychology two clues may refer to a specific information leaflet and a particular painting only found in the school of criminology. Another two questions would relate to similar knowledge on the part of the education subgroup and another two questions would be tap knowledge specific to the psychology subgroup. Solving a clue led to the location of the next clue. The previously described (see Study One 'Materials' section) review process was implemented to ensure each clue set was of equivalent difficulty.

Measures

The measures were administered pre and post task. Items were reworded in the post-task phase of the research to reflect the past-tense. The measures used were the same as in Study One.

Social identity was measured with the instrument developed by Ellemers et al (1999). Subjective uncertainty was measured with an adaptation of Mullin and Hogg (1998). Intra-subgroup heterogeneity was measured with the two items scale used for the Study one analysis. Intragroup-intergroup similarity was measured with the three item measure adapted from Hornsey and Hogg (2000a; 2000b). As in Study One separate items were used to assess the whether participants perceived their task group to feel like a single group, subgroups connected within a common ingroup, separate groups, or separate individuals (Gaertner et al, 1999b, Dovidio et al, 1995). Effort was measured with the five item work intensity subscale of Brown and Leigh (1996). Group trust was measured with the twelve item scale developed for the present research. In addition to these variables awareness of ‘intragroup-intergroup status differences’ was measured.

Intragroup-intergroup status.

The reason for measuring inter-functional status differences is that relative intragroup intergroup status differences have been implicated in the manifestation of behaviours that detract from task performance of, and social well-being on, cross-functional teams (Cunningham & Chelladuri, 2004; Jassawalla & Sahittal, 1999). The three item status measure (see Appendix G) was written by the current researcher for use in the present study. Participant responses are recorded with a seven point scale (1 = strongly disagree – 7 = strongly agree). Higher scores indicate a belief the participant’s sub-group is of higher status than other subgroups within the cross-functional team. Pilot testing in a sample of Griffith University students (n=60) revealed acceptable internal consistency of $\alpha = .91$.

The reason for developing this scale was an unavailability of suitable instruments. The lack of a suitable existing measure may stem from the common practice (within the social identity tradition) of treating status as an independent variable. For example, by presenting information about intergroup status differences rather than measuring changes in relative status as is the case in the current research (Seta et al, 2000; Terry et al, 2001; Hornsey et al, 2003). Item content in the present measure accesses 'beliefs' that past research suggests underlies perceived intergroup status differences. Item one (*"My faculty is of higher status than the other faculties represented in this work-group"*) is intended to reflect the belief that the participant's subgroup is of higher status within the wider social firmament. Item two (*"Members of my faculty have the highest status in this work group due to our unique knowledge, skills, and abilities"*) is predicated in the assumption that perceived usefulness or relative competence can form the basis of the status differential within cross-functional work groups (Cunningham & Chelladuri, 2004; Jost & Elsbach, 2001; Jassawalla & Sashittal, 1999). Item three (*"Members of my faculty have the highest status in this work group because we will make the most valuable contribution to the groups performance"*) is included on the basis of laboratory research. In previous laboratory research relative intergroup status has been successfully manipulated through presenting information informing participants as to the relative task competence of experimental groups (Hornsey et al, 2003; Doosje et al, 1995; Doosje et al, 2002; Reynolds et al, 2000a, Reynolds et al, 2000b).

Procedure

Group Assignment.

In this cross-functional team based study, participants were assigned to groups on the basis of membership in existing subgroups. The subgroup boundaries were based in academic discipline (see 'Materials' section). Participants were informed of the time and place for participation. They were not told the individual identity of any other participant.

The only difference between intragroup and intergroup conditions was that an equal number of males were assigned to each team in the intergroup condition. This was done to control for any advantage (real or perceived) or effect on responses that may occur if one team had more male members than its opponent.

Intragroup condition.

Participants from the intragroup condition undertook the ‘Who owns the fish?’ problem solving task (see Appendix D) in the same room as participants from the mono-functional team based intragroup condition. Desks were arranged in a rectangular block with chairs on both ends and along both sides. When all participants were seated, the researcher handed a pre-task questionnaire booklet to each participant. These questionnaires were identical to those used by the mono-functional groups (see Appendix F) except for the addition of an intra-group inter-group status measure (see Appendix G). Participants were asked to read the study ‘information sheet’ and sign ‘informed consent’ forms. Participants were then asked to read the following instructions

“This is the first phase of your participation in this research. I am interested in the way you presently feel about the work group you have been assigned to. Remember: Respond with the choice that most accurately reflects your feelings as they are now. You do not need to ‘be nice’ or ‘not nice’, just honest. No one will see your data and you cannot be wrong. After completion of this survey we will move onto the next phase of the research.”

These instructions were supplemented with the following scripted verbal instructions.

“It may be that there are individuals you like, or individuals you do not like in this group. It is possible that you are with people you have never before. This is likely given that your membership draws from representatives of three different academic disciplines. I stress that the questions are asking about the group as a whole. Not the person or people you are most familiar with or have the strongest feelings towards. It may be difficult to respond to

some questions as this group has no prior existence outside of this experiment. Try your best to give an honest response. It may help to think of the middle scores as representing either ambivalence or no strong opinion either way. Think of the lower scores as indicating a low opinion of the group as a whole. Think of the higher scores as indicating a more favourable opinion of the group as a whole. However, be aware that some of the items are reverse scored so pay attention to the wording to make sure you are actually saying what you mean. Do you have any questions? I will now leave the room for 15 minutes while you complete the questionnaire. ”

The experimenter left the room for 15 minutes. After collecting the completed questionnaires, the researcher asked participants to don the team uniform of a blue t-shirt. Participants were then asked to write the name of the faculty they were representing, for example ‘psychology’, on a sticky label. The sticky label was then placed on their chest where it would be easily visible to all group members. The sticker had the university crest prominently displayed at the top. Three loci of identification were therefore observable to participants. These were the university (crest on label), the cross-functional team (the t-shirt), and the academic sub-group (written on the label under the crest). The intent was to draw attention to the intergroup dimension within the cross-functional team, embedding the subgroup within the cross-functional team as the loci of common identity, and locating the team within the university as higher level superordinate identity. When all participants were in uniform with the sticker prominently displayed, the experimenter placed copies of the problem face-down in front of each participant. Each copy was numbered to ensure all copies were returned. The following verbal instructions were then issued.

“When I instruct you to do so, please turn over the sheet of paper in front of you. This is the problem your group will be working on. You will have 20 minutes available. At the end of which time you will be asked to give a mutually agreed upon answer. The method you

use to solve the problem is a matter for the group to decide. You may use any equipment in the room that you like and you can write on your personal sheet. Each handout is numbered and will be returned to me at the end of the 20 minutes. I cannot tell you if the answer you give is the correct one as I must use the same problem with every group taking part in my experiment. Are there any questions? I will now leave the room and return in 20 minutes for your decision”.

When 20 minutes had elapsed, the researcher asked for the group decision.

Participants were not told if their group’s answer was correct. The problem-solving activity handouts were then collected and checked to make sure all 11 were returned. Participants were then given the post-task questionnaires. These questionnaires were identical to those filled out in the mono-functional post-task condition except for the addition of the measure of inter-functional status differences. The following supplementary instructions were written on the cover sheet of the post-task questionnaire booklet.

“This is the final phase of your participation in this research. I am interested in the way you feel about the work group now that you have worked together. Don’t worry if the questions look similar to those you filled out earlier. This is intentional. Please note that there are some additional demographic questions on the final page of this survey. You do not need to be consistent with your answers on the first survey. Respond with the choice that most accurately reflects your feelings as they are now. You do not need to ‘be nice’ or ‘not nice’, just honest. No one will see your data and you cannot be wrong.” On completion of the questionnaires the experimenter thanked and paid the participants with either 1 course credit point or \$10.00.

Intergroup condition.

Two hours were allotted for each trial. All participants were requested to meet at a room which would serve as the neutral zone for the duration of the trial. Prior to being

separated into opposing teams, participants were requested to read the study information sheet and sign informed consent forms. The following script was then read to the participants.

“You are about to be placed in one of two groups. It may be that there are individuals you like, or individuals you do not like in this group. It is possible that you are with people you have never before. This is likely given that your membership draws from representatives of three different academic disciplines. I stress that the questions are asking about the group as a whole. Not the person or people you are most familiar with or have the strongest feelings towards. It may be difficult to respond to some questions as this group has no prior existence outside of this experiment. Try your best to give an honest response. It may help to think of the middle scores as representing either ambivalence or no strong opinion either way. Think of the lower scores as indicating a low opinion of the group as a whole. Think of the higher scores as indicating a more favourable opinion of the group as a whole. Be aware that some of the items are reverse scored so pay attention to the wording to make sure you are actually saying what you mean. Do you have any questions?”

Each group was then escorted to its home room (one group at a time). Both rooms contained a rectangular block of desks with seating along both sides and on both ends. These pre-task questionnaires were identical to those used in the intragroup condition. Participants were requested to read the following instructions.

“This is the first phase of your participation in this research. I am interested in the way you presently feel about the work group you have been assigned to. Remember: Respond with the choice that most accurately reflects your feelings as they are now. You do not need to ‘be nice’ or ‘not nice’, just honest. No one will see your data and you cannot be wrong. After completion of this survey we will move onto the next phase of the research. Do

you have any questions? I will now leave the room for 15 minutes while you complete the questionnaire. ”

The process was then repeated with the other group. Once all participants had completed their questionnaires the two groups were brought together in the neutral room. The researcher gave the uniforms to the groups. One group wore blue shirts and the other group wore red shirts. Participants were made to wear the tag to the back of the shirt for safety reasons. Each participant was a handed adhesive label marked with the university crest and asked to write their academic area in letters large enough for their team mates to read. Participants placed these labels on their chest. Each group was then given a manila folder containing the campus map and one copy of the scavenger hunt rules. The rules were identical to those used in the intergroup condition of Study one (see Appendix E).

The rules began with an outline of the tribal scenario (for a full description see Study One ‘Materials’). This was followed by a description of the object of the game and an explanation of the points system. Finally, a limitations section listed the time limit (one hour) and other restrictions. After the researcher had read out the instructions a demonstration of the tag removal process was given. Participants were informed that the researcher had ‘unmarked’ assistants watching the participants to guard against cheating and ensure safety.

Each group was then taken to their respective starting points where the first clue for each group had been placed just beyond easy reach. The cross-functional groups were stationed the same distance apart as the mono-functional groups of Study one. The rationale behind separating the two groups has already been outlined (see Study one Procedure). The researcher signalled the start of the one hour time limit with a starters whistle before returning to the neutral room.

On completion of the task, the groups returned to the common room. Participants not already in the room were contacted and informed that the game was over. Participants were

allowed a 15 minute break for refreshments during which time they were free to mix. There was no attempt to prevent interaction between members from different cross-functional teams during this rest period. After declaring a winner the uniforms were collected. The groups were separated once again and led to their respective rooms. The questionnaire booklets had the following instructions printed on the cover sheet.

“This is the final phase of your participation in this research. I am interested in the way you feel about the work group now that you have worked together. Don’t worry if the questions look similar to those you filled out earlier. This is intentional. Please note that there are some additional demographic questions on the final page of this survey. You do not need to be consistent with your answers on the first survey. Respond with the choice that most accurately reflects your feelings as they are now. You do not need to ‘be nice’ or ‘not nice’, just honest. No one will see your data and you cannot be wrong.”

Participants were given 15 minutes for the completion of questionnaires. The experimenter was absent from the home rooms at this time. On return, the experimenter collected the post-task questionnaires. Participants were requested to meet in the neutral room once more. Members of the winning group were awarded their prize, and all participants thanked for their cooperation before being paid. Payment took the form of \$20.00, 2 course credit points, or an even split between the two forms of payment as per pre-participation request.

Chapter Ten Results Study Two

Screening

The following practise was followed when analysing the data set. Data was screened for univariate normality. Outliers were defined as $z = 3.3$ (Tabachnik & Fidell, 2001). If outliers were found to be present a number of analyses were run to assess the impact of outliers on final results. Analyses were run with transformed scores, untransformed raw scores, and with outliers removed (McClelland, 2000). Neither removal of outliers or transformation of scores improved interpretability, or changed the statistical significance of the results. Distortion of interpretation is the major concern when including outliers in analysis while deleting cases unnecessarily is unethical (McClelland, 2000). Therefore, as there was no outlier based distortion, all analysis are reported using raw untransformed scores (including outliers). There was no missing data.

Descriptive statistics

Table 6 presents descriptive statistics for the sample as a whole. The statistics reported are the pre-task means, post-task means, standard deviations and internal consistency reliability as represented by Cronbachs α . All scales in Study 2 were found to have acceptable levels of internal consistency reliability. It should be noted that the intra-subgroup heterogeneity measure was the two item heterogeneity measure used in the analysis of Study one rather than the original three item measure.

Table 6

Study 2 Descriptive Statistics

DV	α	Pre-task M	Pre-task SD	Post-task M	Post-task SD
Social identity	.83	44.76	9.07	53.98	10.20
Subjective uncertainty	.75	13.35	5.33	10.09	5.41
Intra-subgroup heterogeneity	.64	10.90	2.99	9.75	3.37
Intragroup-intergroup similarity	.70	12.23	4.28	17.07	5.33
Effort	.96	25.48	6.41	29.28	5.85
Group Trust	.89	53.09	11.64	65.19	12.79
Single group		3.57	1.67	5.22	1.52
Sub-groups in single group		3.99	1.88	3.27	1.75
Separate groups		3.09	1.73	2.05	1.35
Individuals		3.89	1.94	2.55	1.61
Intragroup-intergroup status	.94	8.64	4.90	7.16	4.56

Note. Scale reliability statistics derived from pre-task responses. N= 110

Analysis

This chapter outlines the results from Study 2. Study 2 differs from the first study in that the experimental groups are cross-functional rather than mono-functional. In Study 2 there were two statistics of particular interest. Firstly, the pre-post difference within each condition, which was analysed with repeated measures ANOVA. Each condition was analysed separately. In the intergroup condition, analysis of the basic within-groups difference was supplemented with an ANCOVA in order to assess whether the outcome of the contest would affect post-task levels of dependent variables (DV). The second statistic of interest was the difference between intragroup and intergroup conditions. The difference in post-task scores was used as the DV. ANCOVA was used to control for the possible influence of individual differences in pre-task scores on post-task scores (Tabachnik & Fidell, 2001). Using pre-scores as a covariate is consistent with the required independence of covariate and treatment effect (Tabachnik & Fidell, 2001). ANCOVA requires that sample sizes be equal (Tabachnik & Fidell, 2001). The different sized groups in this study (66

participants in the intergroup condition and 44 participants in the intragroup condition) might suggest a violation of this assumption. However, the guidelines of Hair et al (1998) (the larger sample can be divided by the smaller sample 1.5 times) suggest the samples are approximately equal for the purposes of the present analysis. Therefore ANCOVA is an appropriate analytical technique. As in Study one, each individual participant served as the unit of analysis. In order to limit that impact of the possible violation of the assumed independence of observations (see Study one 'Results' section for present researchers reasoning) the researcher adopted $p < .01$ as criteria for rejecting the null hypothesis (Hair et al, 1998). Unless otherwise stated, all assumptions were met for each analysis.

Social Identification.

H1a proposed that while social identification would increase in both conditions, participants would report a larger post-task level of social identification after experiencing the intergroup identity management strategy than the intragroup. Repeated measures ANOVA was performed to examine whether the increase in social identification observed generally within the sample (see Table 6) was statistically significant. Results of this analysis showed this increase to be significant ($F(1, 109) = 44.42, p = .000, \eta^2 = .29$). Repeated measures ANOVA were then performed for each condition (see Figure 28). In the intragroup condition the increase in social identification was not significant ($F(1, 43) = 3.02, p = .09, \eta^2 = .07$). A different result was found in the intergroup condition with post-task social identification ($M = 57.55, SD = 8.31$) being significantly larger ($F(1, 65) = 53.78, p = .000, \eta^2 = .45$) than pre-task social identification ($M = 44.27, SD = 10.41$). Consistent with H1a, social identification with a cross-functional team increased after exposure to the intergroup identity management strategy. H1a was not supported in the intragroup condition as the increase in social identity was non-significant. Pre-task levels of social identification were above the scale midpoint.

This suggests the researcher was successful in establishing pre-task acceptance of the cross-functional team social identity as required by both of the identity management processes.

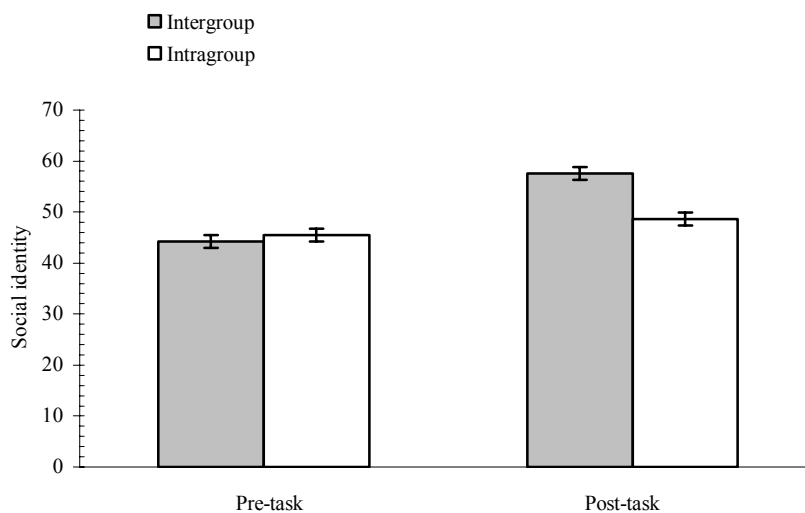


Figure 28 . Difference pre-task and post-task mean (+ SE) social identity within and between conditions (n = 110)

The possibility that winning or losing could affect the level of post-task social identification was examined with ANCOVA. The IV was ‘outcome’ (win vs. lose), pre-task levels of social identity served as the covariate and post-task social identity was the DV. As with Study one, participants from the intragroup condition were not considered in this analysis as there were no winning or losing teams. The difference in post-task social identification was not statistically significant at the level of $p < .01$ used in the current research ($F(1, 63) = 5.64, p = .02, \eta^2 = .08$). The covariate (pre-test social identification) did not have a statistically significant relationship with post-task social identification ($p = .16, \eta^2 = .03$). This results is consistent with H6 as winning or losing was not associated with a difference in post-task social identification.

ANCOVA was used to examine whether social identity was higher after experiencing the intragroup or intergroup identity management processes, while controlling for individual differences in pre-task social identification. The covariate was participants’ pre-task level of social identification. The DV was the post task level of social identification. The IV was

‘social context’ (intragroup vs. intergroup). Descriptive statistics revealed a higher mean level of social identification in the intergroup condition ($M = 57.55$, $SD = 8.31$) than in the intragroup condition ($M = 48.64$, $SD = 10.52$). This difference proved to be statistically significant ($F(1, 107) = 23.69$, $p = .000$, $\eta^2 = 0.18$). The pre-task level of social identification had a minimal, non-significant impact ($p = .25$, $\eta^2 = .01$) on post-task levels of social identification. The intergroup identity management strategy was more effective for increasing social identity in cross-functional teams than a strategy based in an intragroup context.

Subjective uncertainty.

H1b proposed subjective uncertainty would be reduced after the experience of either condition, with the lowest level to be reported by those from the intergroup condition. The general trend was for a decrease in the level of subjective uncertainty (see Table 6). Repeated measures ANOVA showed this decrease to be statistically significant ($F(1, 109) = 21.26$, $p = .000$, $\eta^2 = .16$). The pre-task to post-task difference within each condition was then examined with repeated measures within groups ANOVA (see Figure 29). In the intragroup condition the difference was not significant ($F(1, 43) = .01$, $p = .92$, $\eta^2 = .00$). In the inter group condition the decrease in subjective uncertainty (pre-task $M = 14.35$, $SD = 5.20$, post-task $M = 8.86$, $SD = 6.03$) was statistically significant ($F(1, 65) = 36.45$, $p = .000$, $\eta^2 = .36$). Subjective uncertainty decreased after experiencing the intergroup identity management process, but not the intragroup process.

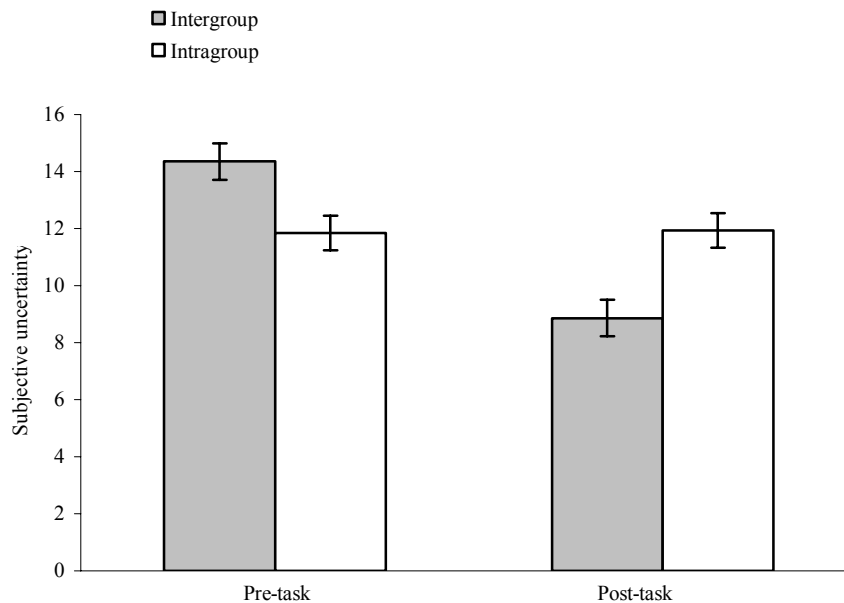


Figure 29. Difference pre-task and post-task mean (+ SE) subjective uncertainty within and between conditions (N = 110).

ANCOVA was used to examine whether participants reported lower levels of uncertainty after experiencing an intragroup or an intergroup context. The IV was ‘social context’ (intragroup vs. intergroup), the DV was subjective uncertainty and the covariate was pre-task subjective uncertainty. A statistically significant Levene’s test indicates that the homogeneity of variance assumption was violated. The ANCOVA showed that participants felt significantly ($F(1, 107) = 10.52, p = .002, \eta^2 = .09$) less uncertainty ($M = 8.86, SD = 6.02$) after experiencing the intergroup context than the intragroup context ($M = 11.93, SD = 3.67$) (see Figure 29).

The possibility that subjective uncertainty fluctuated due to membership in a winning or losing cross-functional team was examined with ANCOVA. The IV was outcome (win vs. lose), pre-task subjective uncertainty was the covariate and post-task subjective uncertainty was the DV. Members of winning cross-functional teams (see Figure 30) reported significantly a lower ($F(1, 63) = 12.46, p = .001, \eta^2 = .17$) level of post-task uncertainty ($M = 6.42, SD = 3.56$) than members of losing teams ($M = 11.30, SD = 6.98$). The covariate did

not have a significant relationship with the DV ($p = .28, \eta^2 = .02$).

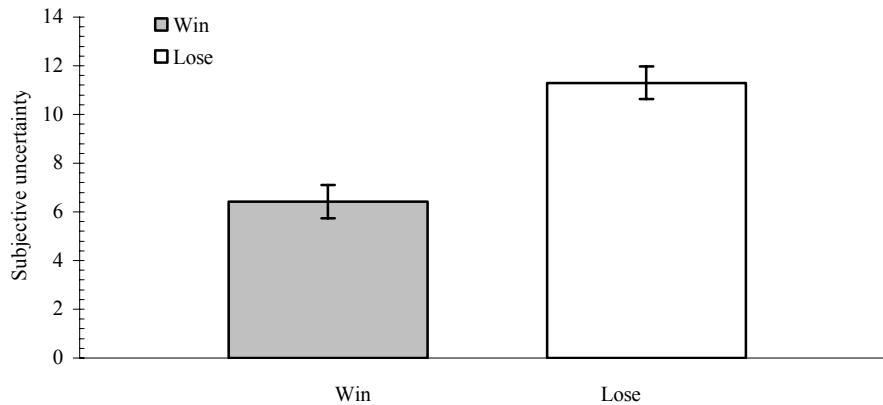


Figure 30. Difference post-task mean (+ SE) subjective uncertainty between winning and losing teams in an intergroup context ($N = 66$).

There appeared to be a similarity between the post-task level of uncertainty reported by members of unsuccessful groups and those from the intragroup condition. A one-way ANOVA with post-hoc tests (Tukeys HSD) was performed in order to examine the possibility that the difference between the intergroup and the intragroup conditions was due only to the reduction reported by members of winning teams. The IV was a new ‘outcome’ variable of three levels (win, lose, no competition). The DV was post-task subjective uncertainty. Results showed a significant between groups difference ($F(2, 107) = 13.49, p = .000, \eta^2 = .22$). Post-hoc tests revealed significant differences ($p = .000$) between members of winning teams ($M = 2.14, SD = 1.19$) and those from the intragroup condition ($M = 3.98, SD = 1.22$) and those from losing teams ($M = 3.77, SD = 2.33$). There was no significant difference ($p = .84$) between members of losing teams and those from the intragroup condition.

A paired samples t-test was used to test the statistical significance of the uncertainty reduction reported by members of losing cross-functional teams. The results of this test

indicated the decrease was not significant ($t(32) = 2.11, p = .04, \eta^2 = .12$) by the criteria of the current study. However, Cohen (1988) suggests this effect size indicates that experience of the intergroup context made a useful contribution to the post-task uncertainty reduction reported by losing participants, despite the non-significant 'p' value. It should be also be noted that participants from the intragroup condition reported a non-significant increase, unlike those from the intergroup condition who reported a decrease, regardless of outcome. Even members of unsuccessful cross-functional teams felt reduced uncertainty, albeit to a level equivalent to, as opposed to lower than, what was achieved with the intragroup identity management strategy.

Conceptual representation of the aggregate.

Perception of the group as a 'single group'.

H2b predicted the perception of the cross-functional team as a single group would increase (see Table 6). Repeated measures ANOVA revealed this general increase to be statistically significant ($F(1, 109) = 59.30, p = .000, \eta^2 = .35$). The difference within each condition (see Figure 31) was then examined with repeated measures ANOVA. In the intragroup condition there was a non-significant (at the level $p \leq .01$ employed in the current research) change ($F(1, 43) = 5.71, p = .02, \eta^2 = .12$). In contrast, there was a statistically significant ($F(65, 1) = 71.40, p = .000, \eta^2 = .52$) increase from ($M = 3.28, SD = 1.57$) to ($M = 5.53, SD = 1.45$) in the intergroup condition. The conceptualisation of a cross-functional team as a single group increased after the intergroup identity management context, but not the intragroup context..

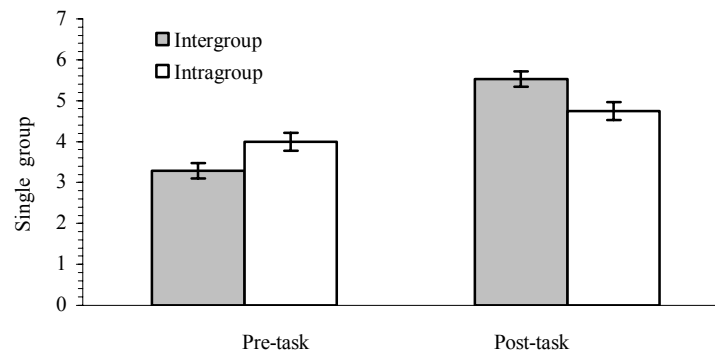


Figure 31 . Difference pre-task and post-task mean (+ SE) single group conceptualisation of the aggregate within and between conditions (N = 110).

The possibility that the outcome of the competition impacted on the level to which the group was conceptualised as a single group was examined through ANCOVA. The IV was outcome (win vs. lose), the covariate was the pre-task level of single group conceptualisation and the DV was the post-task level of single group conceptualisation. Results indicated that there was no significant difference between members of a losing team and winning teams ($F(1, 63) = .32, p = .57, \eta^2 = .00$). The covariate (pre-task superordinate identification) did not have a significant relationship with the DV ($p = .96, \eta^2 = .00$). Conceptualisation of the cross-functional team as a single group was not affected by the outcome obtained by a group during the competitive phase of the intergroup identity management process.

ANCOVA was performed to examine whether the intergroup or the intragroup condition was associated with a greater sense of a cross-functional team as a single group. The IV was social context (intragroup vs. intergroup), the covariate was pre-task level of single group conceptualisation and the DV was post-task level of single group conceptualisation. Participants from the intergroup condition reported a significantly ($F(1, 107) = 7.86, p = .006, \eta^2 = .07$) higher post-task single group conceptualisation ($M = 5.53, SD = 1.45$) than those from the intragroup condition ($M = 4.75, SD = 1.52$). Pre-task levels of single groups conceptualisation did not have a significant ($p = .48, \eta^2 = .01$) impact on post-

task levels. An intergroup identity management strategy encouraged a higher post-task perception of a cross-functional team as psychologically meaningful as a single superordinate group.

Perception of the group as 'subgroups in single group'.

H2b predicted the level of conceptualisation of the task-group as sub-groups within a meaningful superordinate group would be maintained or increased. A repeated measures ANOVA indicated the decrease in perception of the cross-functional team as subgroups within a single group was statistically significant ($F(1, 109) = 10.23, p = .002, \eta^2 = .09$).

The possibility this pattern would be found in both conditions was examined with repeated measures ANOVA (see Figure 32). There was no significant ($F(1, 43) = .47, p = .50, \eta^2 = .01$) pre-task to post-task difference reported by participants from the intragroup condition. Participants from the intergroup condition reported a statistically significant ($F(1, 65) = 12.38, p = .001, \eta^2 = .16$) decrease from pre-task ($M = 4.21, SD = 1.93$) to post-task ($M = 3.17, SD = 1.89$). Experiencing the intragroup identity management process was not related to a change in the extent to which the task-group will be perceived to be subgroups inside a single superordinate group. Contrary to H2b, there was a statistically significant reduction in the sense that the cross-functional team contained subgroups psychologically connected within a single group found in the intergroup condition.

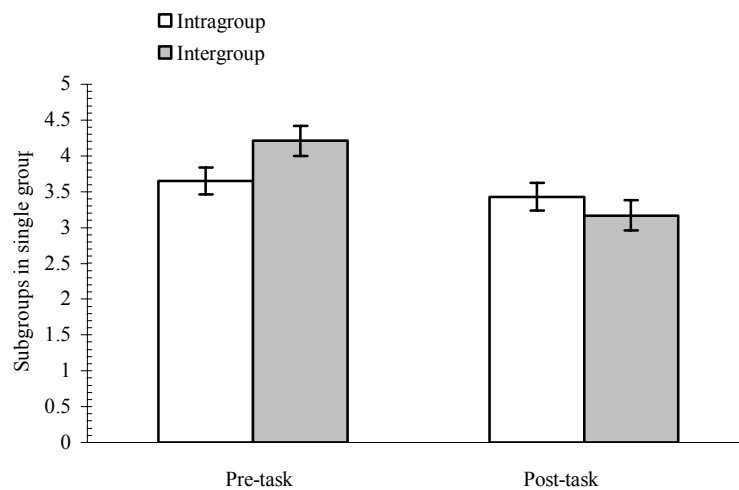


Figure 32. Difference pre-task and post-task mean (+SE) subgroups in single group within and between conditions (n= 110)

The possibility membership in a winning or losing team impacted on development of a multiple group conceptualisation among participants from the intergroup condition was examined with ANCOVA. The IV was outcome (win vs. lose), the covariate was pre-task conceptualisation of the cross-functional team as subgroups connected within a single group, and the DV was post-task conceptualisation of the aggregate as subgroups within a single group. The difference was not statistically significant ($F(1, 63) = .43, p = 1.58, \eta^2 = .03$). The covariate did not have statistically significant relationship with the DV ($p = .27, \eta^2 = .02$). The post-task perception of the cross-functional team as subgroups connected within a single group was not attributable to the outcome of the contest.

The test for the difference between conditions (see Figure 32) was performed with ANCOVA. The IV was social context (intragroup vs. intergroup), the covariate was pre-task levels of multiple groups conceptualisation and the DV was post-task levels of conceptualisation of the cross-functional team as distinct but connected subgroups within a common ingroup. There was no significant difference between conditions ($F(1, 107) = 1.08, p = .30, \eta^2 = .01$). The effect of the covariate was minimal and non-significant ($p = .08, \eta^2 = .03$). Neither identity management strategy ultimately proved more effective than the other

for encouraging conceptualisation of a cross-functional team as subgroups connected within a single group.

Separate groups.

H2b predicted a reduction in conceptualisation of the cross-functional team as a collection of psychologically unconnected groups. Repeated measures ANOVA showed this was a statistically significant decrease ($F(1, 109) = 23.42, p = .000, \eta^2 = .18$) in perception of the cross-functional team as separate groups. Further repeated measures ANOVA were then performed to examine whether the general reduction would be found within both or either context (see Figure 33). There was no significant ($F(1, 43) = 2.49, p = .12, \eta^2 = .06$) difference in the intragroup condition.. In the intergroup condition the reduction from pre-task ($M = 3.27, SD = 1.79$) to post-task ($M = 1.86, SD = 1.33$) was significant ($F(1, 65) = 24.07, p = .000, \eta^2 = .27$). Post-task conceptualisation of the cross-functional team as separate groups reduced in the intergroup condition but not the intragroup condition.

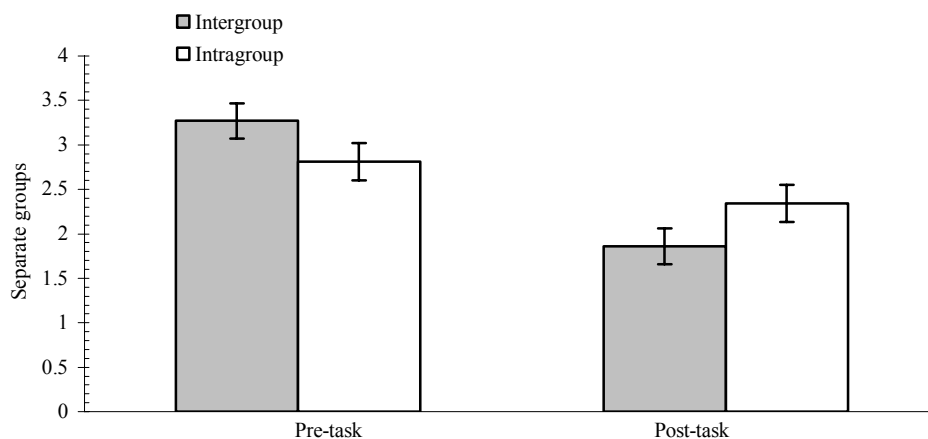


Figure 33. Difference pre-task and post-task mean (+SE) separate groups within and between conditions ($n = 110$).

The possibility that post-task levels of separate groups conceptualisation were influenced by winning or losing the contest in the intergroup condition was checked by ANCOVA. The IV was outcome (win vs. lose), the covariate was pre-task separate groups

conceptualisation and the DV was post-task perception of the mono-functional team as separate groups. There was no significant difference ($F(1, 63) = .124, p = .73, \eta^2 = .00$) between winning and losing teams. Pre-task perception of the teams as separate groups did not contribute to the difference ($p = .42, \eta^2 = .01$). The outcome of the contest did not impact on post-task conceptualisation of a cross-functional team as composed of ‘separate groups’.

The difference in separate groups conceptualisation between conditions was assessed through ANCOVA. The IV was social context (intergroup vs. intragroup), the covariate was pre-task perception of separate groups and the DV was post-task perception of separate groups. There was no significant ($F(1, 107) = 3.15, p = .08, \eta^2 = .03$) difference between conditions. The covariate did not have a significant relationship with post-task levels of perceived intragroup separateness ($p = .74, \eta^2 = .00$). Neither identity management strategy was more effective than the other at reducing the feeling that a cross-functional team was composed of ‘separate groups’.

Separate individuals.

H2b predicted conceptualisation of a cross-functional team as being composed of separate individuals would decrease. The statistical significance of the difference between pre-task and post-task levels was examined through repeated measures ANOVA. Results of this analysis were consistent with H2b as the pre-task to post-task difference was statistically significant ($F(1, 109) = 29.94, p = .000, \eta^2 = .22$). The significance of the pre-task to post-task difference within each condition was then examined through repeated measures ANOVA (see Figure 34). There was no significant ($F(1, 43) = 5.84, p = .02, \eta^2 = .12$) pre to post-task difference in the intragroup condition by the conservative standard of significance ($p \leq .01$) employed in the current study. In the intergroup condition the difference between the pre-task ($M = 3.70, SD = 1.87$) and post-task levels ($M = 2.12, SD = 1.45$) was statistically significant ($F(1, 65) = 27.17, p = .000, \eta^2 = .30$). Conceptualisation of a cross-functional team

as composed of separate individuals reduced after experience of the intergroup, but not the intragroup identity management process (see Figure 34).

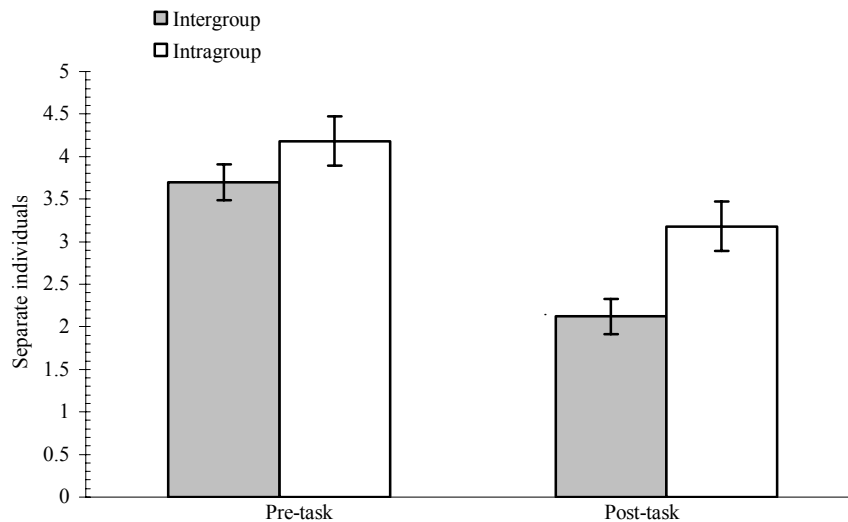


Figure 34. Difference pre-task and post-task mean (+SE) separate individuals within and between conditions (n = 110).

The possibility that the result obtained by a team in the intergroup condition affected the post-task levels of individualised conceptualisation of a cross-functional team was examined through ANCOVA. The IV was outcome (win vs. lose), the covariate was pre-task conceptualisation of the team as separate individuals, and the DV was post-task levels of individualised perception. There was no significant difference between winning and losing participants ($F(1, 63) = .190, p = .66, \eta^2 = .00$). The covariate did not have a significant relationship with the DV ($p = .58, \eta^2 = .01$). Perception of a cross-functional team as separate individuals was not affected by winning or losing the contest in the intergroup condition.

The difference between conditions was assessed through ANCOVA (see Figure 34). The IV was social context (intragroup vs. intergroup), the covariate was pre-task levels of conceptualisation of the cross-functional team as separate individuals and the DV was post-task levels of perceived individualism. There was a significant difference between conditions

($F(1, 107) = 13.46, p = .000, \eta^2 = .11$). Consistent with H2b, participants in the intergroup condition reported a lower post-task mean ($M = 2.12, SD = 1.45$) than participants who experienced an intragroup identity management strategy ($M = 3.18, SD = 1.63$). The intergroup identity management process was more effective than the intragroup for reducing conceptualisation of the cross-functional team as separate individuals.

Intra-subgroup heterogeneity.

H3b is concerned with threats to subgroup distinctiveness. Consistent with the idea of Jetten et al (1998) movement in intra-subgroup heterogeneity should be matched with a movement in intragroup-intergroup similarity. Note that intra-subgroup heterogeneity refers to the variability within each functional subgroup, not heterogeneity between the subgroups within the cross-functional team.

Examination of Table 6 suggests the possibility of a downward trend in heterogeneity across the sample. Repeated measures ANOVA revealed this trend was statistically significant ($F(1, 109) = 10.58, p = .01, \eta^2 = .06$). Separate repeated measures ANOVA were performed to ascertain whether there was a difference within each condition (see Figure 35). In the intragroup condition the difference between pre-task and post-task heterogeneity was non-significant ($F(1, 43) = .021, p = .89, \eta^2 = .00$). In the intergroup condition the reduction in heterogeneity (pre-task $M = 11.60, SD = 3.18$, post-task $M = 9.74, SD = 3.45$) was statistically significant ($F(1, 65) = 9.74, p = .003, \eta^2 = .13$). The intergroup social frame contributed to the reduction in intra-subgroup heterogeneity, but the intragroup context did not.

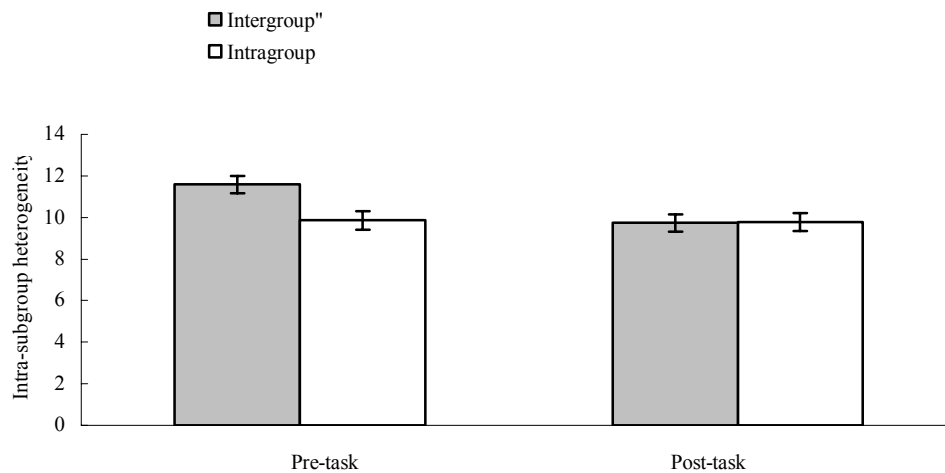


Figure 35. Difference pre-task and post-task mean (+ SE) intra-subgroup heterogeneity within and between conditions ($n = 110$).

ANCOVA was used to examine whether winning or losing the scavenger hunt affected post-task levels of intra-subgroup heterogeneity. The IV was ‘outcome’ (win vs. lose), the covariate was pre-task heterogeneity and the DV was post-task heterogeneity. Levenes statistic was significant ($p = .04$), indicating the assumption of homogeneity of variance was violated. The difference between winning and losing teams was not significant ($F(1, 63) = .02, p = .88, \eta^2 = .00$). The covariate did not have a significant relationship with the DV ($p = .70$) and did not account for any variance ($\eta^2 = .00$). The level of post-task intra-subgroup heterogeneity was not affected by the outcome attained by a group.

ANCOVA was used to examine whether post-task intra-subgroup heterogeneity scores would differ between conditions. The IV was ‘social context’ (intragroup vs. intergroup), the covariate was pre-task intra-subgroup heterogeneity and the DV was post-task intra-subgroup heterogeneity. Results of this analysis show post-task heterogeneity did not differ significantly ($F(1, 107) = .01, p = .92, \eta^2 = .00$) between conditions. The covariate did not have a significant relationship with the DV ($p = .60$) and did not account for any variance ($\eta^2 = .00$). An equivalent post-task level of intra-subgroup heterogeneity was achieved with either the intragroup or intergroup process.

Intragroup-intergroup similarity.

Intragroup-intergroup similarity refers to the similarity, or psychological distance, between the function based subgroups within the cross-functional team (Jetten et al, 1998). H3b predicted intragroup-intergroup similarity would move in conjunction with intra-subgroup heterogeneity as a marker of subgroup distinctiveness. Intra-subgroup heterogeneity was found to decrease, therefore, according to the ideas of Jetten et al (1998) and Jetten, Spears, & Manstead (2001), preservation of inter-functional distinctiveness at a psychologically safe level required a reduction in intragroup-intergroup similarity.

Contrary to H3b, there was a statistically significant ($F(1, 109) = 48.33, p = .000, \eta^2 = .30$). general increase (see Table 6) in post-task intragroup intergroup similarity. The difference within each condition was then examined with repeated measures ANOVA (see Figure 36). The increase in similarity (pre-task $M = 13.39, SD = 4.22$, post-task $M = 16.50, SD = 5.27$) was significant ($F(1, 43) = 9.11, p = .004, \eta^2 = .18$) in the intragroup condition. The increase (pre-task $M = 11.47, SD = 4.17$, post-task $M = 17.46, SD = 5.37$) in the intergroup condition was also significant ($F(1, 65) = 43.03, p = .000, \eta^2 = .40$). Intragroup-intergroup similarity increased after experiencing either social frame (see Figure 36).

An ANCOVA was performed to see if the outcome of the contest impacted on the post-task level of similarity reported by participants from the intergroup condition. The IV was outcome (win vs. lose), the covariate was pre-task intragroup similarity and the DV was post-task intragroup intergroup similarity. There was no significant difference ($F(1, 63) = .06, p = .80, \eta^2 = .001$) between members of winning and losing teams. The covariate did not have a significant relationship with the DV ($p = .12$) nor did it account for a large amount of variance ($\eta^2 = .04$). The outcome of the contest did not affect the post-task level of intragroup-intergroup similarity in the intergroup condition.

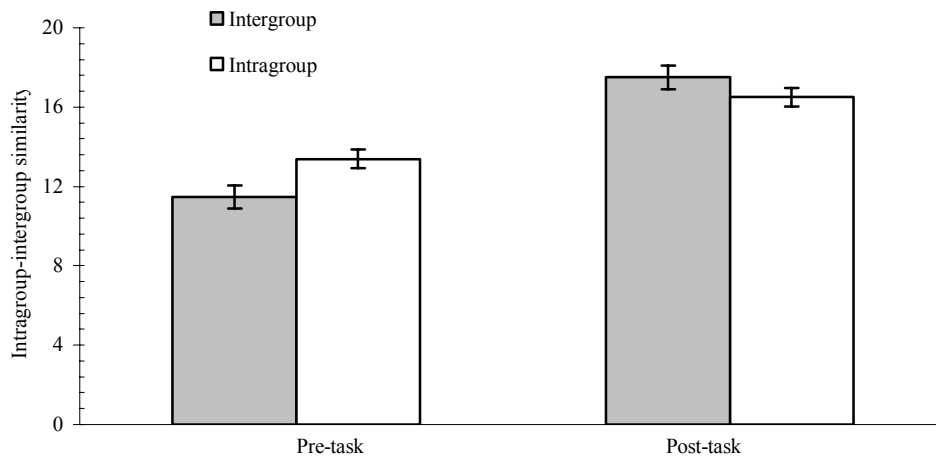


Figure 36. Difference pre-task and post-task mean (+SE) intragroup-intergroup similarity within and between conditions (N = 110)

ANCOVA was used to see whether there was a post-task difference between conditions (see Figure 36) in the post-task level of similarity. The IV was social context (intragroup vs. intergroup), the covariate was pre-task intragroup-intergroup similarity and the DV was post-task intragroup-intergroup similarity. The difference between conditions was not statistically significant ($F(1, 107) = .37, p = .55, \eta^2 = .00$). The relationship between the covariate and the DV was non-significant ($p = .19$) with a minimal effect size ($\eta^2 = .02$). Members of cross-functional teams felt an equivalent post-task level of intragroup-intergroup similarity after either identity management process.

Effort.

H4(a) predicted an increase in effort across both conditions, with a greater increase reported by those from the intergroup condition. Repeated measures ANOVA revealed the difference between pre-task effort and post-task effort was significant ($F(1, 109) = 23.43, p = .000, \eta^2 = .18$). The significance of the difference within each condition was not assessed in separate repeated measures ANOVA (see Figure 37). The difference in the intragroup condition was not significant ($F(1, 43) = 1.01, p = .32, \eta^2 = .02$). Within the intergroup

condition pre-task effort ($M = 25.83$, $SD = 6.17$) was found to be significantly ($F(1, 65) = 33.97$, $p = .000$, $\eta^2 = .34$) lower than the post-task level of effort ($M = 31.30$, $SD = 4.01$). The intergroup identity management strategy encouraged a willingness to exert increased effort on behalf of a cross-functional team. This did not occur in the intragroup condition.

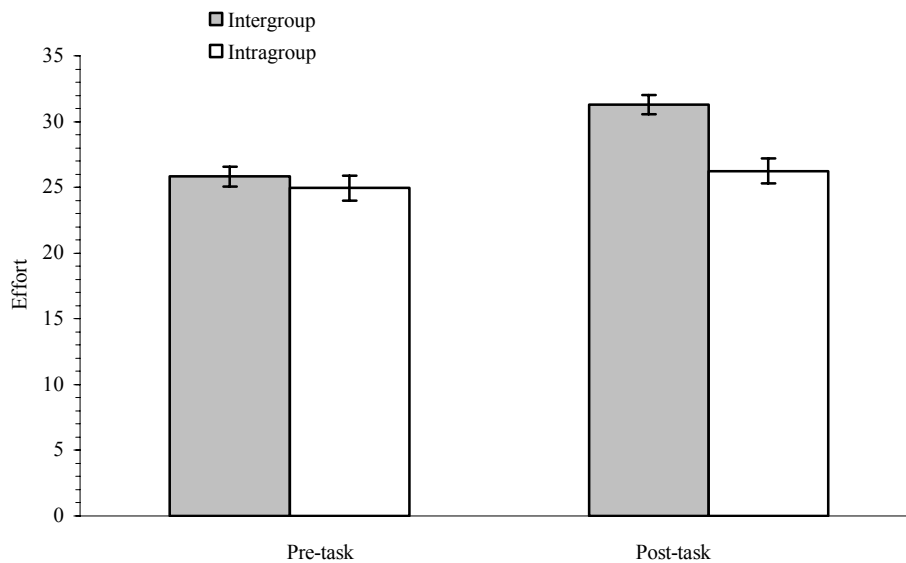


Figure 37. Difference pre-task and post-task mean (+SE) effort within and between conditions ($n = 110$).

The possibility membership in a losing team impacted on a participant's post-task level of effort was examined through ANCOVA. The IV was outcome (win vs. lose), the covariate was pre-task levels of effort and the DV was post-task levels of effort. There was no statistically significant ($F(1, 63) = .01$, $p = .90$, $\eta^2 = .00$) difference between winners and losers. Pre-task levels of effort did not have a significant relationship ($p = .52$, $\eta^2 = .01$) with post-task effort. The post-task level of effort reported by participants from the intergroup condition was not affected by the outcome of the contest.

The difference between conditions was assessed through ANCOVA. The IV was social context (intragroup vs. intergroup), the covariate was pre-task effort and the DV was post-task levels of effort. The difference proved to be significant ($F(1, 107) = 23.09$, $p =$

.000, $\eta^2 = .18$) with participants from the intergroup condition ($M = 31.30$, $SD = 4.01$) reporting a higher post-task level of effort than participants from the intragroup condition ($M = 26.25$, $SD = 6.84$). The covariate did not have a significant relationship ($p = .41$, $\eta^2 = .01$) with intended effort. The intergroup identity management strategy was more effective than the intragroup strategy for encouraging higher levels of effort on behalf of a cross-functional team.

Group trust.

H4(b) predicted an increase in trust in both conditions, with the highest level reported by participants from the intergroup condition. A repeated measures ANOVA showed the difference between pre-task and post-task levels of group trust (see Table 6) was significant ($F(1, 109) = 45.00$, $p = .000$, $\eta^2 = .29$). Each contextual condition was then examined through repeated measures ANOVA (see Figure 38). In the intragroup condition the difference was not significant ($F(1, 43) = 2.06$, $p = .16$, $\eta^2 = .05$). In contrast, the increase from pre-task trust ($M = 51.16$, $SD = 12.92$) to post-task trust ($M = 69.03$, $SD = 10.99$) was significant ($F(1, 65) = 60.47$, $p = .000$, $\eta^2 = .48$) in the intergroup condition. Trust increased in the intergroup condition, but not the intragroup condition.

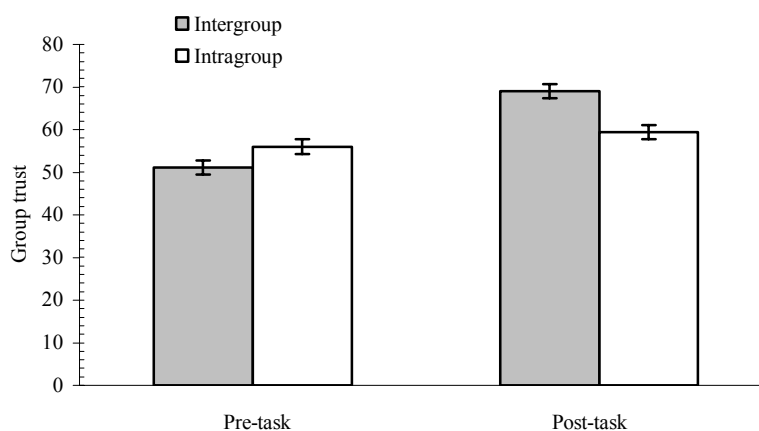


Figure 38. Difference pre-task and post-task mean (+SE) Group trust within and between conditions ($n = 110$).

The possibility membership on a winning or losing team affected the level of post-task trust was assessed with ANCOVA. The IV was outcome (win vs. lose), the covariate was pre-task levels of trust and the DV was post-task levels of trust. The difference was not statistically significant ($F(1, 63) = .274, p = .60, \eta^2 = .00$). The covariate did not have a statistically significant impact ($p = .28, \eta^2 = .02$) on post-task levels of intragroup intergroup trust. The result of the contest did not detract from the increased trust reported by participants from the intergroup condition.

The difference between conditions was examined by ANCOVA. The IV was social context (intragroup vs. intergroup), the covariate was pre-task group trust and the DV was post-task group trust. The difference between conditions proved to be significant ($F(1, 107) = 14.24, p = .000, \eta^2 = .12$). Participants from the intragroup condition reported a lower level ($M = 59.43, SD = 13.26$) of trust (See Figure 38) than participants from the intergroup condition ($M = 69.03, SD = 10.99$). The covariate did not have a significant relationship with post-task levels of trust ($p = .17, \eta^2 = .02$). The intergroup identity management strategy was more effective for establishing increased trust between members of a cross-functional team than the intragroup strategy.

Intragroup- intergroup status.

H5 predicted participants from the intergroup condition would report a lower post-task awareness of inter-functional status differences than those from the intragroup condition. Repeated measures ANOVA found the general pre-task to post-task difference was not significant ($F(1, 109) = 5.85, p = .017, \eta^2 = .05$) by the criteria employed in the current study ($p \leq .01$). It should be noted that the pre-task level of 'status' (see Table 6) suggests participants were not particularly aware of intragroup intergroup status differences when it is considered that it was possible to score a pre-task maximum of 21.

Repeated measures ANOVA were conducted to examine whether there would be a pre-post task difference within each condition. The difference was not significant in either the intragroup condition ($F(1, 43) = 1.07, p = .31, \eta^2 = .02$) or the intergroup condition (by the criteria of $p \leq .01$ used in the current study) ($F(1, 65) = 5.49, p = .02, \eta^2 = .08$). Neither contextual manipulation reduced awareness of intragroup-intergroup status differences within the social frame of a cross-functional team.

The possibility the outcome achieved by the team during the scavenger hunt may have affected the salience of intragroup-intergroup status differences was tested with ANCOVA. The IV was outcome (win vs. lose), the covariate was pre-task level of intra-group-intergroup status differences and the DV was the post-task level of intragroup-intergroup status differences. The difference was not significant ($F(1, 63) = 2.25, p = .14, \eta^2 = .04$). The covariate did not have a significant relationship ($p = .79, \eta^2 = .00$) with the DV. The outcome of the contest did not affect awareness of intragroup-intergroup status differences.

The test for between conditions differences was via ANCOVA. The IV was social context (intragroup vs. intergroup), the covariate was pre-task levels of awareness of intragroup-intergroup status differences and the DV was the post-task level of intragroup-intergroup status awareness. The difference between conditions was not significant ($F(1, 107) = 2.29, p = .13, \eta^2 = .02$). Pre-task levels did not affect post-task levels of status awareness ($p = .41, \eta^2 = .01$). Neither condition was more effective for reducing the awareness of intragroup-intergroup status differences than the other. Overall there was no change in intragroup-intergroup status in any analysis.

A summary table (Table 7) of all of the results from Study two is presented below. A brief summary comparing the broad pattern of results across Study one and Study two will be presented in the General Discussion.

Table 7

Summary of Study Two Results

Dependent Variable	Within groups difference	H?	Between groups difference	H?	Outcome	H?
Social identity	Intragroup NS increase	N	S more in intergroup	Y	NS	Y
Subjective uncertainty	Intergroup S increase	Y	S less in intergroup	Y	S less for winners	P
	Intragroup NS increase	N				
Single group	Intergroup S decrease	Y	S more in intergroup	Y	NS	Y
	Intragroup NS increase	N				
Subgroups in single group	Intergroup S increase	Y	NS between more in intragroup	N	NS	Y
	Intragroup NS decrease	Y				
Separate groups	Intergroup S decrease	N	NS less in intergroup	N	NS	Y
	Intragroup NS decrease	N				
Separate individuals	Intergroup S decrease	Y	S less in intergroup	Y	NS	Y
	Intragroup NS decrease	N				
Distinctiveness threat	Intergroup S decrease	Y	NS potentially more threat in intergroup	N	NS	Y
	Intragroup NS decrease	N				
Effort	Intergroup S increase	N	S more in intergroup	Y	NS	Y
	Intragroup NS increase	N				
Group trust	Intergroup S increase	Y	S more in intergroup	Y	NS	Y
	Intragroup NS increase	N				
Intragroup-intergroup status	Intergroup S increase	Y	NS less in intergroup	N	NS	Y
	Intragroup NS decrease	N				
	Intragroup NS decrease	N				

Note. Within = pre-post difference within condition, Between = difference between conditions, Outcome = difference between winners and losers, H? = Hypothesis supported?, S = statistically significant, NS = statistically non-significant, Y = Hypothesis supported, N = Hypothesis not supported, P = partially supported

Chapter Eleven Discussion Study two

Overview

Study two was intended to examine whether the post-task functioning of cross-functional teams would differ (as measured by the pattern of post-task levels across the dependent variables) from the mono-functional teams of Study one. Cross-functional teams differ from mono-functional teams in that there is a basis for internal division along function based subgroup boundaries. This cross-functional dimension renders a cross-functional team simultaneously intragroup and intergroup. As in Study one, two conditions represented two different identity management strategies. One strategy facilitated social interaction in an intragroup frame while the other condition facilitated social interaction in an intergroup frame. The term 'intragroup' refers to the performance of a problem solving activity as a cooperative collective in a situation where no other group was present and there was no competition against any other group. The intergroup condition required cooperative intragroup interaction to perform the problem solving aspect of the group task which was framed within a broader competitive intergroup context. Assessment of the relative efficacy of the two identity management strategies in the management of social psychological processes in cross-functional teams will be based in interpretation of the results in relation to the stated hypotheses.

*Social identity and subjective uncertainty**Social identity.*

As predicted by H1a there was a statistically significant increase in social identification across the sample. Contrary to expectations, there was no significant increase in social identification reported by participants from the intragroup condition. There was, however, the predicted increase in social identification in the intergroup condition. The difference in post-task social identification between conditions was significant, with the

highest level recorded in the intergroup condition. Consistent with H6 the difference between winning and losing teams was non-significant. These results suggest social identification with a cross-functional team may be more likely to increase if an intergroup identity management strategy is employed. In contrast, the use of an intragroup identity management strategy was likely to be associated with the maintenance of an existing level of social identification.

Increased social identification implies participants became more cognisant of their membership in the cross-functional team, which also became more important as a basis for evaluation of self and other, and more worthy of affective commitment (Ellemers et al, 1999; Turner, 2000). Finding a significant difference between the two identity management processes suggests the intergroup social frame is superior to the intragroup context in terms of rendering a cross-functional team a source of evaluation, definition, and worthy recipient of affective commitment. This result is consistent with a proposition recently advanced by Meyer, et al (2006) that situational identification, like deep structure identities, has cognitive, evaluative and affective commitment facets which can be developed through a strategic manipulation of a specific social frame.

Finding a larger increase in social identity in the intergroup condition is also consistent with past research. For example, Riketta (2005a) found self-assimilation into an ingroup was stronger for high identifiers perceiving a high degree of intergroup conflict than those with lower social identification who perceived a low level of intergroup conflict. Assuming the intragroup condition was a less overtly conflictual context than the intergroup condition, Riketta's (2005a) research would support the contention that competitive intergroup contact is better than cooperative intragroup contact for overcoming resistance to accepting the cross-functional team as valid source of self-definition. Worchel et al (1998) reported the presence of a uniformed outgroup led to the highest reported increase in levels of

social identification with a uniformed ingroup. Worchel et al (1998) also found the lowest level of social identification was reported by uniformed groups in the absence of an outgroup. This is similar to the present pattern of findings in that participants from the intragroup condition wore the same uniforms and labelling as the competitive cross-functional team yet did not report increased social identification. Social identity theorists would consider the research of Worchel et al (1998), Ricketta (2005a), and therefore the current research, to be the result of the tendency for the salience of social identities to be higher when an outgroup is present than when there is no outgroup (Turner et al, 1994).

In broad terms, the organisational value of increased social identification has been demonstrated in past research. Increased social identification can be expected to coincide with increased loyalty to the group (van Vugt & Hart, 2004; Zdaniuk & Levine, 2001). Social identification with a task group has been found to have positive relationship with job satisfaction, job involvement and motivation and negative relationships with turnover intent (van Knippenberg & van Schie, 2000; Ricketta, 2005b). Research suggests that an organisation needs to be the salient social identity rather than individual identity or demography based identity if demographic diversity is to be an asset (Randel, 2002; Chatman, Polzer, Barsade, & Neale, 1998).

The potential importance of social identification for cross-functional teams is observable in research examining social processes evident in groups who rely on computer based communication (Postmes et al, 2000; Wiesenfeld, Raghuram, & Garud, 1999). Michinov, Michinov, and Toczek-Capelle (2004) found increased social identification was related to more supportive intragroup communication and more task related interaction than groups where there was no effort to increase social identification. Computer-mediated communications, which have been associated with decreased levels of social identification when compared to conventional meetings, are important in maintaining contact in

geographically dispersed cross-functional teams (Scott & Fontenot, 1999; Shapiro, Furst, Spreitzer, & Von Glinow, 2002). Therefore the level of identification with a geographically dispersed cross-functional team relying on computer mediated social interaction would benefit from identity management strategies that increase social identification with the work group.

In other research specific to cross-functional teams, social identification has been positively related to positive affective reactions to such as satisfaction (Cunningham & Chelladurai, 2004), knowledge integration (Kane et al, 2005; van Knippenberg et al, 2004), trust between subgroups (O'Brien et al, 2004; Zolin et al, 2004) which in turn influences the performance of the product of the cross-functional team (Sethi, 2000*b*). Hennesy and West (1999) reported a negative relationship between interdepartmental discrimination and organisational identification. Jassawalla and Sashittal (1998; 1999) note features of successful cross-functional teams that are consistent with social identification such as mutual trust, constructive use of task relevant disagreement and high levels of affective commitment to the cross-functional team. Similarly, Richter, West, van Dick, and Dawson (in press) reported the productivity of employees performing boundary spanning roles were positively related to effective intergroup relations. The suggestion is that the increased social identification reported by participants from the intergroup condition could be expected to have positive outcomes with cross-functional teams in actual organisations.

Considering the separate elements included in the intergroup identity management process and results reported in the cited research, it would appear that providing opportunities for each subgroup to contribute their own unique knowledge (when answering questions during the scavenger hunt) in the service of the team, simultaneous symbolic recognition of difference and connection (adhesive labels and uniforms) framed within an intergroup context involving problem solving and competition would be when attempting to improve

psycho-social connections within, and to, the cross-functional team (Bornstien & Erev, 2000; Hogg & Terry, 2000; Ashforth & Johnson, 2001; Worchel et al, 1998; Van Dick et al, 2004). Furthermore, as SIT/SCT were used as conceptual guides in the development of what proved to be a successful identity management strategy within the social frame of a cross-functional team it can be suggested that the social identity approach to intergroup relations provides a useful means for designing programs for the management of relationships within cross-functional teams. However, present results may also be used to question the use of SIT as a conceptual basis for managing cross-functional team development.

The reason is that 'outcome' (win-lose) did not lead to a difference between groups within the intergroup condition, which contradicts the SIT concept of positive distinctiveness. It can be assumed that positive distinctiveness needs are met when indicators of performance demonstrate ingroup superiority (Scheepers & Ellemers, 2005; Lembke & Wilson, 1998). The increased social identification with a winning team would be expected as winning fulfils positive distinctiveness needs. The increased social identification reported by losing teams would be unexpected as there was incontrovertible evidence of their relative inferiority to winning teams. However, it would be overly simplistic to assume that membership on a losing team would automatically result in the abandonment of the cross-functional team based social identity (Ouwerkerk & Ellemers, 2002; Ellemers, De Gilder, & Haslam, 2004).

While social identification can decrease if groups do not provide positive distinctiveness, it is not inevitable (Lembke & Wilson, 1998; Branscombe et al, 2000). For example, Mummendey et al (1999a) failed to find a predictive association between the enactment of an individual mobility strategy and resentment based in denial of a desired but unrealised alternate social reality. Social identification was a significant negative predictor of social mobility, suggesting identification can maintain loyalty even though ingroup membership is objectively undesirable.

Turner (2000) notes SIT does *not* state positive distinctiveness can *only* be met through displaying superiority over an outgroup in all areas of comparison at all times. Judgment of what fulfils positive distinctiveness needs is made with reference to the facet of comparison, stability of intergroup boundaries and the legitimacy of the basis for a status differential (Haslam, 2001). Secure group boundaries and legitimate status differences necessitate social creativity if positive distinctiveness is to be maintained (Haslam, 2001). The concept of social creativity allows SIT sufficient flexibility to explain the current results.

In the current study there was no chance for a draw. Furthermore, there wasn't an instance where the status of winner or loser was contested suggesting relative group standing was accepted as legitimate. Intergroup boundaries were also impermeable. In other words, the present conditions are those proposed by SIT as motivating performance of a socially creative identity management strategy. In the current work there was no measurement on intergroup bias as is normally used to detect the performance of social creativity (De Cremer, 2001; Hewstone et al, 2002). However, past research shows social creativity can take the form of balancing negative traits with self-prescribed positive traits (Reynolds et al, 2000*b*; Ellemers et al, 1997) as well as shifting the dimension of comparison and downplaying the importance of comparative dimensions where outgroup superiority was acknowledged (Terry & Callan, 1998; Ellemers et al, 1997; Terry et al, 2001; Crocker & Major, 1989). Turner et al (1984) suggest increased social identification after defeat is a socially creative way of justifying the amount of effort that was expended on behalf of the group. As voluntarily maintaining an association with an unsuccessful group expresses social identification (Van Vugt & Hart, 2004) it can be suggested that increased identification with a group after a loss may be considered a form of success (Ehrhart & Naumann, 2004) and therefore conducive to a positive self-evaluation. For example, Jetten et al (2001) found evidence social identification with a devalued group could increase after the experience of discrimination.

Doosje et al (2002) found that whether or not an individual group member would distance themselves from an ingroup faced with an imminent loss of status was dependent on the level of identification. Low identifiers would not claim affiliation with an ingroup unless an increase in status occurred or was likely to occur. High identifiers maintained identification even if a loss in status was a real possibility.

In the current research pre-task levels of social identification were above the scale mid-point, suggesting the researcher was successful in encouraging acceptance of the cross-functional team as a locus of social identity. Moreover, Dimmock et al (2005) argue that increased social identification after a loss is experienced will only occur if social identification was willingly accepted, rather than imposed. Ellemers et al (1999) found voluntary acceptance of a social identity reflected in higher levels of affective commitment. Barreto and Ellemers (2002) found cooperation; loyalty and effort were contingent on respecting the chosen social identity of participants. The present increase in social identification on the part of both winning and losing teams suggests identification with the cross-functional team was accepted willingly, regardless of outcome.

The cited research would suggest that increased social identification with the cross-functional team (on the part of the unsuccessful groups) reflects a socially creative means of claiming positive distinctiveness for a freely accepted social identity. Therefore SIT is not contradicted by the fact 'outcome' did not affect post-task levels of social identity.

An alternative position (still consistent with the broad social identity theory approach) is that the need for creative distinctiveness was met, rather than positive distinctiveness (Ellemers et al, 2002). Ellemers et al (2002) and Spears et al (2002) suggest the creation of distinctiveness is more a fundamental concern for social definition than achieving positive distinctiveness, even when there is a higher level of commitment to the social identity. Therefore creative distinctiveness needs can be met even if positive distinctiveness needs

appear to be unmet. Creating distinctiveness for the ingroup is sufficient motive for increased social identification until the group becomes more established (Ellemers et al, 2002). In other words, increased social identification on the part of the less successful team may be due to the successful establishment of the cross-functional team as a distinct identity group.

If the SIT based taxonomy of social identity concerns (see Table 5 in Chapter Eight) developed by Ellemers et al (2002) is applied to the current cross-functional teams it may be possible to ascertain if creative distinctiveness could be a reasonable motive for the reported levels of social identification. To reiterate, the Ellemers et al (2002) taxonomy is based in the idea that levels of identity commitment and contextual features such as the type of identity threat lead to different identity based concerns. Contextual features provide the basis for ascertaining an individual's place within a group, intergroup status, and constraints or resources that may affect efforts to deal with threat. Ellemers et al (2002) built their taxonomy around the interaction of commitment to the group and the presence or absence of threat. Responses to threat are constrained by the outcome of the type of threat to the group. At the intergroup level threat and responses are held to be centred in distinctiveness concerns and an individual's commitment to the group.

In the current research pre-test level social identification (see Table 6 in Chapter 10) was above the mid-point. Participants increased social identification can be taken as suggesting individual level threats were not a dominant concern. (van Vugt & Hart, 2004; Ellemers, De Glider, & Haslam, 2004). It is also important to note that the measure of social identity used in the current study contained items concerned with affective commitment. Therefore it is not unreasonable to assume participants felt a higher, rather than lower, degree of pre-task commitment to the cross-functional team social identity (Ellemers et al, 1999). 'Higher' levels of commitment would place participants in either cell two (higher levels of

commitment and little threat) or cell six (some threat to the distinctiveness or value of the social identity) of the taxonomy.

Groups in cell six are proposed to be concerned with the affirmation of their distinctiveness and the value of the social identity (Ellemers et al, 2002). In the present study there was no basis to assume the pre-task context was threatening. For example, according to Ellemers et al (2002) the value of an ingroup may be threatened if it is of lower status relative to a relevant outgroup. Pre-task status differences inside the cross-functional team were very low and there was no interaction that would convey less value than another group until after task performance. Given the apparent lack of threat to distinctiveness before interaction the taxonomy suggests participants approached the cross-functional team with an initial orientation matching cell two (higher levels of commitment and little threat).

Ellemers et al (2002) propose people in cell two are concerned with establishing the distinctiveness of a social identity. The idea is that those who are committed to the existence of a newly formed, or potentially forming group, will find the affirmation of the group as a distinct social identity sufficient motivation for differentiation (Ellemers et al, 2002). In other words, the concern is developing a shared idea as to the content of a social identity with reference to the prevailing social frame (Spears et al, 2004; Reynolds et al, 2004).

The content of a social identity can be considered the basic building blocks of the social identity (Turner, 2000). Social identity content may manifest in the form of ingroup distinguishing values, attitudes, norms, roles and behaviours (Ellemers et al, 1999). Members of the experimental cross-functional teams were devoid of any detailed content knowledge as a function of the newness of the teams. Therefore it is reasonable to assume there would have been a need to develop the content of the cross-functional team social identity. As a newly formed group, the content of the cross-functional team identity was informed by three factors that would be useful for the development of social identity content.

One factor was the symbolism (uniforms and adhesive labels) that drew attention to a basis for similarity, as well sources of difference (Pratt & Rafaeli, 1997). A second factor was pre-task acceptance of the cross-functional teams as a social identity within a context involving social change. Spears et al (2004) noted pre-existing social identification may motivate the identification of distinctive ingroup properties when social change is a salient feature of the environment. Within the research there was social change in the form of the self-definitional shift required when representatives of other functions come to be viewed as members of a new composite ingroup, membership in which is based in the fact all ingroup members are outgroup representatives when outside of the cross-functional team. The third factor is that shared pre-task social identity implies the purpose implied in the role of the group within the external social structure will also be shared (Brewer, 2001; Kramer, 2001). In the present research this role was as competitor against another cross-functional team and intergroup competition tends to reinforce the idea that what is presented as an apparent superordinate locum of social identity (such as the cross-functional teams in the present research) should actually be considered a valid ingroup (van Dick, 2004; Hogg & Terry, 2000). The suggestion is that the prevailing social structure would both inform participants of the content of the cross-functional team social identity and render creative distinctiveness a relevant drive. The increased post-task level of social identification could therefore signify the meeting of a need for creative distinctiveness rather than positive distinctiveness.

It could be argued losing teams would be more properly placed in cell 6 due to threats to value. In this case Ellemers et al (2002) suggest that the main ingroup concern would be group affirmation. As previously suggested, group affirmation does not require the ingroup to win a contest to maintain positive distinctiveness as increased social identification after a loss is consistent with a socially creative means of meeting positive distinctiveness needs

(Turner et al, 1984; Wann & Shrader, 1996; Doosje et al, 2002). Therefore there would still be no reason to consider the current results to be at odds with SIT.

One additional factor worthy of consideration is the potential to receive a reward from engagement in a task. For example, participants in the intragroup condition were not rewarded for the performance of the group or themselves, or even told if the group solution was correct. This would suggest there is little source of individual gain that would underlie cooperative individualised behaviour within the intragroup context (Wageman, 2001). However, participants from the intergroup condition had the potential to receive a reward. Therefore the failure to find increased in social identification from intragroup participants, and the presence of a difference between intragroup and intergroup conditions, may be due to the potential to receive a reward in the intergroup condition. However, the potential for 'reward' issues to confound the current results can be discounted.

Previous research has shown that when a social identity is salient extrinsic factors become relatively less influential (Walker, Greene, & Mansell, *in press*; Haslam et al, 2001, 2003; Husted & Michailova, 2002; Chami & Fullenkamp, 2002; Brewer, 1996; 1999b). For example, Van Vugt and Hart (2004) found that social identification provided a better explanation for group loyalty than individuals attempting to justify investment on behalf of a group. Doosje et al (2002) found individual rewards to be more important to those who do not identify with an ingroup. Social identification can explain why individuals will accept the incursion of personal loss and harm for acting in concert with an ingroup (Zdaniuk & Levine, 2000; Postmes & Spears, 1998; Branscombe et al, 2000; van Knippenberg, 2000; Jetten et al, 2001). In other words, those who identify with an ingroup tend to display loyalty, not instrumentality. Maintaining or increasing social identification after a loss (as in the current study) contradicts the idea that accrual of shared reward is necessary for social identity to increase.

It should also be noted that reward did not appear to be a relevant issue to participants from the intergroup condition. For example, even though membership on a winning cross-functional team was necessary to receive a prize, there was no difference in post-task social identification between winning and losing teams. Furthermore, research shows rewards are most effective as motivators when there is congruence between the reward and the level of social interaction required to perform the task (Wageman, 1996; Wageman & Baker, 1997; Haslam, 2001). In the current research members of winning teams received individual prizes rather than the group itself being given a prize. The suggestion is any positive effects of getting a reward for being successful in the intergroup condition are constrained by the mismatch between an individual level of reward and the social structure (uniforms, instructions, group as basic social unit, cooperative task) inherent in the research context.

Another potential issue is that participants (from both conditions) were working from an interpersonal, rather than an intergroup level. The reason is that participants were engaged in actual interaction. Spears et al (2004) opine that the visibility of individuals reinforces the fact that everyone is an individual, therefore rendering what appears to be a social identity group a common bond group based in interpersonal connections. Common bond groups have been found to be inferior to social identity groups as a basis for social attachment (Utz & Sassenberg, 2003). The suggestion is that a truly effective identity management strategy (assuming increased social identification and associated benefits is desired) would be to combine intergroup competition with the removal of any actual interaction between team members. However, the current researcher suggests that the current intergroup identity management strategy, despite involving actual interaction, was successful in establishing the cross-functional team as a social identity rather than a network of interpersonal bonds.

The first point of consideration is none of the questions in the social identity measure refer to interdependence or interpersonal attraction. All items refer to the group, not

individual selves. Given the absence of an interpersonal frame in the item content of the social identity measure it is possible to suggest that participant responses reflect psychological processes at a group level, rather than at an interpersonal level (Turner, 2000). Further, the lack of a statistically significant relationship between pre-task and post-task social identification suggests individual differences in propensity to identify were not a factor in the current results. Therefore the current results are not attributable to individual differences.

If participants were not interpreting the research context from an interpersonal level of identification then they were appraising the context from a position closer to the intergroup side of the interpersonal-intergroup continuum (Turner, 1996). Social attraction research has shown that when a social identity is salient interpersonal concerns are less influential than attraction based in shared social identification (Hogg & Hains, 1996). Accordingly, in the present study, it is suggested that group members were acting more on behalf of a social identity than common bonds based in interpersonal attraction or reciprocal interdependence.

The research of Gaertner and Schopler (1998) that purportedly demonstrates that intragroup interdependence is the driver of identity salience rather than intergroup competition (see Study one for a brief critique) can be used to demonstrate that actual interaction does not invariably create bonds at an the interpersonal level. The basis of this idea is that interaction within the intergroup condition of the Gaertner and Schopler (1998) study was anonymous. Spears et al (2004) would predict this to result in higher levels of social identification than the intragroup conditions (high and medium) where each participant was visible. However, Gaertner and Schopler (1998) found the highest level of ingroup entitativity in the intragroup condition, meaning entitativity was highest when group members were visible. Entitativity mediated the relationship between group boundary salience on behavioural bias. Given that social identification will be positively correlated

with perception of an ingroup as highly entitative, and that SIT would predict behavioural bias against an outgroup as boundary salience increases (Reynolds et al, 2004), Gaertner and Schopler (1998) actually suggests that interaction would tend to be associated with the intergroup, rather than the interpersonal level of processing.

Research has also demonstrated that interdependence between groups (as in a cross-functional team) without shared basis of social identification can lead to conflict rather than cooperation (Brewer, 1999b). The increased level of trust in the present study, and indeed the increased level of social identification, would suggest there was no inter-functional conflict within the intergroup condition. Furthermore, research performed under the guidance of the subjective groups dynamics model has shown observation (requiring visibility) of behaviour that reinforces a social identity contributes to social identification (Abrams et al, 2004). Shared social identification has been associated with displays of ingroup bias despite there being no prospect of personal gain or interdependence with others who share a social identity (Turner, 1996; Perrault & Bourhis, 1998; Bourhis & Gagnon, 2001). The weight of the cited research would tend to contradict Spears et al's (2004) position that visibility would build interpersonal bonds, rather than identification. Therefore it is reasonable to accept that the present research has successfully created a context where participant responses reflect the intergroup level of processing and so cannot be reduced to interpersonal bonds.

Social identity summary.

In summary, social identification with a cross-functional team increased after the use of an intergroup context based identity management process while remaining stable after an intragroup process. This suggests an intergroup identity management strategy was more useful than an intragroup strategy for motivating social identification with a cross-functional team. It is possible to facilitate a willingness to accept a cross-functional team as a social identity before the group actually meets, allowing subsequent interactions to be based in

shared social identity. As participant interdependence was framed by a shared social identity, the results cannot be reduced to an explanation based in interpersonal interdependence.

Individual pre-dispositions to socially identify did not have a relationship to post-task levels of social identity. Experiencing a loss does not mean that social identity will not increase.

This is consistent with the drive for positive distinctiveness as increasing social identification following a loss is socially creative means of meeting positive distinctiveness needs.

Alternatively, it may be social identification with the cross-functional team was motivated by the need to create distinctiveness for the cross-functional team based identity due to a lack of concrete identity content.

Subjective uncertainty.

There was partial support for H1b. While a reduction in subjective uncertainty had been expected in both conditions, this was only found in the intergroup condition. As predicted the lowest amount of post-task uncertainty was reported by participants from intergroup condition. Contrary to H6, there was a significant difference in post-task uncertainty between members of winning and losing teams. Members of winning teams reported lower levels of post-task uncertainty. Further analysis revealed members of losing teams reported a level of post-task uncertainty equivalent to that reported by participants from the intragroup condition. If the goal is to reduce subjective uncertainty, this result could be taken as indicating the limited usefulness of the intergroup identity management strategy. However, in the intragroup condition there was actually a non-significant trend towards increased uncertainty. In contrast, even losing groups from the intergroup condition reported decreased uncertainty.

A t-test comparing pre-task to post-task levels of uncertainty for members of losing teams show that the difference did not reach the standard of significance ($p = .01$) used in the current study. However, the effect size of $\eta^2 = .12$ was large enough (Pallant, 2001; Cohen,

1988) to suggest that relying exclusively on significance would result in an incorrect dismissal of a valid reduction in uncertainty by members of losing teams (Cohen, 1988; Minimum, King, & Bear, 1993). The effect size suggests members of losing teams did not reduce uncertainty as much as members of winning teams, but levels of uncertainty did reduce for both groups. This was not the case for those from the intragroup condition. The implication is that attempting to reduce subjective uncertainty in a cross-functional team will be better served by immersion in the intergroup than the intragroup process, even though one team is likely to lose.

If the results for social identification and subjective uncertainty are considered together then present findings support the uncertainty reduction hypothesis. The uncertainty reduction hypothesis places the need to reduce contextual uncertainty through self-definition with a contextually relevant social identity (Hogg, 2004). Moreover, the current study, together with findings reported in Study one, in conjunction with Hogg and Sussman (1999; cited in Hogg, 2004) address concerns raised by Bourhis and Gagnon (2001) regarding the lack of pre-post research support for the uncertainty reduction hypothesis. It is acknowledged that the current study does not provided incontrovertible evidence for a causal sequence from subjective uncertainty to social identification. However it should be noted that when subjective uncertainty reduced social identity increased. This is observable in participants that experienced the intergroup identity management strategy. In the intragroup condition both uncertainty and social identity remained stable.

If previous research examining the uncertainty reduction hypothesis (Mullin & Hogg, 1998; Hogg & Mullin, 1999; Hogg & Grieve, 1999; Grieve & Hogg, 1999; Hogg, 2004) is used to guide the interpretation of the current results, then the pattern of differences in uncertainty and social identity suggests that participants from the intergroup condition became more accepting of social-self definition as members of their cross-functional team. A

similar line of reasoning can be used to argue that the cross-functional team did not become more or less meaningful as a source of self-definition following the use of the intragroup identity management strategy.

The stability in self-definition (implied by the static levels of uncertainty and social identity) (Hogg, 2004) found in the intragroup condition suggests that unless employees approach the cross-functional team with at least some commitment to the idea of the cross-functional team as a potential social identity (Spears et al, 2004) that an identity management based in an intragroup context strategy would not initiate the evolution of a social self-definition derived from the cross-functional team. This may be a concern in applied settings as many cross-functional teams are expected to cooperate and perform at a high level even though no effort has been made to manage the social processes within these teams at an intergroup level (Pratt & Foreman, 2000).

Moreover, research has shown that inter-functional cooperation may not be sufficient to improve inter-functional working relationships unless a level of social psychological connection between subgroups already exists (Richter et al, in press; Lau & Murnighan, 2005; Brewer, 1996; 1996b). When there is no social psychological connection to a cross-functional team the interests of the various subgroup identities tend to dominate, causing fractures along subgroup boundaries (van Dick et al, 2004; Lembke & Wilson, 1998; Maltz & Kohli, 1996; Jassawalla & Sashittal, 1999; Kane et al, 2005). The inter-functional fractures that develop early in the life of a team tend to widen over time, forming a barrier to the knowledge integration that make a cross-functional team useful (De Dreu et al, 1999; Van Knippenberg et al, 2004). Intergroup uncertainty may prevent successful integration within a cross-functional team (Hitt et al, 1993). Therefore, given that there was no uncertainty reduction in the intragroup condition, present results suggest it would be useful to promote pre-task social identification if an intragroup identity management strategy is to be used as

shared social identification would provide an initial basis for inter-functional benevolence (Brewer, 2001).

SCT suggests uncertainty reduction occurs when the context favours the construction of a depersonalised prototype (Hogg, 2004). The prototype prescribes standards of thought, affect, and behaviour that are appropriate for a member of a particular identity group (Hogg & Terry, 2001; Turner et al, 1994). The content of a prototype reflects a consensual judgment as to the defining features of a group. Prototype content is developed with reference to incoming information, goals and existing assumptions (Brown & Turner, 2002). The prototype contains expectations of behaviour, thinking and affect in relation to those who purportedly share category membership and those that do not (Hogg & Williams, 2000).

Where a prototype is non-existent, for example when the group is in the process of forming no relevant group specific prototype can be recalled. It must be constructed quickly with reference to the contextually available data (Hogg & Terry, 2001). Prototypes are constructed with reference to the elements of fit which informed the calculation of the meta-contrast ratio within the contextual frame (Haslam & Turner, 1992; Haslam, Oakes, McGarty, Turner & Onorato, 1995). Fit interacts with perceiver readiness to accept a particular category is meaningful within the social frame (McGarty, 1999) when constructing a prototype for an emergent group. In the right social frame an outgroup division that exists in one setting need not be so important in another setting (Turner et al, 1994).

The difference between conditions suggests the intergroup identity management strategy was superior to the intragroup strategy in terms of providing information that facilitated an increase in perceiver readiness (to self-categorise with the cross-functional team) while broadening notions of who could be included as equivalent to the self within the cross-functional team (Wilder & Thompson, 1988; Kessler & Mummendey, 2001; Riketta,

2005a). Laboratory research will now be presented to demonstrate how ‘perceiver readiness’ and judgment of ‘fit’ could differ between the two conditions.

Perceiver readiness.

Increased perceiver readiness to self-categorise with a group means the group is meaningful and relevant from the perceiver’s position within a social field (McGarty, 1999). Levels of perceiver readiness reflect a greater or lesser confluence between past and present expectations, motives, goals and the judgment that the category does exist in the reality presented by the immediate context (Turner, 1999). Van Knippenberg et al (2004) have recently made the observation that accessibility (perceiver readiness) has received little research attention but may be particularly important when it comes to managing inter-functional diversity.

The idea that post-task levels of ‘perceiver readiness’ may have contributed to the difference between the two conditions may be inferred from Voci (2006) who found that ingroup favouring perception would occur if a group was a highly accessible social category. In the present research social identification, trust and effort only increased in the intergroup condition. In the intragroup condition social identification, trust and effort remained stable (as did uncertainty). The suggestion is participants from the intergroup condition increased their readiness to accept the cross-functional team self category whereas those from the intragroup condition did not (Voci, 2006).

Social identification can serve to increase perceiver readiness to adopt a specific self-category (McGarty, 1999). Participants in both conditions expressed some pre-task preparedness to accept social identification with the cross-functional team. Therefore pre-task social identification would be one factor common to both contexts that would increase situational perceiver readiness to self-categorise with a cross-functional team. However pre-task social identity does not account for the post-task differences in uncertainty and an

independent samples t-test confirms there was no significant difference in pre-task levels of social identification between conditions ($t(108) = .76, p = .45$). Therefore, differences in post-task levels of situational uncertainty cannot be attributed to pre-task levels of social identity. This suggests there was another situational basis for increased perceiver readiness that would manifest in lower levels of subjective uncertainty.

A new category can become situationally accessible if the context is conducive to increasing the salience of the new category (Hogg & Terry, 2001; Ashforth & Johnson, 2001; Turner et al, 1994). Intergroup competition (as in the scavenger hunt) between readily identifiable groups represents a context where the relationship between the two groups increases the readiness to use a social category (McGarty, 1999). Active interpretation of social information reflects integration of incoming data with existing knowledge, present needs, goals and motives of the perceiver (McGarty, 1999). This could conceivably involve paying attention to a number of contextual features: the climate within the cross-functional team (a potential self-category with obvious signs of internal division), the broader context in which the cross-functional team is situated (intergroup or intragroup), the perceivers place in the cross-functional team and the broader social context that contains the subgroup, the cross-functional teams and the perceiver (Sassenberg & Wieber, 2005; Blanz, 1999; McGarty, 1999; Broemer & Diehl, 2004).

If incoming data does not support the perception that the cross-functional team and the subgroup of origin are compatible self-definitions then it is probable a perceiver will be less ready to use the cross-functional team categorisation (Brown & Turner, 2002). It is possible a subgroup is more accessible than a cross-functional team in the same way an organisational subgroup is more accessible than the organisation (van Knippenberg & van Schie, 2000). Accordingly it is not unreasonable to suggest a cross-functional team would be downplayed in favour of a subgroup if the two self-categories are in competition rather than

complimentary (Hansen et al, 2005). The reason being the cross-functional team, built as it is around obvious sources of differentiation, would not be as useful for defining the perceiver's place in the environment (McGarty, 1999).

In the present research there were visual and verbal cues as to the internal complexity within the cross-functional teams. Uncertainty reduction in the intergroup condition suggests the internal diversity of the cross-functional team made sense given the purpose of the team (Hogg, 2004). Symbolically drawing attention to the internal complexity (Brewer, 2001; 1999; Brewer & Gaertner, 2001) combined with the opportunity for each subgroup to contribute its own knowledge to the good of the group (Jetten et al, 2000) allows for the cross-functional team to be an accessible social self-category where the internal diversity is incorporated into the emergent cross-functional team prototype. The stable level of uncertainty in the intragroup condition would suggest this context did not provide sufficient evidence for participants to be as accepting of inter-functional diversity as part of the prototype despite the initial willingness to identify with the cross-functional team. For example, Chattopadhyay, George, and Lawrence (2004) found a higher proportion of ingroup diversity was associated with social features indicative of increased uncertainty such as lower prototypical clarity and self-prototypicality. This idea would also be consistent with Hogg (2004) who noted that ambiguity around an ingroup prototype does not facilitate uncertainty reduction.

To briefly summarise, the current results suggest the intragroup process, when compared to the intergroup identity management process, may be relatively ineffective for increasing perceiver readiness to adopt a cross-functional team self-category. This may be one factor for there to be different post-task levels of uncertainty in each condition. The two conditions may also differ due to the relative ease with which comparative fit could be judged in the intergroup condition.

Comparative fit.

Comparative fit refers to the degree to which the ingroup members perceive themselves be more like each other than they are to others within the environment (Voci, 2006). It will be suggested that the intergroup condition would be more suitable for cross-functional teams than the intragroup condition because participants were able to make judgements of comparative fit.

The most obvious reason comparative fit would be easier to judge in the intergroup than the intragroup condition is that there was a uniformed outgroup present. For example, Wilder and Thompson (1988) found participants formerly categorised as outgroup members were later accepted as ingroup members when a more extreme outgroup became psychologically present. In field research by van Dick et al (2005) primary school teachers who thought they were being compared to kindergarten teachers (in terms of work related effort) were more likely to identify as school teachers than a teachers who completed the survey in an intragroup context (where no outgroup comparison was made salient). A similar result was reported with regards to teachers' social identification with their school.

Corneille and Judd (1999) showed that a new category can be created from perceiver judgments of comparative fit made with reference to a prototypical exemplar. For example, in Study 2, these researchers reported differences not relevant to contextual differentiation are discounted when judging comparative fit. In Study 3, these effects were found to be independent of the context that prevailed when category features were first learned. The inclusion or exclusion of exemplars was instead a response to the immediate context that framed the judgement. Corneille and Judd (1999) interpreted their results as evidence for the flexibility of the socio-cognitive processes involved in categorisation. Flexibility in socio-cognitive processing is consistent with SCT. Moreover, Corneille and Judd (1999) demonstrates that it is possible for participants to broaden ideas of what fits a category

prototype 'online' when social comparisons make broadened idea of fit appear accurate.

Participants from the current research, and employees assigned to a cross-functional team in an organisation, would be required to make similar judgements when deciding whether to self-categorise with their team. Corneille and Judd (1999) suggests that it is possible for members of subgroups to construct a new category inclusive of those known to be from another functional group (Brewer, 1996; Meyer et al, in Press).

Further, cross-functional teams in the intergroup condition were in a competitive relationship with the other cross-functional team. Intergroup competition against an opponent at similar level of identity abstraction (as in the intergroup condition) tends to increase the perceived similarity within a group, aligning motives, goals and behaviours in concert with the more inclusive identity (Hogg & Terry, 2000; Pratt, 2001; Riketta, van Dick, & Rousseau, in press). Broemer and Diehl (2004) found intergroup comparisons can lessen the importance of intragroup dissimilarity (increasing comparative fit of targets to the ingroup) which increases the assimilative quality of a group. Haslam and Turner (1992; 1995) found changing the positions of a group relative to other groups, as occurs during intergroup competition, can broaden the idea of who can be included within the same social category. Similarly, Rothgerber (1997) found a competitive outgroup presence increased perceived intragroup similarity while perceived intergroup similarity decreased. Such a process effectively increases the psychological distance between groups and consequent inclusion within the ingroup (Jetten, Spears, & Manstead, 2000). More recently, Ricketta (2005a) reported that strong feelings of intergroup conflict led to assimilation of self towards the ingroup, and contrast away from the outgroup. In the current research, intragroup intergroup similarity increased in the intergroup condition which is consistent with a broadening of comparative fit in a cross-functional team (Rothgerber, 1997).

In comparison to the intergroup condition the intragroup condition was a relatively sparse perceptual field. There was no uniformed outgroup present to provide an intergroup contrast which would make it more difficult to make judgments of comparative fit relative to the intergroup condition. This may explain why (even though similarity increased in both condition) there was a larger effect size found in the intergroup ($\eta^2 = 40$) than the intragroup condition ($\eta^2 = 18$). If standards of comparative fit cannot be broadened it may be difficult to see the cross-functional team as contextually relevant. Some support is accorded this in a meta-analysis by Jetten et al (2004). These researchers found there may be resistance to having an existing self-categorisation forced into implied equivalence with another subgroup under the auspices of a shared self-category (such as the cross-functional team) unless the superordinate identity is high in situational salience.

Past research demonstrates that cooperation may not broaden comparative fit. For example, Rothgerber (1997) found a 'benevolent' outgroup condition (assumed here to be analogous with the intragroup condition in the current research) could be distinguished from a competitive condition as being benevolent did not increase intergroup similarity. In other words, the fact an outgroup was not antagonistic was not enough to overcome existing intergroup boundaries. The prospect of intergroup cooperation can emphasise the salience of subgroup boundaries, thereby increasing intragroup competition between functions (Hogg & Terry, 2000). For example, Haunschild et al (1994) found marked resistance to cooperation between subgroups, especially on the part of those who felt more competent compared to their partner subgroup. Resistance was not evident between those without membership in a distinct pre-merger ingroup.

The cited research suggests it is more difficult to overcome inter-functional boundaries even in cooperative, benign environments such as in the present research, without a basis for judging comparative fit. This suggests the intergroup condition would be more

likely to allow incorporation of inter-functional diversity into a cross-functional team prototype (than the intragroup condition) due to the relative ease with which judgments of comparative fit can be made in intergroup contexts compared to intragroup contexts. Given the SCT idea that uncertainty reflects self-categorisation (Hogg, 2004) and that comparative fit is important for the process of self-categorisation (Voci, 2006) it may be reasonable to infer that post-task levels of uncertainty found in the current study are a partial reflection of the ease with which participants were able to judge comparative fit. According to SCT normative fit also contributes to self-categorisation.

Normative fit.

In intergroup contexts comparative fit must be considered together with normative fit (Turner et al, 1994). Normative fit is assessed from the meaning ascribed to attitudes, attributes and actions conferred by the depersonalised standards of the relevant category (Reynolds et al, 2000b). Observable behaviour, attitudes and attributes that are consistent with expectations from a member of a social category have a high degree of normative fit to the prototype (McGarty, 1999). In the present context, the contribution of function based knowledge in the performance of the problem solving element of the task would be expected. A second expectancy would be for subgroups to jointly engage in the behaviour required to win the competition against the other cross-functional team. Display of expected behaviour reinforces the idea that the cross-functional team is shared and psychologically meaningful (Brewer, 2001). The implication is that social complexity with the cross-functional team is also psychologically meaningful, exemplified by the confirmation of normative expectations for alliances within the cross-functional team (between subgroups) against the more extreme outgroup.

The fact uncertainty reduced in the intragroup condition on the part of the mono-functional teams of Study one, but increased in the equivalent condition using cross-

functional teams, is consistent with the idea that intragroup interaction was not as useful for helping participants to make sense of the environment in the more complex context of a cross-functional team (Hogg, 2004). If this is an accurate inference intergroup diversity would not form part of the group defining prototype, making it difficult to incorporate inter-functional diversity into a clear cross-functional team prototype (Jetten et al, 2000a; Chattopadhyay et al, 2004). In contrast, participants from the intergroup condition were better able to see inter-functional diversity as normatively fitting the cross-functional team social category than those from the intragroup condition (van Knippenberg & Haslam, 2003).

Such a proposition is supported in previous research. Waldzus et al (2003) found that stressing internal complexity of a superordinate identity increased the normative fit of intragroup-intergroup diversity to the superordinate prototype. In Experiment 2 of Haslam and Turner (1995), participants belonging to the category of 'moderates' unexpectedly emphasised differences between themselves and a target more than 'extremists' due to the normative content of the category contained in the stimulus materials. In Experiment 3, Haslam and Turner (1995) found that 'moderates' saw themselves as more idealistic when reference was made to the less idealistic outgroup of 'extremist'. 'Extremists' saw themselves as less idealistic when reference was made the more idealistic 'moderate' group. An initially dissimilar target was more likely to be assimilated into the ingroup when an outgroup reference was made. Haslam and Turner (1995) interpreted these results as evidence that comparative and normative fit can change when the context changes. The result was a more liberal idea of who can be considered part of the ingroup. Oakes et al (1991) reported that judgements of what was normative for the ingroup, and the influence of perceived normative fit on person perception, was strongest when judgments were made in interaction with judgements of comparative fit within an intergroup context.

The present author proposes the same social psychological process would allow a cross-functional team to evolve a prototype in which functional diversity was of good normative fit. For example, Plaks, Grant, and Dweck (2005) reported people have a tendency to seek out information that confirms rather than disconfirms existing ideas. The presence of disconfirming evidence is a source of anxiety that motivates an attempt to make sense of the disconfirming information. Bernsden et al (2001) show that once a group differentiating hypothesis is formed (everyone in a blue shirt is on my side and everyone in a red shirt is against me), disconfirming evidence (they are not from my functional subgroup) is reinterpreted so that the initial hypothesis makes sense (they are not from my subgroup but they are still in my group and on my side). Abrams et al (2000) found evaluation of behaviour in terms of intragroup normative fit and self-categorisation are mutually reinforcing processes in intergroup contexts. Group members who match the normative ingroup position legitimise the group prototype, particularly in an intergroup context (Abrams et al, 2000).

Field research shows that contextual change, from a peaceful state to one of intergroup conflict, influences judgements of fit, uncertainty, and can overcome resistance to acceptance of 'outgroups' as fellow members of a composite social category. Drury and Reicher (2000) found that self-defining characteristics and notions of what constitutes appropriate behaviour changed in response to offensive actions by representatives of a more extreme outgroup. Some groups of protestors initially rejected the legitimacy of violence against police, and rejected the more extreme protester groups that believed violence was justified, but came to adopt the formerly extreme position as their own. Further, the perception of the more aggressive protester groups changed. The more aggressive groups, who were initially considered to be a radical outgroup, became the prototypical standard of an expanded common ingroup that arose in response to contextual changes (Drury & Reicher,

2000). The contextual change was the failure of police to protect protestors from violent acts by bailiffs, and commission of violent acts by the police against all protestor groups, even those who did not condone or perform any acts against police.

Drury and Reicher (2000) noted that the changes in self-definition were consistent with SCT. Comparative fit expanded to include former outgroup members. Acts of violence against police became a sign of normative fit to the newly formed social identity.

Additionally, Drury and Reicher (2000) reported that groups who did not initially endorse attacking police assumed police would act neutrally. Their initial assumption was that the police were present to preserve order. Those who endorsed action against police were more experienced protestors. These experienced protestor groups knew police would not only fail to discriminate between different protesting groups, but would also be aggressive in support of those acting against protestors. When members of peaceful groups witnessed, and experienced, police violence, it was contrary to their assumptions.

In other words violent actions of police disconfirmed expectations, thereby inducing increased uncertainty within peaceful groups. Violence against police did not occur until the extreme groups had become the prototypical standard from which to understand the social field. Members of the expanded protestor category were expected to be actively loyal to the group by supporting each other against police (Drury & Reicher, 2000). The self-definition of these 'moderate' protestors changed from 'responsible citizens' to people who felt they had a duty to fight oppression. The meaning given to the category of police changed from upholders of law and order to agents of political oppression. The redefinition of self and other was the only way to reduce the uncertainty created by their experiences (Drury & Reicher, 2000). Participants who had expected the violence did not change definitions or opinions as their preconceptions were affirmed. Put another way, Drury and Reicher (2000) found that contextual uncertainty was reduced through a change in self-definition. The

change in self-definition was achieved through a broadening of comparative fit and a change in the normative fit (and performance) of previously counter-normative behaviour because of the new meaning assigned to the behaviour. The stimulus for the change was competition against a more extreme outgroup.

Drury and Reichers' (2000) research suggests that intergroup competition facilitates a broadening of self-definition so that outgroup members can become ingroup members. Therefore it is not unreasonable to suggest that inter-functional diversity can become more normative after an intergroup competition. The reduction of uncertainty in the intergroup context would be consistent with a confirmation of expectations (Bernsden et al, 2001) whereas stability in subjective uncertainty may be consistent with a vestigial cynicism regarding inter-functional cooperation (Riketta et al, in press).

Jetten et al (2000a) have suggested internal diversity can serve an uncertainty reduction function if subgroups hold different areas of knowledge and contribute their specialised knowledge to the group task. The scavenger hunt process of Study two used questions intended to access factual knowledge more likely to be held by specific academic subgroups so that the knowledge diversity was useful for helping the group compete effectively. Knowledge diversity was complimented by physical activity, symbolic emphasis of social complexity within the cross-functional team, and intergroup competition. The suggestion is that the conditions were such that internal diversity would be seen as relevant to self-definition and task achievement. It is argued that the uncertainty reduction reported in competitive cross-functional teams is consistent with self-categorisation with an internally diverse group.

The idea that intragroup-intergroup diversity can become a self-prescribed norm is found in research where continuation of existing subgroup identities within a higher level identity (such as an academic subgroup allowed to exist within the cross-functional team) can

be associated with increased post-merger identification (van Leeuwen & van Knippenberg, 2003). Research has indeed found that a group can develop a collective belief that internal diversity is an asset and incorporate this into a social identity (van Knippenberg & Haslam, 2003; Haslam et al, 2003). Furthermore, the Waldzus et al (2003) research suggests that improvements in intergroup contact can be due incorporation of diversity into the normative standards of a superordinate group, an explanation consistent with the position of the current author. The suggestion is that pre-existing subgroup affiliations can serve as a source of shared self-definition and improvements in subgroup relations (Haslam et al, 2003). The cited research evidence would also suggest that the intergroup identity management strategy developed normative standards incorporating inter-functional diversity as prototypical for the cross-functional team.

The researcher is not trying to suggest that internal diversity would always become a normative feature of a group. It would generally be expected that a clearly homogenous group would serve uncertainty reduction purposes better than a group with many obvious interior divisions (Lau & Murnighan, 1998; Hogg, 2004). However, if intragroup diversity can be seen as relevant to uncertainty in self-definition (Hogg, 2004) and if intragroup intergroup diversity can be seen to be an asset to the group, then internal diversity can become a normative aspect of the group (van Knippenberg & Haslam, 2003).

From this perspective, the stability in social identification together with the stability in subjective uncertainty found in the intragroup condition would be consistent with difficulty in assimilating function based diversity into the depersonalised prototype (Voci, 2006). Uncertainty (and social identity) would have reduced in the intergroup condition because the group members were more ready to consider the cross-functional team an accessible self-category after an intergroup competition (Hogg, 2004) because participants experienced a

social frame where the internal function based diversity was seen to be part of, and useful to, the nascent cross-functional team identity.

For this argument to be credible it must be demonstrated that participants use the observable data to maximise the amount of information that can be used to make an accurate social judgment (Oakes, 1996). If, however, people use limited amounts of information, or if the dominant drive in social comparison is to simplify the environment, it may be that only a single social category will be recognised and used to guide social perception. In the current research this could mean a cross-functional team prototype would not contain inter-functional diversity as only one category could be recognised. Some research can be interpreted as supportive of the idea that social categorisation follows a simplification principle.

In research conducted in a setting similar to cross-functional teams, Hugenberg and Bodenhausen (2004) found membership in one category could inhibit accessibility of a higher order social category. Specifically, members of a 'Greek' fraternity were found to inhibit their student identities when the 'Greek' category became more accessible. In contrast, non-Greek participants did not inhibit their student identities, or even inhibit the recognition of 'Greek' related words when the category of 'Greek' was primed. This shows membership in one category can decrease the accessibility of a more inclusive category. These researchers suggested it was easier for a perceiver to suppress less dominant categories than to try and reconcile different norms and values between competing categories.

If applied to a cross-functional team, the findings of Hugenberg and Bodenhausen (2004) could suggest it is impossible for the internal diversity of a cross-functional team to become part of the category specification. The reasoning being that the organisational subgroups are likely to be more accessible than a relatively temporary work group, with no guarantee that subgroups would consider themselves complementary (Ashforth & Jounhson,

2001; van Knippenberg, 2000). However, there is some evidence that casts doubt on the argument that social categorisation serves an information reduction function.

Spears, Haslam, and Jansen (1999) examined whether varying levels of cognitive load would have an effect on categorisation and it was found that as load increased, categorisation decreased. Nolan, Haslam, Spears, and Oakes (1999) examined how normative fit of targets and different levels of cognitive load affected social categorisation. Similar to Spears et al (1999), increased cognitive load decreased social stereotyping, even where normative fit was high (Nolan et al, 1999). These researchers concluded that categorisation is therefore effortful, and not an exercise in reducing cognitive demands. Intergroup conflict research has shown simultaneous recognition of multiple identities is possible (Hornsey & Hogg, 2000c; Eller & Abrams, 2004). It can be suggested social categorisation is not an exercise of information minimisation or reducing cognitive demands and people are of actively attending to social complexity (McGarty, 1999; Brown & Turner, 2002; Brewer, 1999b).

Moreover, it is possible to reconsider Hugenberg and Bodenhausen (2004) as an instance where the social category assigned to the target was the one which made the most use of the available information. For example, priming a category did not influence reaction time, categorical information conferring category membership was necessary before reaction times were affected. There was no inhibition of the category for any participants than for those with a salient Greek categorisation (including Greek controls). As Hugenberg and Bodenhausen (2004) noted, it was the added meaning of the Greek self-category, conflicting with the standard student category, which inhibited accessibility of the student category. There was no inhibition reported by those who perceived no conflict between the two categories. These results suggest priming may make categorical knowledge accessible but the knowledge is interpreted in consideration of all information available within the context

(McGarty, 1999; Brown & Turner, 2002). For example, Onorato and Turner (2004) found the social frame was more influential than 'group' or 'personal' primes for self-categorisation.

In other words, the context provides data that informs the way a primed category is interpreted (Brown & Turner, 2002). A primed category will become accessible if it enables elaboration, rather than simplification, of information in the social context. Therefore, it is not inevitable that all but one category will be inhibited as long as there is compatibility between the categories within a specific context. Incoming data increases the salience of a particular social category because of the social meaning implied by the observed behaviour (McGarty, 1999). This idea is supported by Blanz and Aufderheide (1999) who found presentation of information with higher levels of normative fit to a particular social category increased the salience of that category and decreased the salience of a competing category. The suggestion is that participants from the present study were capable of actively attending to, and interpreting, all of the information presented in each condition. Therefore it is reasonable to suggest that post-task levels of uncertainty partially reflect whether the information within either social frame allowed inter-functional diversity to make sense as part of the nascent cross-functional team identity.

It should also be noted that, as pre-task levels of subjective uncertainty did not have statistically significant relationship with the post-task levels of uncertainty, the current results cannot be attributed to individual differences in uncertainty aversion. Confidence that the results can be related to the different identity management strategies derives from the difference in effect sizes between contextual conditions in both intragroup and intergroup analyses. Satisfaction of individual certainty need does not translate into increased social identification (Hodson Sorrentino, 2001). Furthermore van Knippenberg and Haslam (2003) demonstrate that it is shared value accorded to diversity, rather than composition beliefs held by individuals, that contributes to identification with internally diverse groups.

Individual differences and cognitive economy may be discounted relative to contextual differences in the amount of information available for making a social judgement. However, the measure of uncertainty used in the current research only measured two aspects of uncertainty. These being task and environment related uncertainty. Inclusion of both task and environment uncertainty in the current research was based on observations that early measures of subjective uncertainty may have lacked sensitivity by not explicitly accounting for the environment (Hogg & Mullin, 1999).

In the same vein, it is feasible that the measure used in the current research would have benefited from inclusion of prototype related uncertainty Chattopadhyay et al (2004). For example, an item such as “I know what the essential features of this group are” might be included in a comprehensive subjective uncertainty measure. Branscombe et al (2000) found those who feel uncertainty about ingroup acceptance will engage in more prototypical behaviours. Therefore it is possible that uncertainty could be measured with items related to the degree to which they feel accepted or rejected into a superordinate group such as a cross-functional team on the basis of their subgroup membership. Abrams et al (2004) note that violations of expectancies can cause uncertainty. This suggests assessing what is expected of a member of an ingroup (normative fit) could be included in a measure of subjective uncertainty. Comparative fit based expectancy could be measured with reference to whether behaviour would be ‘more typical’ of the ingroup or a contextually relevant outgroup. Given subjective uncertainty is related to self-definition (Hogg, 2004) it may be possible to measure uncertainty as it relates to group membership. For example, “I am not sure if I should think of myself as a member of group X or Y in the current situation”.

Subjective uncertainty summary.

In summary, the intergroup identity management strategy proved superior to the intragroup strategy measured as post-task levels of subjective uncertainty. Even though

losing teams reported uncertainty levels equivalent to the intragroup condition, the direction of the change (a decrease compared to statistically non-significant increase) and effect sizes support the idea that uncertainty reduction will be better facilitated by the intergroup identity management strategy regardless of contest outcome. The current results can be explained with reference to the meta-contrast ratio of SCT. The intergroup condition provided more opportunity for both comparative and normative fit to be judged whereas only normative fit could be judged in the intragroup condition. Potentially, this would make it appear more sensible to consider inter-functional diversity prototypical in the intergroup than the intragroup condition. The pre-task level of perceiver readiness to adapt the cross-functional team as a self-category would have been capitalised on by the greater salience of the cross-functional team social identity in the intergroup than intragroup condition. Past research supports the idea that an intergroup context provides a scenario where inter-functional diversity (and attendant informational diversity) could become incorporated into a depersonalised prototype for the cross-functional team. This can be expected to be particularly relevant on cross-functional teams.

When subjective uncertainty is considered together with the pattern of results found for the levels of social identification the current research is consistent with the uncertainty reduction hypothesis of SCT. Individual differences in uncertainty aversion cannot account for the current results nor can results be attributed to a drive to minimise cognitive expenditure. It may be possible for a more comprehensive measurement of subjective uncertainty to allow for closer examination of the basis for subjective uncertainty movements in cross-functional teams in future research.

Conceptual representation of the aggregate.

H2b proposed that members of cross-functional teams would develop a perception of the cross-functional team as a situation where multiple identities were simultaneously

meaningful. This could be evident in either of two forms. One option was an increase in single group conceptualisation with maintenance of the level of perception of the cross-functional team as a single group containing multiple subgroups (the complex form of the common ingroup identity model). The second option was for a simultaneous increase in the perception of the cross-functional team as both a single group and subgroups within the single group (subgroup relations model). The intergroup identity management strategy was expected to be more likely to promote a complex multiple group conceptualisation of the aggregate than the intragroup strategy.

Expectations were confirmed in terms of the intergroup process being more potent than the intragroup. Evidence for this is in the relative magnitude of the effect sizes for the within-groups repeated measures analysis. The effect size was always larger in the intergroup than the intragroup condition. There was a statistically significant pre-post difference for each conceptualisation in the intergroup context yet not one significant pre-post difference in the intragroup condition. Further, when there were statistically significant between groups differences, it was the intergroup condition that proved more effective for promoting social inclusion.

H2b was disconfirmed by the following results. Members of cross-functional teams (both conditions) felt conceptualisation of the aggregate as a single superordinate group was most applicable. In the intergroup condition there was a statistically significant increase in single group conceptualisation (from below to above the midpoint), a significant decrease in the multiple group conceptualisation (from above to below the midpoint), a decrease in separate groups conceptualisation (below midpoint to further below) and a decrease in the sense that the cross-functional team was composed of disconnected individuals (above the midpoint to below). The single largest post-task conceptualisation was of a single group, followed by subgroups within a single group, separate groups, and then separate individuals.

These results are consistent with the simple version of the common ingroup identity model rather than the complex version of the common ingroup identity model or the subgroup relations model. Therefore, participants from the intergroup condition did not develop a conceptualisation of cross-functional teams as one where multiple loci of identity were simultaneously salient.

In the intragroup condition there were no significant pre-post differences. In the single group conceptualisation the non-significant trend was for an increase from above the midpoint to even higher above the midpoint. It should be noted that an effect size of $\eta^2 = .52$ was found for the equivalent analysis in the intergroup condition. There was a non-significant decrease in multiple group conceptualisation (above to below midpoint), separate groups (below midpoint pre and post) and separate individuals (above midpoint to below). Although non-significant, a moderate effect size ($\eta^2 = .12$) would suggest the intragroup process did contribute to a reduction in perception of the group as separate individuals (Cohen, 1988; Minium et al, 1993). However, the intergroup process can be seen to be more influential given the larger effect size of $\eta^2 = .30$).

The highest post-task level in the intragroup condition was found for the single group conceptualisation, followed by 'subgroups in a single group', separate groups conceptualisation and then separate individuals. This pattern would be considered consistent with the simple common ingroup identity model if each conceptualisation were considered in isolation. However, if the post-task level of subgroups in a single group conceptualisation is considered in conjunction with the single group conceptualisation then participants from the intragroup condition appear to have developed a conceptualisation of cross-functional teams as one where multiple loci of identity were simultaneously salient.

The evidence that supports this conclusion is that the increased level of single group conceptualisation was accompanied by statistical stability in the multiple group

conceptualisation. Though the post-task level decreased from just above ($M = 3.65$) to just below (3.43) the scale midpoint the difference was non-significant and the effect size ($\eta^2 = .01$) minimal. This stability suggests the intragroup strategy allowed for maintenance of the pre-task level of subgroup conceptualisation while the single group conceptualisation increased. These results would appear to be consistent with the more complex form of the Common ingroup identity model (Gonzalez & Brown, 2003) rather than the Hornsey and Hogg (2000c) idea of simultaneous increases in both single group and multiple group conceptualisations. H2b predicted that this pattern of 'conceptualisations of the aggregate' would be more prevalent in the intergroup condition, however the intergroup condition was marked by conceptualisation of the aggregate as a single group. Therefore this result contradicts H2b. Conceptually, the SCT principle of 'functional antagonism' can be applied to explain this unexpected result.

According to McGarty (1999) functional antagonism is the tendency for categories at different levels of abstraction to be inversely related. In other words, when a higher order identity becomes more contextually relevant lower order identities become less so. Functional antagonism can be observed in the intergroup condition as the increase in single group conceptualisation from below to above the midpoint was associated by decreases at every other level of abstraction. However, this principle does not mean that multiple identity conceptualisations are impossible (McGarty, 1999). Haslam (2001) suggests that simultaneous awareness of multiple loci of identity does not contradict 'functional antagonism' if the content of the superordinate identity (such as the cross-functional team) contextualises subgroups as a prototypical feature of the superordinate identity. Self categorisation with a dual identity group is possible if it is contextually adaptive and the content of each social category is complimentary (Wenzel, 2000). The suggestion is that the intragroup context and the intergroup context differ from each other because features of each

social frame promoted a different balance in the relative salience of each level abstraction (Ashforth & Johnson, 2001).

In the present study there was a difference in the information available to participants for judging normative fit and comparative fit. Intergroup competition tends to increase the salience of a superordinate identity (Hogg & Terry, 2000). As only the intergroup condition had a competitive aspect, it can be suggested there was an avenue for increased salience of a superordinate level of categorisation in the intergroup condition that was unavailable in the intragroup condition (van Dick et al, 2005; Riketta et al, in press). It is possible that the maintenance of a multiple groups conceptualisation in the intragroup condition is due to the lack of an explicit standard from which to gauge comparative fit and the lower level of salience accorded an ingroup when there is no competitive outgroup within the social frame. In other words, an identity management strategy is more likely to encourage the idea that subgroups are compatible within a higher order group identity when the context is somewhat ambiguous (no outgroup) yet still contains elements (for example cooperation, symbols, common purpose) favourable to idea that there is a superordinate identity to unite subgroups. The rationale is that no single level of category abstraction would prove salient to the point where complex conceptualisations of the cross-functional team are not possible.

It should be noted that although the intergroup identity management strategy was associated with perception of the cross-functional team was a single group, instead of the more complex conceptualisation that was intended, this can still be considered a desirable outcome. For example Dovidio et al (1997) found acceptance of a common in-group identity mediated likelihood of helping an outgroup member. Gaertner et al (1993) found that the evaluation of representatives of subgroups based in ethnicity was improved if a common ingroup identity was salient. In contrast, Sidanius, Van Laar, Levin, & Sinclair (2004) found membership in an ethnic subgroup detracted from connection to a common ingroup and the

perceived level of social inclusiveness and perceived subgroup victimisation increased.

Banker and Gaertner (1998) found higher quality internal relationships within step-families when the family was seen as a common ingroup. In contrast, perception of a stepfamily as a dual identity detracted from stepfamily harmony. Intergroup contact research by Gonzalez and Brown (2003) found induction of a single group conceptualisation almost completely eradicated bias between subgroups.

Task groups can also benefit from development of a common ingroup conceptualisation. For example, laboratory research by Dovidio et al (1998) found development of a single group conceptualisation mediated a decrease in bias between subgroups performing a cooperative task. Duck and Fielding (2003) reported that leaders with membership in one subgroup can be evaluated positively (by members of the other subgroup) after making a decision that disadvantages the other subgroup if the decision is seen to be in the interests of a meaningful superordinate group. Jetten et al (2002a) found that employees reacted better to the prospect a merger between departments if identification with the organisation dominated the pre-merger identity. Eller and Abrams (2004) found employees from different ethnic subgroups reported lower levels of social distance and intergroup anxiety, accompanied by more favourable outgroup evaluation if the organisation was considered a psychologically important common ingroup.

Sethi (2000b), in an investigation of cross-functional teams, reported shared superordinate identity (with the cross-functional team as the superordinate identity) mediated increased product performance. Task interdependence, team longevity and physical proximity were not related to product performance. Cunningham and Challedurai (2004) found a common ingroup orientation reduced resistance to working in a cross-functional team and increased satisfaction with decision making processes. The impact of relative group competence on resistance to merging was mediated by perception of the cross-functional

team as a superordinate group. Field research by van Der Veegt and Bunderson (2005) found informational diversity was more likely to be an asset if the internally diverse task groups were accepted a common group identity. In contrast, Kane et al (2005) found resistance to information from an outgroup member (even if the outgroup member has a superior knowledge base) unless the parties shared a superordinate identity. This could be expected to have a negative impact on cross-functional team given the importance of knowledge integration for team effectiveness (van Knippenberg et al, 2004; Huang & Newell, 2003; Husted & Michailova, 2002; van Der Veegt & Bunderson, 2005). A logical conclusion may be that a cross-functional team will still benefit from the development of a single group conceptualisation as found in the intergroup condition of the current research.

It should also be noted that the author is not suggesting the more complex conceptualisation of the cross-functional team found in the intragroup condition is undesirable (Hornsey & Hogg, 2000c). There is considerable research to indicate that this is not the case. For example, Huo et al (1996) found unions were less combative towards employers when they simultaneously identified with the union and an employer. Eggins et al (2002) found acknowledgment of multiple loci of identities improved the perceived quality of an intergroup negotiation. Van Knippenberg and Haslam (2003) found a positive association between dual identification and group creativity. Dovidio et al (1995) and Gaertner et al (1999a) found that a multiple group conceptualisation lowered intergroup bias by improving evaluation of the 'outgroup'. Hornsey and Hogg (2000a; 2000b) found increased inter subgroup social attraction and reduced bias between those who had adopted a dual identity conceptualisation of a composite group. Leadership research has found a more positive reaction to an undesirable decision if leaders acknowledges both superordinate and subgroup loci of identity (Huo, Molina, Sawahata, & Deang, 2005).

Furthermore, a multiple identification strategy is generally considered effective for counteracting two deficiencies that may arise from creating a superordinate umbrella to improve intergroup relations. These problems are the rejection of superordinate group identity on the basis that the distinctiveness of the subgroup is threatened by merging with other groups (causing conflict) and that improved contact does not generalise to subgroup members not immediately involved as members of the common ingroup (Gaertner et al, 1999c; Hornsey & Hogg, 2000c; Brewer & Gaertner, 2001). Generalisation is likely to be of pragmatic importance in cross-functional teams as there is an expectation that the behavioural benefits from improved intergroup regard would lead to an improvement in the day-to-day relationships between different all members of functions with representation in a cross-functional team (Hitt et al, 1993; Schneider & Northcraft, 1999; Rothbart & Park, 2004).

On present results, following the intergroup identity management strategy could have lower utility as there is like to be a generalised improvement in inter-functional relationships. However, the relative importance of generalisation as an issue could be considered in light of the consistent pattern across the current results (increased trust, effort, social identification and uncertainty only in the intergroup condition) which suggests that the intergroup identity management strategy is more likely to improve the climate within the cross-functional team than the intragroup context.

Additionally, intergroup relationships have a dynamic quality (Eller & Abrams, 2004). It may be possible that the use of a cross-functional team by an organisation one occasion may not lead to an immediate generalised improvement in inter-functional interactions. It may take continued use of well managed cross-functional teams so that generalisation of improved inter-functional contact build over time. For example, Huang and Newell (2003) found positive past experiences with cross-functional teams led to the development of an increase in the generalised willingness to collaborate fully with

subsequent cross-functional teams. Sethi (2000b) found inter-departmental connectedness to be positively related to both superordinate identification and the longevity of the cross-functional team. Further, two studies (Eller & Abrams, 2004; Gonzalez & Brown, 2003) show dual identification did not prove superior to a single group conceptualisation for leading to generalised improvement in the evaluation of an outgroup. Gonzalez and Brown (2003) also found multiple identification and induction of a single group conceptualisation equally effective at reducing intergroup bias. The cited research suggests that the intergroup strategy is not necessarily inferior to the intragroup process (in terms of generalised inter-functional improvement) in the long term.

The present study also provides evidence that the simple single group conceptualisation of the cross-functional team was threatening to participants. The first point to make is that genuine social identification is voluntary (Dimmock et al, 2005). A person cannot be forced to adopt a desired identity and social identification will only develop if it makes sense to do so within the context (Van Dick, 2004). For example, research has demonstrated that the perceived discontinuity of a subgroup identity constitutes a threat reflected in low levels of single group conceptualisation and decreased social identification with the superordinate group (Van Dick et al, 2004; van Leeuwen & van Knippenberg, 2003). In the present study participants were free to provide any response they chose, so it can be assumed the increased post task social identification and associated single group conceptualisation ($r = .64$) were voluntary which indicates the intergroup identity management strategy did not threaten the distinctiveness of the cross-functional subgroups.

Post task trust increased which would be unlikely if there was a sense of threat within the cross-functional team (Brewer, 2001; Kramer, 2001). Additionally, there was no evidence to suggest participants felt intragroup intergroup status differences (either pre or post task) were of a level that would dominate social judgements within the cross-functional

team. The implication is there was no threat from either being a high status group forced to accept low status subgroups as equivalent to themselves or from low status groups forced to accept a subservient position within the cross-functional team (Branscombe et al, 2000). Research by Dovidio et al (1998) found that when equal inter-subgroup status is combined with the possibility for each subgroup to make a distinct contribution (as in the current research) the perception of a composite task group as a single group mediates improved inter-subgroup evaluations. The presence of equal status and distinct knowledge contribution suggests subgroup distinctiveness was preserved (Hornsey & Hogg, 2000c; Hewstone et al, 2002). The cited research would suggest that no threat was engendered through the increased conceptualisation of the cross-functional team as a single group found in the intergroup condition.

Further, winning or losing the contest was not related to statistically significant differences in any possible conceptualisation of the aggregate. In problematic cross-functional teams negative outcomes tend to motivate reciprocal inter-functional blame (Jassawalla & Shahittal, 1999). Being blamed by members of other subgroups detracts from level of perceived psychological safety within the group, increasing the likelihood that the group will fracture (West, 2002). Given that blame assignment would fall along subgroup divisions, and that being blamed for relatively poor group outcomes would be threatening to the positive distinctiveness of a subgroup, it would be expected that there would be resistance to the single group conceptualisation and increased separate groups conceptualisation (Cunningham & Challadurai, 2004). In the present research 'outcome' did not prevent increased single group conceptualisation, suggesting that losing the competition did not create blame centred threat to the distinctiveness of subgroups. Research suggests shared social identity can predispose people to display some charity towards ingroup members perceived responsible for failure (Vonk & Konst, 1998; De Crèmer, 2000). So it is possible

that the apparent inter-functional benevolence was due to the pre-task acceptance of the cross-functional team identity which can attenuate the severity of inter-functional antagonism (Jetten & Spears, 2003; Jetten et al, 2004).

It might be argued that the single group conceptualisation, although not threatening, might still detract from the value of the intergroup condition for developing cross-functional teams. Specifically, the ability to utilise the informational diversity held by each function is an important contributor to the effectiveness of the cross-functional team (Maltz & Kohli, 1996; Huang & Newell, 2003; van Knippenberg et al, 2004). Turner and Pratkanis (2000) suggest ingroup members may be tempted to agree with each other, effectively removing informational diversity from interactions, in the interests of protecting the cross-functional team from internal dissent.

However, the current researcher suggests that the information inherent within the social frame of the intergroup condition means conceptualisation of the cross-functional team as a single group will not lessen access of team members to the inherent informational diversity (Kane et al, 2005). Furthermore, although the single group conceptualisation was the most dominant, the second most prevalent conceptualisation of the aggregate in the intergroup condition was as subgroups in a single group, with a level just beneath the midpoint ($M = 3.17$). This level of awareness of the subgroup identities within the single group suggests participants have not abandoned connection to their subgroups are even though it was perceived to be a single group (Haslam et al, 2003). Eller and Abrams (2004) found that single group conceptualisations can become multiple group identifications over time as circumstances change. Ashforth and Johnson (2001) have suggested that in a hierarchical arrangement of identities there is no need for an 'all or nothing' approach to conceptualisation of the aggregate. Therefore, there is little reason to assume that the post-task dominance of the single group conceptualisation found in the intergroup condition means

there was a complete, irreversible abandonment of a future multiple group conceptualisation and nor will the cross-functional team no longer be able to access informational diversity (van Der Vegt & Bunderson, 2005).

It should be noted that the current results cannot be attributed to intrapsychic qualities of individual participants. Evidence for this is that the pre-test conceptualisations of the aggregate did not have a statistically significant relationship with any post-test conceptualisation. Nor can the results be attributed to the likelihood of receiving a reward or not. For example, it cannot be said that a single group conceptualisation was found in the intergroup condition because the winning teams were rewarded for the win and the multiple group conceptualisation was dominant in the intragroup context because there was no provision of a reward to provide a perception of unity. One reason to discount this possibility is that losing groups in the intergroup condition did not report a significantly lower level of single group conceptualisation than the winning group. Nor was any other difference in conceptual representation of the aggregate related to 'outcome'. In addition a considerable amount of research where extrinsic rewards have proven to be less psychologically potent than variables representing emotional involvement within a group such as social identification (van Dick et al, 2004; Bourhis & Gagnon, 2001; Turner, 2000; Zdaniuk & Levine, 2001; Van Vugt & Hart, 2004; van Dick, 2004; Chami & Fullenkamp, 2002; Huo et al, 2005; Duck & Felding, 2003). In other words the current results, although not strictly as predicted, are more likely to be substantive rather than artifactual.

Conceptual representation of the aggregate summary.

In summary, the intragroup condition was more likely to be associated with a more complex multiple group conceptualisation of a cross-functional team. Specifically, in the intragroup condition the increased single group conceptualisation occurred together with maintenance of the pre-task level of perceiving the cross-functional team to be subgroups

within a single group. This pattern is consistent with the more complex version of the of the common ingroup identity model. The intergroup strategy was associated with a more simplistic perception of the cross-functional team as most like a single superordinate group. The intergroup condition proved most effective for reducing the sense that the cross-functional team was a context of discrete individuals. The experience of a win or loss did not contribute to a between groups differences in the intergroup condition. The intragroup strategy, which effect sizes suggest is a 'weaker' context, would appear to be the technique of choice if attempting to promote perception of a cross-functional team as a single group containing subgroups. However, the comparative weakness of the intragroup strategy for changing the conceptualisation of the cross-functional team suggests it may be beneficial to establish some pre-task attachment connection to the group. Furthermore, the intergroup strategy had a more powerful and beneficial impact on other dependent variables and there was no sign of threat between subgroups despites perception of the cross-functional team as a single group. The value of informational diversity is not necessarily lost if a single group conceptualisation is dominant in the cross-functional team nor is generalisation of improvement in inter-functional contact necessarily precluded. Consequently there is still a firm basis for recommending the intergroup identity management strategy as the process of choice.

Distinctiveness threat.

H3 (b) was intended to examined whether distinctiveness threat from post-task inter-functional 'overlap' could be associated with either (or both) the intergroup or intragroup identity management strategies. The hypothesis was based in research of Jetten et al (1998) who the drive for intergroup differentiation was highest when there was moderate, compared to high or low distinctiveness. According to these researchers whether distinctiveness is moderate, high, or low can be gauged by measuring the level of perceived intergroup distance

(intergroup similarity as emphasised by SIT) and intergroup difference (intragroup heterogeneity) as emphasised by SCT. In the present study intra-subgroup heterogeneity refers to the difference within a functional subgroup. Similarity refers to the difference between subgroups within a cross-functional team (Jetten et al, 1998; Jetten et al, 2000c).

In the current study it was expected that the intergroup identity management strategy would be less threatening to the distinctiveness of subgroups than the intragroup context. Therefore heterogeneity and similarity were expected move in conjunction so that there would be either high distinctiveness (low intra-subgroup heterogeneity and low intragroup-intergroup similarity) or low subgroup distinctiveness (high intra-subgroup heterogeneity and high intragroup-intergroup similarity) within the cross-functional team (Jetten et al, 1998; Jetten et al, 2000c). Participants from the intragroup condition were expected to be more likely to report moderate distinctiveness (high intra-subgroup heterogeneity-low intragroup intergroup similarity OR low intra-subgroup heterogeneity-high intragroup intergroup similarity). The ensuing discussion combines the separate results for heterogeneity and similarity.

Intra-subgroup heterogeneity

There was a statistically significant trend for a reduction in intra-subgroup heterogeneity across the sample. Heterogeneity reduced in the intergroup context (from above to below the midpoint) but not in the intragroup condition where scores remained stable at the midpoint of the scale. H6 was supported as the outcome of the intergroup competition did not lead to a between groups (win or lose) difference in post-task heterogeneity. These results suggest the intergroup context was more effective at reducing intragroup heterogeneity than the intragroup context. The level of post-task heterogeneity did not differ between conditions. It would appear that an intergroup context better facilitates the

reduction of intra-subgroup heterogeneity than an intragroup context. However, the ultimate level of post-task heterogeneity did not differ between conditions.

Intragroup-intergroup similarity

There was a statistically significant general increase in intragroup-intergroup similarity. The post-task increase in similarity was significant in both the intragroup (from below to above the midpoint) and intergroup conditions (from below to above the midpoint). There was no difference in the level of post-task similarity between conditions. Consistent with H6, 'outcome' did not affect the post-task level of similarity reported in the intergroup condition. Members of cross-functional teams perceived a higher level of inter-functional similarity in both conditions with neither condition being more effective than the other. Therefore neither contextual manipulation was more effective for increasing intragroup-intergroup similarity.

Distinctiveness level

The overall pattern in differences in intragroup-intergroup similarity and differences in intra-subgroup heterogeneity would appear to contradict H3b. Specifically, experience of the intergroup condition was expected alleviate concerns for subgroup distinctiveness (either high or low distinctiveness) and the intragroup condition was expected to perceive the cross-functional team as a threat (moderate intragroup intergroup distinctiveness). However, there was an unexpected trend towards moderate intergroup distinctiveness within cross-functional teams from the intergroup condition. Specifically, the significant increase in similarity (from below ($M = 11.47$) to above the midpoint ($M = 17.46$)) coincided with a significant decrease in heterogeneity (from above the midpoint ($M = 11.60$ out of a maximum of 18) to approximately on the midpoint ($M = 9.74$)). In contrast, and contrary to H3b, participants from the intragroup condition reported less distinctiveness threat from interfunctional overlap than participants from the intergroup condition. Specifically, there was no movement in

heterogeneity coupled with an increase in similarity. Heterogeneity stayed around the midpoint of the scale while similarity shifted to slightly above the midpoint ($M = 16.50$ when 27 was the possible maximum). Given the emphasis on extremes of high and low in the original Jetten et al (1998) research, together with the fact only similarity changed, it cannot be said that the intragroup identity management strategy would lead to a moderate level inter-functional distinctiveness within the cross-functional team.

According to Jetten et al's (1998) original work low intergroup distance, as signified by high levels of intergroup similarity, and low levels of intra-subgroup heterogeneity creates moderate amounts of distinctiveness. In this case the groups cannot be seen to be different, yet are not so similar that the differences can be ignored. Hence efforts to increase intergroup differentiation occur as a means of emphasising the distinctiveness of each group (Jetten & Spears, 2003). This suggests use of the intergroup identity management strategy may give rise to problems within a cross-functional team because the distinctiveness of each subgroup is threatened (Brewer, 1996; Jetten et al, 1998; 2000c; Hornsey & Hogg, 1999). While this might suggest the intragroup identity management strategy may be superior to the intergroup strategy for minimising distinctiveness threat in cross-functional teams, there is a basis for rejecting this conclusion. In particular, the difference between identity management strategies conditions was not statistically significant for either similarity or heterogeneity. This suggests that the two strategies were of comparable impacts in terms of creating moderate distinctiveness within the cross-functional team.

It should be noted that the level of heterogeneity reported by participants from the intergroup context, although decreasing, did not become extremely low. This is relevant as Jetten and Spears (2003) note that it is at extreme levels of intragroup homogeneity and intergroup similarity that intergroup contact becomes threatening. In fact, the post-task level of heterogeneity approximated the midpoint. The implication is that the intergroup process

did not actually constitute a setting of moderate distinctiveness. If other dependent variables are considered together with heterogeneity and similarity the case could be made that the intergroup identity management strategy is more useful than the intragroup. For example, self-definition with the cross-functional team, trust, and effort were all found to increase in the intergroup condition whereas stability was generally found in the intragroup condition. Therefore there was no evidence of higher levels of ingroup bias within cross-functional teams in the intergroup condition.

It could be noted that trust would not be expected to increase if the cross-functional team climate was threatening (Brewer, 2001). Status differences can also be a source of distinctiveness threat (Haslam, 2001). In this study participants were not particularly aware of inter-functional status differences either before or after task performance. This result also suggests there was little distinctiveness threat within the intergroup condition. Nor did the outcome of the competition have a significant relationship with post-task levels of heterogeneity or similarity. In other words there is little evidence that distinctiveness of a function based subgroup was threatened by post-task inter-functional overlap suggesting there is little reason to believe the intergroup identity management strategy would increase resistance to integration within the cross-functional team (Ricketta, 2002; Brewer, 1996; Haslam et al, 2003; van Knippenberg et al, 2002; 2004).

The current researcher suggests that the intergroup context did not become one of threatening moderate intragroup intergroup distinctiveness because people identify and self-categorise with groups that are accurate reflections of themselves within the comparative context (Turner, 2000; Hogg, 2004; McGarty, Spears & Yzerbyt, 2002). One relevant contextual feature is the experience of an intergroup competition on behalf of the cross-functional team (Ricketta, 2005a). Cooperating to beat another group would promote an assimilative mindset, allowing those representing different subgroups to be seen as

compatible and comparable (Broemer & Diehl, 2004; Rothgerber, 1997; Wilder & Thompson, 1988). Furthermore, intergroup competition would tend to increase the salience of the shared cross-functional team social identity (Hogg & Terry, 2000; Ashforth & Johnson, 2001). The acceptance of which is indicated by conceptualisation of the cross-functional team as a single group by participants from the intergroup condition.

A further possible issue which may be inferred to have had an impact (although it was not measured) is that of relative prototypicality between each subgroup within the cross-functional team. Prototypicality is relevant in this context because it has the potential to serve as a moderator of the distinctiveness-differentiation relationship (Jetten & Spears, 2003). Past research has demonstrated that those who see themselves as more prototypical of a superordinate category tend to be negative towards those of less prototypicality (Waldzus et al, 2003; Weber et al, 2002). For example, in Study one of Jetten et al (1997) it was found that threat induced through either overlapping group boundaries (Study one) or minimising intergroup distance (Study two) would motivate ingroup bias on the part of those who considered themselves most prototypical for the ingroup. Peripheral group members did not display in-group bias when distinctiveness was threatened. In other words, the more prototypical group members believe they are relative to another subgroup, the more likely there is to be efforts at differentiation in order to preserve the distinctiveness of the subgroup within the cross-functional team.

The absence of intragroup-intergroup differentiation suggests that no one considered themselves to be more prototypical for the cross-functional team. As a group with no existence outside of the present research setting, the cross-functional team would have no established prototypical standards. If no one can be considered 'more prototypical' then no one is 'more peripheral'. Consequently there would be no reason for relative prototypicality to form the basis of a perceived distinctiveness threat (Jetten et al, 1997). If this reasoning is

followed then there was no inter-functional differentiation as no subgroup was perceived to be more peripheral or prototypical than any other member subgroup.

However, social actors quickly and actively strive to make sense of who they are relative to others within a shared social field (Brown & Turner, 2002). Research reviewed by Yzerbert et al (2004) suggests it is possible for participants to construct an idea of the ingroup prototype before task performance by assuming that they themselves embody the prototype of the group. Yzerby et al (2004) noted that provision of information relevant to determining the essential nature of the group was found to facilitate the belief that group members were more compatible after performance of a task compared to those where no essentialist information was made available. In the intergroup condition there was information stressing the presence of intragroup intergroup diversity, a basis for intergroup connection in the presence of a competitor, and the need to integrate the informational diversity within the group for successful task completion. The implication is there was sufficient information for participants to construct an idea of the ingroup prototype. In any case, there would be a basis for judgment of relative prototypicality before providing post-task responses by virtue of their actual experience within the cross-functional team during task performance. Therefore, if there was distinctiveness threat there would be bias evident in post-task responses. The absence of bias can therefore be interpreted as suggesting there was no distinctiveness threat, despite obvious overlap between functions within the boundaries of the cross-functional team.

Jetten and Spears (2003) have developed a model meant to account for the distinctiveness-differentiation relationship. Their model includes influence from moderators such as social identification and the salience of superordinate categories. Within this model, the salience of a superordinate category will motivate different levels of differentiation depending on whether distinctiveness is low, moderate or high. Given that the cross-

functional team was accepted as a salient superordinate category in the intergroup context (as represented by post-task social identification, subjective uncertainty and the dominance of the single group conceptualisation), and assuming the trend to moderate distinctiveness, the model would predict a moderate drive for positive differentiation within the cross-functional team. However, the acceptance of the cross-functional team identity would be predicted to increase the sense that group members share basis for connection in terms of values, norms and beliefs. Jetten and Spears (2003) argue that increased similarity, as found in the present study, would remove the need for intragroup intergroup antagonism while the likelihood of cooperative interaction is increased. If this is the case then the decrease in intra-subgroup heterogeneity, which would be expected as a response to threat within the cross-functional team (Rothgerber, 1997), was prevented from reaching the extremely low levels signifying moderate distinctiveness by virtue of the connection to the superordinate identity (Jetten & Spears, 2003). Application of the Jetten and Spears (2003) model to the intergroup condition suggests that the acceptance of the cross-functional team as a shared social identity reduced the threat any threat based inter-functional overlap being 'moderate'.

One implication is that moderate distinctiveness, although a potential cause of intergroup friction (Jetten et al, 1998) need not always cause trouble if there is a salient superordinate social identity group. A second implication, consistent with an earlier idea asserted by the current researcher, is that a single group conceptualisation of the aggregate does not preclude the denial of diversity within the boundaries formed by the superordinate group. The available social information, and the nature of the problem solving task, would favour the construction of a prototype featuring inter-functional diversity as a valuable asset. This would mean overlapping group boundaries do not threaten distinctiveness of subgroups (van Knippenberg & Haslam, 2003). The absence of distinctiveness threat would be

expected to facilitate the openness to the informational diversity within the cross-functional team (van Knippenberg et al, 2004; Lovelace et al, 2001; Kane et al, 2005).

It must be acknowledged that this aspect of the current research provides more avenues for future research than firm answers. This can, in part, be attributed to the measurement of heterogeneity. The same scale was used in both studies so that was consistency of measurement between Study one and Study Two. However, it is possible a measure of heterogeneity that was suitable for a mono-functional team (Study one) is not necessarily suitable for use in cross-functional teams (Study two). The reasoning is Jetten et al (1998) refer to heterogeneity as a marker of intragroup variability, and so the heterogeneity items refer to 'this group'. However it was not specified to participants that 'this group' was the functional subgroup. It is possible participants could think the cross-functional team is 'this group' rather than their subgroup. A better item might follow the lines of "Members of my functional group are very different from each other".

In addition, it is conceivable for social identification with the functional subgroup relative to the cross-functional team (van Knippenberg et al, 2004) to play a role in the distinctiveness-differentiation relationship (Jetten et al, 2004). Research has found social identification with a pre-merger subgroup can influence attitudinal and behavioural outcomes commensurate with the acceptance or resistance of the superordinate identity (van Dick et al, 2004; van Leeuwen & van Knippenberg, 2003). However, it can be argued that even if participants were responding to the word 'group' as representing the cross-functional team (instead of subgroups) that the internal diversity within the cross-functional team was discounted as a basis distinctiveness threat. The reason being that accepting psychological equivalence with members of other subgroups must be considered safe before the cross-functional team could be psychologically accepted as the 'group' (Hornsey & Hogg, 2000c; Jetten & Spears, 2003; Jetten et al, 2004). Increased social identification with the cross-

functional team and increased trust does suggest the subgroup and cross-functional team membership become more congruent post-task (Scott, 1997; Scott et al, 1999; Scott, Cornetto, Tumlin, Marlowe & Marable, 2001). Although this might appear to be a reasonable supposition, other researchers have suggested that future research into the effect of distinctiveness level (low, moderate, high) on differentiation in multiply categorisable groups would benefit from assessing the effect of congruence between different loci of social identity within a cross-functional team as a potential moderator of inter-functional distinctiveness and differentiation. (Jetten & Spears, 2003; Scott et al, 1997; 1999).

Distinctiveness threat summary.

In summary, the intragroup condition was not associated with intergroup differentiation based in distinctiveness threat within a cross-functional team. However, the intergroup condition did lead to a shift of heterogeneity and similarity that would be consistent with a move towards moderate intragroup intergroup distinctiveness. Moderate distinctiveness has been associated with an increased drive to differentiate the ingroup from the outgroup which is not desirable within a cross-functional team. However, concluding that the intragroup strategy was less threatening than the intergroup condition is questionable. Changes in other dependent variables such as trust and social identification suggest that there was little perceived need on the part of those from the intergroup context to differentiate one subgroup from another. This was true even for losing teams. It is suggested there was little perceived threat to subgroups despite the trend towards moderate intragroup-intergroup overlap. The researcher proposes the intergroup context can be associated with increased salience of the cross-functional team as a source of superordinate identification which removes any threat from moderate inter-functional overlap. Future research with measures of heterogeneity tailored to cross-functional team would be more informative, especially if

complimented by assessment of the impact of congruence between the different loci of social identification the cross-functional team and the cross-functional team itself.

Effort and group trust

H4 was concerned with post-task levels of effort and trust. The results for 'effort' (h4a) will be addressed first. H4(a) predicted that effort would increase in both the intragroup and intergroup conditions. However, there was no significant within group difference between pre-task and post-task levels of effort reported by participants from those from the intragroup condition. In contrast, those from the intergroup condition met expectations of H4(a) as a significantly higher post-task level of effort was found. As predicted, the difference between the intragroup and intergroup condition was significant with higher post-task levels of effort found in the intergroup condition. As predicted by H6, 'outcome' did not have a statistically significant impact on post-task levels of effort. The implications of these results will now be addressed

Effort.

The increased level of post-task effort reported by members of cross-functional teams from the intergroup condition can be expected to have positive outcomes for organisations. For example, Yeo and Neal (2004) found a positive relationship between effort and skill acquisition that increased in strength over time. Brown and Leigh (1996) found effort to be a significant predictor of performance while Weingart (1992) found effort mediated the positive relationship between group goal and group task performance. In the current research a statistically significant increase was found only in the intergroup condition. The difference between intragroup and intergroup contexts also proved significant, with higher effort intent reported from the intergroup condition. Therefore it can be suggested that members of cross-functional teams may be willing to exert more effort after experiencing the intergroup process than the intragroup process.

The current author assumed, and a body of research (including Study one) would suggest, that increased willingness to exert effort would be related to an increase in social identification (van Knippenberg & van Schie, 2001; Veenstra & Haslam, 2000; Haslam, 2001; van Knippenberg, 2000; Haslam et al, 2000; Wegge & Haslam, 2003; van Knippenberg & Ellemers, 2003). Correlations from the intragroup condition between effort and both post-task social identification ($r = .65$) and subjective uncertainty ($r = -.67$) suggest effort was positively related to self-definition as a member of the cross-functional team. It should be remembered that neither social identity nor uncertainty changed significantly in the intragroup condition. Similarly there was neither a significant increase nor decrease in effort was reported by participants from the intragroup condition. However, it could also be noted that both pre-task ($M = 24.95$) and post-task levels of effort ($M = 26.25$) were above the scale midpoint. Accordingly it can be assumed participants were willing to expend some energy towards meeting the goals of their team both before and after experience of the intragroup condition. In other words, the intragroup strategy would not motivate participants to work harder, but nor would it cause social loafing.

Social loafing signals a motivation to conserve effort when working in a collective setting (Plaks & Higgins, 2000). Social identity and effort should have a positive association (Haslam et al, 2000; Barreto & Ellemers, 2000; Riketta, 2005b). The pre-task levels of social identity and uncertainty show a predisposition to identify with the cross-functional team. So it can be inferred that shared self-definition may be related to a lower incidence of social loafing in cross-functional teams following experience of the intragroup identity management strategy. Karau and Hart (1998) reached a similar conclusion after finding participants in less cohesive groups would work harder only when personal performance was compared to individuals (coactive condition) rather than groups (collective condition). In highly cohesive teams performance did not differ between coactive and collective conditions. The suggestion

is that organisations relying on interaction within the cross-functional team to build the desired inter-functional connections (similar to the intragroup condition) may lessen the incidence of social loafing through encouraging pre-task social identification with the cross-functional team.

In the intergroup condition effort changed only in the intergroup condition. In this effort was similar to social identity (increased) and subjective uncertainty (decreased) which implies an association in the present research between social self-definition with a group and willingness to exert effort on behalf of the social identity group (Haslam et al, 2000; Barreto & Ellemers, 2000; Riketta, 2005b). Researchers have suggested that this is due to the meeting of 'social self-interest' through exertion of effort towards the needs of a social identity (Wegge & Haslam, 2003; van Knippenberg & Ellemers, 2003). This implies that the intergroup identity management strategy will motivate more effort from participants because there is more alignment of the socially defined self with a cross-functional team than in the intragroup condition. However, the correlation between social identification ($r = .24$) and effort was lower in the intergroup context than the intragroup context while the correlation between uncertainty and effort was small and non-significant ($r = -.05$). The suggestion is there was less association between post-task self-definition (implied by the results for social identity and subjective uncertainty) and effort in the intergroup than the intragroup condition, even though it was only in the intergroup condition that effort increased in tandem with social identification. This is difficult to reconcile with the assumption that effort for a group should be greater where there is a greater correlation with social identity.

The suggestion is that could be an alternative explanation for the lower post-task level of effort in the intragroup condition to one based in the assumed positive relationship between effort and social self-definition. The difference between conditions cannot be explained as a result of individual differences as pre-task effort intent was not a statistically

significant covariate. However, it could be that there was a difference between conditions in the chance of receiving a reward.

In the intragroup condition there was no reward. Participants were even deprived of an affective reward such as achievement satisfaction as the groups were not told if their answer was correct. In the intergroup context the reward was made available to the winning team. If rewards were the reason for increased effort intent then the absence of a reward in the intragroup condition could explain the lower level of post-task effort intent relative to the intergroup condition. However, only members of winning teams received a reward and there was no difference between winning or losing teams in terms of post-task levels of effort. Both winning and losing teams reported higher post-task levels of effort than the intragroup teams. Furthermore, research shows rewards are most effective as motivators when there is congruence between the reward and the level of social interaction required to perform the task (Wageman, 1996; Wageman & Baker, 1997; Haslam, 2001). The scavenger hunt is a group level task yet the reward went to the individual group member. The suggestion is that any positive effects of getting a reward for being successful in the intergroup condition are constrained by the mismatch between an individual level of reward and the social structure (uniforms, instructions, group as basic social unit, cooperative task) inherent in the research context.

Moreover, Wageman (2001) and Ortiz, Johnson, and Johnson (1996) found that outcome interdependence does not increase cooperative behaviours. Tyler and Blader (2001) found that social identification accounted for 15% more variance in extra-role behaviour than was accounted for by individual rewards. Similarly, Haslam et al (2000) found that meeting individual needs does not lead to increased extra-role behaviour. Walker et al (*in press*) found extrinsic motivators did not predict effort on the part of those who strongly identify with a group. Research has shown that people will continue to contribute to a group, even

though they know that there would be more personal gain if they abandoned the group (Van Vugt & Hart, 2004; Zdaniuk & Levine, 2001). Considered together, the cited research supports the contention that the increased effort cannot be attributed to the presence or absence of a reward.

An alternate explanation could be derived from the Goal Setting theory of motivation which proposes ambiguous goals and an absence of feedback should be related to lower motivation (Locke & Latham, 2002) and therefore lower levels of effort relative to groups with more concrete goals (Locke, 2000; Winters & Latham, 1996). It may be possible to argue that participants in the intragroup condition did not have a concrete goal as they were asked to solve a problem, but knew that they would not be told if their solution was correct or whether they performed better than other groups. In the intergroup context there were clear goals (solve each clue and beat the outgroup) with concrete indices of goal attainment (find each piece of their idol and win or lose). Therefore the lower level of effort found in the intragroup condition could be the result of relative goal ambiguity. The fact that effort remained stable in the intragroup condition may be expected if the group as a whole felt confident they were equal to the task (Locke & Latham, 2002) but did not receive the performance feedback necessary to inspire an increase in effort. However, goal setting theory also states that lower performance would constitute negative feedback.

Negative feedback increases effort relative to groups who are successful (Locke & Latham, 2002). If this idea were applied to the intergroup context, it would be assumed that the successful teams would remain stable while the losing teams signalled willingness to increase effort (Locke & Latham, 2002). Instead, both winning and losing groups signalled a willingness to exert themselves more for the group. There was no difference in post-task effort intent between groups in the intergroup context. This suggests that effort reflected more than the motivational effect of different goal states.

Locke and Latham (2002) note that for goals to instigate increased effort there must be commitment to the goal, and the goals must be considered important. Self-definition may be an important reason for goals to become important and worthy of commitment. This idea is supported by research such as Williams and Sommers (1997) where social loafing was eliminated when participants were faced with social exclusion. Brunstein (2000) found the importance of feedback for motivation and effort was related to commitment to a professional identity, and opportunities to affirm the professional identity. Negative feedback only resulted in increased effort and openness to future feedback on the part of those who had stronger commitment to a professional identity. Those with low commitment would decrease effort. In Worchel et al (1998) all groups had the same goal, yet there differences in performance between groups. Highest productivity was found when social identity was salient in a competitive intergroup context. Lowest productivity was found when social identity was salient in an intragroup context. Productivity was partially mediated by social identification. The Worchel et al (1998) findings are similar to the current research in that the lowest effort was found when social identity was salient in an intragroup context. The cited research supports the contention that a positive association between goal acceptance and effort is strongly related to the relevance of the social identity to group member self-definition (Wegge, 2000).

Another alternative perspective is that the increase in effort reflects a judgment that the members of the team were incompetent. Plaks and Higgins (2000) conducted four studies where effort increased when a partner was a member of a group that was stereotypically incompetent. If this were so, then the current results would constitute a warning sign in an actual organisational cross-functional team. For example, increasing effort in response to stereotypical incompetence may be expected to reinforce the negativity of the stereotype, create intragroup tension centred in unfair contribution of labour, and reinforce cynicism with

regards to cross-functional teams. However, the current results would suggest that the increased effort was not a form of social compensation based in the predisposition to assume other subgroups were incompetent. Specifically, participants from the intergroup condition did not report increased intragroup-intergroup status difference while intragroup-intergroup trust increased. These results are relevant given that competence was used in the status measure as a status marker (Terry et al, 2001; Terry, 2003) and a basis for trust or distrust (Gill et al, 2005; Mayer et al, 1995; Mayer & Gavin, 2005) in organisational settings. The suggestion is the reported increase in effort does not represent a perception that team members need to compensate for stereotypical incompetence of another subgroup.

The current results are inconsistent with an effect of individual differences, reward, goal state, or perceived incompetence. Further, the difference between pre and post task levels of social identification signify that members of cross-functional teams in the intergroup condition began closer to the intergroup end of the theoretical interpersonal-intergroup continuum and moved even further away from the interpersonal toward the intergroup level identity during the course of the study. All the data suggests that the increased level of post-task effort intent would reflect the perception that effort on behalf of the cross-functional team is exerted on behalf of a contextually important social self (Van Knippenberg, 2000) which suggests finding stronger correlation between effort and self-definition in the intragroup condition might be artifactual. For example, the current effort measure was designed to measure task intensity (Brown & Leigh, 1996).

The concept of contextual performance has been invoked to explain the idea that effort can be social, as well as focused on the core task of the group (Johnson, 2001). Previous researchers have noted that effort exerted towards contextual performance, rather than task focused effort, may be of particular concern when it is necessary to make use of informational diversity and intergroup assistance (Ehrhart & Naumann, 2004; Van

Knippenberg, 2000; Van Knippenberg et al, 2004; Johnson, 2001). It maybe that the competitive social frame required a higher level of contextual performance. For example, deciding whether representatives from other subgroups could *really* be relied upon to act as allies (Brewer, 2001; Abrams et al, 2004), than in the relatively placid intragroup social frame. Alternatively, the intragroup problem solving task did not explicitly require the same level of knowledge diversity and so, pragmatically speaking, there would be less need to breach the social boundaries between functions. In turn there could be more task effort but lower contextual effort required when compared to the intergroup condition. These two ‘explanations’ are acknowledged to be hypothetical, but they are reasonable enough to suggest that a measure of social ‘psychological integration effort’ may have resulted in stronger correlations between self definition variables (social identity and subjective uncertainty) in the intergroup condition than was achieved with a purely task focused effort measure.

Effort summary.

In summary, the intergroup condition was superior to the intragroup condition in terms of its effect on increased effort. There was no decrease or increase in effort in the intragroup condition. This suggests social loafing may be minimised if relationships are managed using an intragroup context, but effort would not be expected to increase. Given the desirability of increased effort for an organisation, it can be suggested that managing the relationships inside a crossfunctional team with an intergroup context will be more beneficial. It is suggested that post-task effort increased because the cross-functional team became more relevant as a source of social self-definition in the intergroup condition but remained stable in the intragroup condition because self-definition remained stable. Effort, social identity and subjective uncertainty changed in the intergroup condition but remained stable in the intragroup condition. However, correlational evidence suggests effort had a stronger

relationship with self-definition as a member of a cross-functional team in the intragroup condition than in the intergroup condition. The current results cannot be explained by individual differences, individual reward, or differences in goals between conditions which suggests the difference between post-task effort between conditions does greater the superiority of the intergroup condition for building social psychological connections to the cross-functional team. The author suggests the present correlational anomaly could be explained by measurement error and that future research into effort in cross-functional team settings may benefit from measuring contextual performance in addition to task performance.

Group trust.

Results were partially consistent with H4(b) as trust only increased from pre-task to post-task in the intergroup condition whereas an increase had been predicted in both conditions. H4(b) was supported by the finding that there was a higher post-task level of trust found in the intergroup condition than the intragroup condition. As predicted by H6, the 'outcome' of the contest did not have a relationship with post-task levels of trust.

Research generally supports a positive association between higher levels of trust and outcomes such as task performance, effort, affective and relational commitment, and favourable attitudes towards a work group (Costa et al, 2001; Chami & Fullenkamp, 2002; Costa, 2003; Connell, Ferres, & Travaglione, 2003). Organisational citizenship behaviours are more prevalent where trust is high (Robinson, 1996; Korsgaard et al, 2002; van Dyne et al, 2000). The behaviour and decisions of the organisation are seen as more fair (Aryee et al, 2002; Brockner, et al, 1997; Robinson, 1996) and there is a more open approach to conflict resolution (Conlon & Hunt, 2000; Jehn, 2000; Simons & Peterson, 2000; Ambrose & Schminke, 2003; Korsgaard et al, 2002; Brockner et al, 1997; Pillai et al, 2001). Distrust is more likely to be associated with negative outcomes such as higher levels of absenteeism, turnover intention, cynicism, political behaviours (Cunningham & MacGregor, 2000; Connell

et al, 2003; Robinson, 1996; Anderson & Bateman, 1997; Wells & Kipnis, 2001).

Organisational citizenship behaviours, effort, psychological safety and less effective approaches to conflict resolution or debate are likely to decrease (Jehn, 2000; Edmondson, 1999; Anderson & Bateman, 1997; De Dreu & Weingart, 2003).

The cited research suggests increased trust results in both better relationships and increased group and organisational effectiveness. The current results found the intergroup process was more likely to lead to an increased level of post-task trust within a cross-functional team than the intragroup process. Therefore, due to the direction of the association between trust and the various outcomes mentioned above, it can be suggested that a cross-functional team will benefit more, and be more beneficial to the organisation, if the relationships within the team are managed at an intergroup level.

Research in the areas of knowledge integration and conflict management support this assertion as cross-functional teams need to be able to integrate the different perspectives and knowledge bases within each functional group if they are to be effective (Huang & Newell, 2003; Zolin et al, 2004). Attempting to integrate knowledge can create conflict due to the clash of different values, priorities, preferred means of approaching tasks (Zolin et al, 2004; Jassawalla & Sashittal, 1998; 1999; Jehn et al, 1999) or methods for dealing with conflict (Jehn & Mannix, 2001; Tjosvold et al, 2003). Whether the conflict is ultimately beneficial is partly dependent on whether conflict is task focused (in preference to relation focused) and partly dependent on how well the conflict processes can be managed (Van Knippenberg et al, 2004).

The management of task conflict for beneficial outcomes has been found to be related to the amount of trust that exists between the opposing parties (Simons & Peterson, 2000; De Dreu & Weingart, 2003; Jehn & Mannix, 2001; Peterson & Behfar, 2003). Where there is a higher level of trust there is less concern with regards to the motives of others (Tyler, 2003).

For example, Hwang and Burger (1997) found that distrust reduced cooperation through fear of being exploited. Research demonstrates that cross-functional teams will be better able to integrate knowledge and maximise the potential benefit of debating the relative merits of opposing views when there is trust between subgroups (Weber, 2002).

Maltz and Kohli (1996) found willingness to use knowledge from a functional outgroup depends on the perceived quality of the information which is predicted by trust. Lovelace et al (2001) found cross-functional team innovativeness and adherence to constraints such as budgets and schedules positively predicted by freedom with which team members could express task related disagreement and the manner in which disagreement was expressed. The best outcomes resulted when disagreements were low in contentiousness and high in collaborative intent. Expression of disagreement in a non-contentious, collaborative fashion would be a sign that a cross-functional team is psychologically safe. Psychological safety is positively associated with intragroup trust (De Dreu & Weingart, 2003; Edmondson, 1999; West, 2002). Therefore Lovelace et al (2001) suggests trust between members of a cross-functional team is necessary for both optimal effectiveness and maintenance of positive relationships in the face of inter-functional disagreement. This idea is corroborated by Jassawalla and Sashittal (1998; 1999) who reported that trusts across functional boundaries was necessary if effective cross-functional collaboration, as opposed to the appearance of collaboration, was to occur. Similarly, Tsai and Ghoshal (1998) and Obrien et al (2003) found that without trust there is likely to be resistance to cross-functional work practices. Zolin et al (2004) reported that inter-functional trust corresponds with acknowledgement that the outgroup function has fulfilled their obligation to the ingroup within their cross-functional team. The cited research supports the idea that higher levels of trust are necessary for a cross-functional team to be effective.

Consideration of the current study in conjunction with the cited research indicates the intergroup identity management strategy will increase the effectiveness of a cross-functional team while the intragroup condition would neither increase or decrease team effectiveness. The author suggests that there was higher post-task trust found in the intergroup condition than the intragroup condition because participants were more accepting of social identification and self-categorisation with the cross-functional team in the intergroup condition. While this causal relationship cannot be demonstrated in the present research the proposition is consistent with that of established researchers. For example, Van Knippenberg et al (2004) propose that increasing the accessibility of the cross-functional team and manipulating the fit of diversity to the cross-functional team would be important for removing the reasons behind resistance to information from other subgroups. In other words, the value of informational diversity will be realised once information is no longer processed through a filter coloured by distrust of outgroup functions because they are no longer a complete outgroup (Kramer, 2001; Brewer, 2001; Kane et al, 2005; van Der Vegt & Bunderson, 2005). The authors position is also consistent with SIT/SCT which would claim that when there is an increase in group trust accompanied by increased social identity decreased subjective uncertainty (as in the intergroup condition of the current study) the increased trust reflects the depersonalised perception of self and other ingroup members (Haslam, 2001. Hogg, 2004).

Brewer (2001) has suggested it is the domination of depersonalised trust over distrust that makes coordinated and mutually beneficial actions possible. Depersonalised perception serves to reduce uncertainty as to the motives of others which lowers the perceived level of vulnerability to exploitation while increasing the expectation that the trust will be reciprocated (Kramer et al 1996; Kramer, 2001; Brewer, 2001). For example, Tanis and Postmes (2005) found shared social identity formed the basis for behavioural expression of

trust because shared social identity lent a presumption of reciprocity. Tyler et al (1996) found disputants were more willing to resolve a dispute (even if this meant accepting instrumental losses) if they shared a dimension of social identity with those resolving the dispute. Ricketta et al (in press) suggest the development of swift trust within temporary work groups (as many cross-functional teams are) depends on the development of swift situated social identification.

There is also research that demonstrates the connection between social identification and trust within a cross-functional team. Zolin et al (2004) reported that membership in different identity groups (ethnic and function based) was sufficient to lower the perceived trustworthiness of outgroup subgroup members compared to an ingroup member. Maltz and Kohli (1996) found restriction of communication towards formal exchanges a sign of distrust and inter-functional conflict. Obrien et al (2003) noted most cynicism with regards to participation in a boundary spanning organisational intervention program was found amongst those with the lowest social identification. Kane et al (2005) found that the quality of new knowledge was not as important as perceived shared superordinate identity in determining whether knowledge from an 'outgroup' member would be used. Note, Kane et al (2005) would suggest that sharing social identification would promote knowledge transfer, implying a role for trust predicated in shared social identification (Maltz & Kohli, 1996; Tyler, 2003).

The body of research cited above supports the idea that trust within cross-functional teams is important for the ultimate effectiveness of the team. Further, social identification and self-categorisation processes can play a role in conferring an assumption of inter-functional trustworthiness. In the current research there is a positive association between trust and social identification and a negative association between trust and subjective uncertainty. These results imply a connection between self-categorisation, social identification, and intragroup intergroup trust in the current study. Having said this, the

strongest correlation between trust and social identification was found in the intragroup condition (intragroup $r = .66$, intergroup $r = .47$) as was also found for post-task subjective uncertainty (intragroup $r = -.45$, intergroup $r = -.33$). These statistics could be unexpected given that the differences between conditions in social identification, subjective uncertainty and trust were all in favour of the intergroup process. Furthermore, trust only increased in the intergroup condition, with the level of trust higher in the intergroup than the intragroup condition, as was also the case for social identity and subjective uncertainty. Moreover, Brewer (2001) would suggest the higher level of trust found in the intergroup condition (relative to the intragroup condition) can be partly attributed to the greater level of depersonalised self-perception and increased social identification found in the intergroup condition..

One possible explanation is that the stronger correlations between trust and social identity and trust and subjective uncertainty is not a true reflection of the connection between trust, identification and categorisation in the intergroup condition. An alternate explanation is that trust in the intragroup condition was based more firmly on social identity (which might explain why there was pre-post stability in trust, social identity and subjective uncertainty) but there some feature exclusive to the intergroup context, absent from the intragroup condition, and perceived by participants to be separate from social identity and uncertainty, influenced post-task levels of trust in the intergroup condition.

The author suggests participants from the intergroup condition would have more opportunity to display and observe behaviour in a more extreme and involving situation than the intragroup condition. This would allow for less ambiguity when making judgements of trustworthiness. Support for this idea comes from the behavioural basis of the trust measures items and the role observed behaviour plays in conferring trustworthiness. For example, Costa et al (2001) and Costa (2003) found the observance of cooperative behaviour

accounted for 57% of variance in total trust. Gill et al (2005) found ambiguity with regards to co-worker trustworthiness reflects a lack of behavioural evidence regarding the competence, integrity and benevolence of the co-worker. Gill et al (2005) suggest that even if an individual is inclined to be trusting before an interaction, the absence of behavioural confirmation of the others trustworthiness ultimately reduces their willingness to trust.

Research has found a connection between observation of trustworthy behaviours and levels of trust within a cross-functional team setting. For example, Zolin et al (2004) found that trust in cross-functional teams increased task commitments were met and also if a team member was seen to make a sacrifice for the team built trust. A person whose actions demonstrated a concern for saving themselves from sanction detracted from trust. It is reasonable to suggest it would be easier to make unambiguous displays of trustworthy behaviour in the scavenger hunt task than in the intragroup task. For example, watching team members stand together during an offensive or defensive passage of play, rather than running away and taking off the uniform may be a more obviously trustworthy behaviour than if a person concedes a point of logic in the intragroup problem solving task.

Lovelace et al (2001) found that being able to display disagreement and receive a collaborative, rather than aggressive response, did increase trust within a crossfunctional team. Such behaviour would have been observable inside the constraints of the intragroup condition. However, it would also have been observable within the intergroup condition. So it is possible the tendency to report higher trust after experience of the intergroup context may be partly due to a greater opportunity to display various forms of trustworthy behaviour within a more engrossing context. The author is not suggesting that social identification was a reason for participants from the intergroup condition to extend trust, but rather to make the point that social identity could have been complimented by unambiguous displays of cross-functional trustworthiness.

It should be noted that there was no decrease in trust reported in the intragroup condition; only a failure to find a significant increase or to reach the same level of post-task trust was achieved through an intergroup context. Therefore there was no reason to suggest that there would be a loss of trust if a problem solving activity without an intergroup element were used. It can also be noted that pre-task levels of trust were above the scale midpoint in both conditions. A score above the scale midpoint implies participants were ready to trust the entire team, even though they were aware that 2/3 of the team were normally outgroup members. Although it is not inevitable that intergroup contact would always be conflictual or marred by ingroup bias (Van Knippenberg et al, 2004), research in cross-functional teams would suggest distrust along function boundaries is generally the rule (Weber, 2002). This might suggest the current results may not be replicated in a context where there is a history of inter-functional acrimony. On the other hand, these results could also indicate the value of establishing trust early. For example, Robinson (1996) and Peterson and Behfar (2003) found higher levels of early trust led to less intragroup contention. Zolin et al (2004) found higher initial levels of crossfunctional trust to be associated with more benign interpretation of behaviour, and increased trust over time. Both previous research and current findings would suggest it could be useful to build trust as early as possible in the life of a cross-functional team..

Given that pre-task levels of trust were above the scale midpoint it may be both feasible and meaningful to build trust between members of the cross-functional team before there is any task-focused interaction (Weber, 2002). The positive association between social identification and trust (Tanis & Postmes, 2005; Brewer, 2001) suggests it may be possible to make the ground fertile for trust to grow by increasing social identification with the cross-functional team (or minimally with the idea of the cross-functional team as a social identity). (Spears et al, 2004) before there is any interaction (Kramer, 2001; Brewer, 2001; Weber,

2002). Research into electronically mediated communication has shown that trust (Jarvenpaa & Leidner, 1999) and social identification (Wiesenfeld et al, 1999; Postmes et al, 2000) can be increased without actual face-to-face meeting. This suggests electronic communication could be used to build pre-contact social identification with a cross-functional team. The content of such pre-task communications (similar to the pre-task information and instructions to participants in the current research) should stress the idea that informational diversity will be both a feature of, and an asset to the team (van Knippenberg & Haslam, 2003). Each function of origin could be acknowledged, while stressing that the functions are joined by membership on both the cross-functional team and the wider organisation. It has also been suggested that mentioning that the cross-functional team would play an important role in besting an organisational competitor would be beneficial (Hogg & Terry, 2000; Ashforth & Johnson, 2001; Riketta et al, in press).

The current results cannot be ascribed to the influence of individualistic factors. For example, the fact trust increased or remained stable but did not decrease cannot easily be reconciled with explanations based in individualistic concern for accountability. Concerns about accountability imply monitoring, which is associated with distrust (Costa et al, 2001; McAllister, 1995; Wells & Kipnis, 2001). Tanis and Postmes (2005) found trust is extended to those who share a social identity regardless of identifiability or anonymity. Research suggests only those with low social identification are motivated by personal accountability (Ellemers et al, 2004; Barreto & Ellemers, 2000). The increase in social identification reported in the current study implies accountability was not the motivator for enacting trust building behaviours.

Furthermore, individual differences in intragroup intergroup trust did not have a statistically significant relationship with post-task trust levels in either condition. Therefore

an individual's innate propensity to trust were not a factor in the present study (Costa et al, 2001; Costa, 2003; Williams, 2001; Cadenhead & Richman, 1996).

In addition, there is no evidence to suggest that the presence of a reward in the intergroup condition, but absence from the intragroup condition explains the difference between conditions. For example, there was no difference in post-task trust between winning and losing teams. However, all teams in the intergroup condition reported higher levels of trust than participants from the intragroup condition. If reward was the dominant issue then it may have been expected that losing teams (those who did not receive a reward) would have reported lower levels of trust. The fact trust increased, despite a losing to the other team, suggests the intragroup climate was benevolent, team members were believed to be competent, and that members did not feel an excessive amount of vulnerability from connection to the cross-functional team (Mayer et al, 1995; Brewer, 2001). Zolin et al (2004) found 'reward' a fragile basis for trust within cross-functional teams with observed behaviour being more predictive of trust development than reward importance. Intragroup subgroups engaged in reciprocal blame for a negative outcome have a tendency to differentiate themselves in the face of failure (Brewer, 1996). However, in the intergroup condition there was an increase in single group conceptualisation as well as increased trust. The implied absence of inter-function blame laying in the present study is important to the external validity of findings as blame laying is a progenitor of distrustful, ineffective cross-functional teams (Jassawalla & Sashittal, 1999; Weber, 2002; Husted & Michailova, 2002).

Research shows that losing does not always mean distrust if social identity is shared (Brewer, 2001). Vonk and Konst (1998) and De Cremer (2000) report that benevolent, contextual attributions made for ingroup failure while outgroup member failures are seen to be dispositional. In the present study there were increases in social identification and conceptualisation of the team as a single group. Increases were not significantly lower in less

successful teams. Shared social identification has been noted as a reason why trust can be extended between organisational subgroups when there is no other prior reason to do so (Kramer et al, 1995; Kramer, 2001; Brewer, 2001). Past research has found extrinsic reward more influential when trust is lower, particularly when there is no relational basis for trust such as shared social identification (Costa, 2000; Tanis & Postmes, 2005; Tyler, 2003; Tyler et al, 1996). The implication for the present findings is that there was a common relational base which made the reason to trust a social decision, rather than an 'economic' decision.

Group trust summary.

Post-task trust was higher in the intergroup condition than the intragroup condition. Trust remained stable in the intragroup condition, only increasing in the intergroup condition. Effective cross-functional teams have a safe intragroup climate characterised by high levels of trust. Therefore the intergroup condition is more likely to increase the effectiveness of a cross-functional team than the intragroup condition. Current participants shared a relational base and had the chance to observe behaviour. Therefore it is reasonable to suggest 'reward' was not a major factor in the reported levels of post-task group trust. Neither individual differences in tendency to trust or extrinsic reward can explain the current results as well as a combination of observable behaviour and shared self-definition.

Intragroup-intergroup status.

Status differences were included in the present study as the situational salience of inter-functional status differences has been implicated in poor cross-functional team functioning (van Knippenberg et al, 2004; Husted & Michailova, 2002). H5 predicted participants from the intergroup condition would report less post-task awareness of inter-functional status differences than participants from the intragroup condition. There were no statistically significant results that would directly support H5. However, there was a non-significant trend that was consistent with H5. The researcher will discuss this trend while

acknowledging that any conclusions must be considered tentative. The reason for discussing statistically non-significant results is that organisations do contain internal intergroup status differences and that employees are aware of their groups status relative to other groups (Terry, 2003; Jassawalla & Sashittal, 1999; Weber, 2002). H6 was supported as the outcome of the contest did not affect the post-task level of status reported by participant who took part in the intergroup process.

The obvious trend in the current data is that the intergroup identity management strategy was potentially more influential than the intragroup strategy on post-task awareness of inter-functional status differences as suggested by the slightly larger effect size ($\eta^2 = .08$ compared to $\eta^2 = .02$). Research suggests that the intergroup identity management strategy is therefore potentially of higher utility in an applied setting. Maple, Haslam, Reynolds and Eiggins (2002; cited Haslam et al, 2003) found intra-organisational status differences were considered the most salient reason for intra-organisational intergroup differentiation. Haunschild et al (1994) found that ingroups of higher status relative to a merger partner (based in superior task performance) were resistant to the merger, which led to a reciprocally competitive relationship within the merged group. Hornsey and Hogg (2000) found more bias displayed on the part of higher status subgroups when a superordinate group served as the sole loci of identity.

Research in mergers has found higher status merger partners may display bias by downplaying the competence of the lower status subgroup (Terry et al, 2001; Terry, 2003). This can mean that the high status group may feel that they have a legitimate reason to ignore or downplay the information from the lower status subgroup (Reynolds et al, 2000a; Terry & O'Brien, 2001; Weber et al, 2002). The perception of inter-functional status differences lowers trust within a cross-functional team (Weber, 2002). Lower trust may also provide a barrier to knowledge integration within a cross-functional team by virtue of the

aforementioned bias on the part of the high status subgroup (Husted & Michailova, 2002; van Knippenberg et al, 2004) while members of low status functions may engage in covert non-cooperation despite verbalising support (Jassawalla & Sashittal, 1998; Cunningham & Chelladurai, 2004). These factors reduce the ability of a cross-functional team to benefit from internal information diversity (van Knippenberg et al, 2004). In other words, where there is a salient inter-functional status differential subgroups may feel threat to both the value and distinctiveness of the functional ingroup. This may lead to suboptimal outcomes for the cross-functional team and organisations.

Considering the present data in light of the cited research suggests the functioning of a cross-functional team will be better served by the intergroup than the intragroup identity management strategy. The reason is that the intergroup strategy is more likely to exert a downward influence on the situational salience of inter-functional status differences than the intragroup strategy.

It should be noted participants did not report a particularly high level of awareness of intragroup intergroup status differences. Neither pre-task nor post-task levels of perceived intragroup status differences were above the scale midpoint. The suggestion is that inter-functional status differences were not an issue for participants (from either condition) before or after task performance. This allows the current study to demonstrate how relatively egalitarian cross-functional team can be a useful means of designing work. For example, in the current research trust, effort, and alignment of self-definition with the cross-functional team were all seen to increase on the part of participants from the intergroup condition. These outcomes are assumed by the present researcher to be desirable for all concerned. The research context included a number of features that may have contributed to equitable perceptions within the teams.

One contributing factor may be that the pre-task levels of social identification with the cross-functional team were above the scale midpoint. This may be relevant to the development of cross-functional equity as pre-existing social identification contributes readiness of a social perceiver to adopt a specific self-categorisation (McGarty, 1999). According to the principle of functional antagonism from SCT the increased salience of one social category tends to decrease the salience of another level of categorisation. If the basis for differentiating between groups is relative status between subgroups, but the identity is shared at a higher level of abstraction (such as the cross-functional team) then subgroup status differences may be less important as long as it is the higher order identity that is contextually salient (Dovidio et al, 1998; Eggins et al, 2003).

Experience of intergroup competition increases the salience of a given social identity, facilitating a broadening of standards for inclusion within the prototypical standards of a social category (Hogg & Terry, 2000; Rothgerber, 1997; Wilder & Thompson, 1988; Broemer & Diehl, 2004; Riketta, 2005a; Ashforth & Johnson, 2001). Evaluation and social attractiveness of outgroup members improves if a shared social identity is accepted (Hewstone et al, 2002; Eggins et al, 2003). Therefore it is possible the perceived level of pre-task status differences were lower than they may otherwise have been by virtue of the pre-task acceptance of the cross-functional team social identity.

Equal status has been noted as one of the conditions that contribute to the adoption of a common ingroup identity and subsequent improvement in intergroup contact (Gaertner et al, 1996). Ingroup bias, such as claiming higher status, is not automatic (Turner, 1999). Fairness can be observed between groups when evidence does not support ingroup superiority or when a higher order social identity is accepted (Ellemers et al, 1997; Singh et al, 1998). Therefore, in the absence of any pre-task evidence that would indicate whether a subgroup

was more competent than another (the status indicator) there would little reason to expect a large perceived pre-task awareness of inter-functional status difference.

Furthermore, the cross-functional team was a complex social structure. Social complexity has been found to contribute to an improvement in intergroup relationships and better reactions to social integration (Brewer, 2001; Hewstone et al, 2002). In the present study complexity within the teams was emphasised by symbolically drawing attention to the fact that the basis of inclusion on the cross-functional team was also a basis for exclusion outside of the cross-functional team (membership in a different academic subgroup) (Pratt & Rafeli, 1997). The task was intellectually and behaviourally challenging. Each group was able to make a distinct knowledge based contribution while also providing concrete behavioural displays of allegiance to the cross-functional team. When distinct contributions can be acknowledged status relations outside of a composite workgroup can become less important within the composite work group (Haslam et al, 2003; Eggins et al, 2003; Dovidio et al, 1998).

The absence of inter-functional status differentiation is a sign that the cross-functional team was a more organic and pluralistic than mechanistic or monolithic (Eggins et al., 2003; Haslam et al, 2003). An organic identity is one in which the superordinate group recognises the value of the lower order identities contained within its boundaries (Haslam, 2001). Organic identity groups are more likely to be the wellsprings of the productivity and creativity that cross-functional team are intended to provide than monolithic identity groups (Haslam et al, 2003; Cunningham & Chelladurai, 2004; Jassawalla & Sashittal, 1998; 1999). Organic groups encourage expression of intragroup-intergroup diversity in the realisation that the salience of a unifying higher level identity aligns the interests of subgroups (Haslam et al, 2003). Given that the absence of large status differences indicate an organic cross-functional

team identity, it can be inferred that the cross-functional team prototypes may incorporate a degree of inter-functional diversity.

The prototype could incorporate functional diversity as the prototype reflects and incorporates contextually salient group defining traits. Therefore the readily apparent functional divisions could reasonably be expected to be included in the creation of cross-functional team prototype (Chattopadhyay et al, 2004). Easily observed intragroup diversity can lower both the clarity of a prototype and perceived self-prototypicality (Chattopadhyay et al, 2004). Research based in the ingroup projection model shows that perception of another subgroup as less prototypical than the ingroup can lead to negative evaluations of the less prototypical subgroups (Waldzus et al, 2005; Waldzus et al, 2003). However, complex representations of a higher order category decrease relative intergroup prototypicality, improving the relationship between, and evaluation of subgroups (Waldzus et al, 2005; Waldzus et al, 2003). The suggestion is that drawing attention the web of difference and connection within the cross-functional team may have lowered the legitimacy of claiming clear superiority for ones own subgroup.

This idea is supported by Weber et al (2002) who found that status differences are perceived to be more legitimate when the ingroup is seen to be more prototypical representatives of a common ingroup than other subgroups. The legitimacy of status differences has been associated with increased ingroup bias and a worsening of attitude towards other subgroups (Bettencourt et al, 2001; Weber et al, 2002). Therefore the absence of markedly large status differences (in the present study) can be interpreted as a sign that no single subgroup saw itself as any more prototypical than other subgroups. Given the association between relative prototypicality, socio-structural complexity, legitimacy, status and bias it can be suggested there was insufficient evidence (either pre-task or post-task) to legitimise the belief that one subgroup could legitimately claim to be of higher status within

the cross-functional team. The post-task conceptualisations of the aggregate found in both conditions of the present study would be unlikely if social interaction was one where status was found to be a major issue during the task performance (Seta, et al, 2000; Hornsey & Hogg, 1999; 2002).

It should be noted that the dominance of the single group conceptualisation of the cross-functional team reported by those from the intergroup condition does not preclude acknowledgement of the presence or value of inter-functional diversity as complex single group representations have been found to have a similar impact on intergroup relations as dual identification (Waldzus et al, 2005; Waldzus et al, 2003). Pittinsky et al (1999) found that when a number of competing categories are available people will adopt the social identity that is most contextually adaptive, without abandoning the other social identity. Dovidio et al (1998) found a salient single group conceptualisation mediated the impact of status on ingroup bias so that the distinct contribution of each subgroup could be valued within the composite task group.

Research by van Knippenberg et al (2002) suggests there would have been a different pattern of results in the current study if participants believed their subgroups were threatened by perceiving the cross-functional team as a single group. Van Knippenberg et al (2002) reported situational discontinuity of a pre-merger identity or feeling dominated (a proxy for lower perceived status) within the context of an organisational merger would lead to increased levels of ingroup bias. In contrast, where subgroup representation is equitable, and subgroup boundary salience is low, there was increased social identification with the post-merger group as well as increased effort (van Leeuwen & van Knippenberg, 2003). In the present study both social identification and effort were found to increase. If considered in light of van Leeuwen and van Knippenberg (2003) and van Knippenberg et al (2002) it can be suggested that the participants did not perceive threat to their existence as distinct

subgroups within the cross-functional team. A number of implications for the present study can be drawn from the research cited above.

Firstly, a single group conceptualization does not mean that group members are not cognisant of intragroup diversity. Secondly, the cross-functional team was seen as contextually adaptive. The implication is that internal diversity, and any intragroup intergroup status differences were not seen as a source of threat. Drawing attention to the complexity within the cross-functional team, in a social frame that makes unity logical, and performing a task where the value of the complexity can be observed, is beneficial. This would tend to mark the cross-functional team as an organic identity structure for the cross-functional team. Within an organic structure there is no legitimate basis for inter-functional differentiation because of status differences. This may limit the negative effect of status on the climate within the cross-functional team. As the intergroup strategy was more influential compared to the intragroup strategy, it can be inferred that the intergroup strategy was more useful than the intragroup strategy for establishing a complex organic identity for cross-functional teams in the present study.

The fact that little pre-task ingroup superiority was displayed may be unlikely in an applied setting (Brewer, 1996; Terry, 2003). As such there might be reason to question the ecological validity of the ideas that have been advanced. However, the groups used were 'real' groups within the university. Status levels were measured, rather than participants being manipulated into high and low status groups. A practitioner is also unlikely to create high and low status groups before running an identity management program. This suggests that participants responded to the context the way an employee would respond if placed in the same situation. In other words, a participant who felt status to be a salient issue was free to say so. Therefore, if a particular strategy was likely to be associated with an increase in the awareness of intragroup-intergroup status differences then post-task data would reflect this.

It is not possible to claim individual differences can account for the results given that pre-task levels of status did not contribute to post-task differences. However, one area that may be improved upon is in the measurement of the intragroup intergroup status within a cross-functional team. The current status measure tapped awareness of status differences derived from perceived differences subgroup competence (Terry, 2003; Doosje et al, 1995). However, Tyler and Blader (2001) measured pride (in work group membership) and feeling respected within the work group as indicators of status which positively and directly associated with work group identification, affective commitment and satisfaction. Further, a cross-functional team is simultaneously intergroup and intragroup. Tyler and Blader (2002) found that pride and respect can gauge both intragroup status and intergroup status based in social comparison. Research by Waldzus et al (2003; 2005), Webber et al (2002) in conjunction with the cross-functional team research of Jassawalla and Sashittal (1998; 1999) would suggest it is potentially useful to assess whether any subgroup considers itself more prototypical of the cross-functional team relative to other functions.

In addition, there may be more than one form of competence on which to compare subgroups. For example, task competence can be complimented by social competence or contextual performance (Johnson, 2001; Terry, 2003). Research in merged organisations has found a subgroup can acknowledge superior task performance of a merger partner while claiming superiority on social dimensions (Terry, 2003). Using task and social competence as status markers would allow researchers to identify if subgroups claim superiority on different dimensions and how this may create or alleviate threats to distinctiveness and relative value of contribution. From a practitioner standpoint it could be of diagnostic value to identify areas of superiority claimed by each subgroup, and then stress the complementarity of each subgroups contribution to the whole (Hornsey et al, 2003c; Dovidio

et al, 1998). Alternatively, it could be used to identify areas where each subgroup believes it has the legitimate claim to higher status.

Roccas (2003) found that participants tend to identify more with a higher status ingroup when there are multiple possible loci of identity. Scheepers and Ellemers (2005) found that members of high status groups tend to feel threatened if a change in the pervading status quo was imminent whereas low status groups felt threat when evaluated against the pervading standards. These two studies suggest a more comprehensive intragroup-intergroup status measure might be useful for research into the impact of intragroup-intergroup permeability and the security of inter-functional status differences on the functioning of a cross-functional team.

Intragroup-intergroup status summary

In summary there were no statistically significant differences found within or between conditions. Interpretation of the trend in the data would suggest the intergroup identity management strategy could be more effective than the intragroup strategy at negating any threat to distinctiveness that could be related intragroup intergroup status differences within a cross-functional team. The intragroup identity management strategy would not increase the likelihood that there would be status based problems. The research suggests that perceived inter-functional status difference can be minimised in competitive intergroup contexts where the complexity within a team is acknowledged and observably useful which would question the legitimacy of any single sub-groups claimed superiority within the cross-functional team. Building some form of commitment to a cross-functional team social identity would be a useful practice, as would establishing the cross-functional team as a novel standalone social entity free of any sponsorship from a particular functional subgroup. Current results cannot be attributed to team result or individual differences. The researcher suggest a more comprehensive measure of intragroup intergroup status would allow researchers and

practitioners fuller assessment of employees/participants reading of the cross-functional team as a status laden context located within a broader organisational context.

Conclusion

The current results suggest it is appropriate to manage inter-functional relationships within a cross-functional team at the intergroup level. SIT/SCT provide contextually appropriate concepts from which to develop connections across subgroup boundaries within the cross-functional team. Although the intragroup identity management strategy was not necessarily a precursor to inter-functional disintegration, the general pattern indicated stability rather than post-task improvement would be likely. In contrast, the intergroup strategy was more likely to be associated with post-task levels of dependent variables that would be considered improvements. Social identification, subjective uncertainty, trust and effort were all at more desirable post-task levels after the intergroup than the intragroup strategy. Integration of the present results with previous research suggests a cross-functional team will be more useful to organisations, and a better experience for employees, if the intergroup identity management strategy is employed. Applied settings may benefit from taking steps to promote a cross-functional team as a loci of social identification before the group is expected to perform. Providing information (regarding interdependence, group purpose, symbolic connections, conferring equal situational status, and the value of diversity) to those who will form the group before the group meets allows the natural active sense-making processes of people in complex social situations to extend this initial acceptance. Intergroup competition increases the salience of the cross-functional team social identity while allowing expansion in the idea of who 'fits' a cross-functional team as a social psychological entity through observance of behaviour that confirms expectations advanced on the basis of the pre-task social identification.

The present research suggests the intergroup identity management strategy may remove reasons for participants to feel the distinctiveness of their subgroup is threatened. This was found even when previous research would suggest the intergroup process created a threat to subgroup distinctiveness. For example, the intergroup identity management strategy created a feeling of moderate distinctiveness. Past research suggests moderate distinctiveness has the potential to increase intergroup hostility. However, there were improvements in trust, effort, and acceptance of the cross-functional team social identity, suggesting participants did not consider the climate within the cross-functional team a threat to distinctiveness. Membership on a losing team can also be discounted as a threat. Winning or losing did not have an association with post-task levels of any DV, with the exception of subjective uncertainty. Even then, interpretation of effect size rather than significance, and the fact uncertainty tended to decrease in the intergroup but increase in the intragroup condition, would indicate the superiority of the intergroup identity management strategy.

Of particular concern to the current work was the form of the conceptualisation of the cross-functional team as a social aggregate. It was argued that the most appropriate form would be for a multiple group conceptualisation, with the intergroup strategy more likely to favour this conceptualisation post-task. However, it was the intragroup condition where the multiple group conceptualisation prevailed. The intergroup condition led participants to perceive the cross-functional team as a single common ingroup. Imposition of a superordinate group can create problems within the group yet there was no sign that any subgroup felt threatened. The suggestion is that either a single group or multiple group conceptualisation of a cross-functional team would be appropriate, as long as inter-functional diversity is valued within the group. Previous research suggests the intergroup identity strategy would allow inter-functional diversity to become valued within the cross-functional team as a prototypical feature of the team as a social category. Research of cross-functional

teams requires the development of more comprehensive measures of subjective uncertainty, heterogeneity, and intragroup-intergroup status. Assessment of relative prototypicality and the content of the cross-functional team prototype could be beneficial when measuring each of these variables.

Chapter Twelve General Discussion

Overview

The purpose of this final chapter is to suggest general conclusions through summarising and integrating the results of both studies. The chapter begins with a review of the rationale that guided the present research. This will be followed by summaries of Study one and Study two. This will be followed by a discussion of potential limitations, implications for research and practice suggested by the current work, and will finish with a general conclusion. The next section will be a review of the authors underlying rationale.

Review of rationale.

The current research was concerned with improving the quality of relationships within, and likely productivity of, a cross-functional team. SIT/SCT derived concepts of fit, identity salience, active construction of a depersonalised prototypes allowing fluidity in social self-definition in response to a context were applied in the development of two different identity management strategies.

The social identity approach was chosen given the status of SIT/SCT as influential complementary theories concerned with social psychological processes that occur in intergroup contact (Turner, 2000). The social identification process was assumed to allow the author to direct participant self-definition through presentation of information and immersion in a specific social frame (Ellemers et al, 2004). Functional subgroups are valued social identities. When social identities come into contact the contact it is intergroup contact. Intergroup contact tends to produce ingroup favouring social comparisons and competition (Turner et al, 1994; Brewer, 2001; Haslam, 2001). Membership in a cross-functional team implies loss of distinctiveness for the function based social identity. A perceived threat to the

distinctiveness of a social identity adds impetus to any innate competitive tendencies as groups struggle to affirm the independence of their subgroup in a situation where interdependence has been imposed by managerial decree (Hornsey & Hogg, 2000c; van Dick, 2004; Brewer & Gaertner, 2001; Northcraft et al, 1996; van Knippenberg et al, 2004; van Leeuwen & van Knippenberg, 2003; Rosenberg & Trevino, 2003). If initial contact is conflictual, the 'us-them' division will tend to serve as a basis for persistent inter-functional conflict that may generalise beyond the team into the wider organisational system (De Dreu et al, 1999; Gaertner et al, 2001; Huang & Newell, 2003; Labianca et al, 1998).

The relative efficacy of two strategies (based in the social identity approach) intended to improve cross-functional team functioning was examined. Both strategies are contextualised by a pre-task acceptance of the task group as a potential social identity. One strategy, labelled the 'intragroup strategy', was based in intragroup cooperation in a problem solving task. The intergroup identity management strategy also required cooperative intragroup problem solving. However, the task was one where the problem solving aspect (involving physical in addition to intellectual effort) was performed in a competitive intergroup context. The conditions were the same with regards to providing participants with symbolic reasons for simultaneous social psychological connection and separation. There was equal opportunity for each function (in study two) to show its value to their cross-functional team. Participants were expected to develop a simultaneous awareness of subgroups contextualised by membership in shared higher order identities. Research suggests this will allow participants to construct a social identity where inter-functional diversity becomes a defining feature of the cross-functional team, alleviating threats to subgroup distinctiveness (van Knippenberg & Haslam, 2003; Haslam et al, 2003; Hornsey &

Hogg, 2000c; Brewer & Gaertner, 2001). The relative efficacy of each strategy is judged with reference to within and between groups differences in post-task levels of dependent variables. Post-task levels of the dependent variables reflect the willingness to align social self-definition with their team, the safety of a groups psychosocial climate and willingness to work for the group.

Study one summary.

Results from Study one show it is possible to manage intragroup interaction in mono-functional teams at the intergroup level rather than the interpersonal or intrapsychic. Alignment of the social self with a mono-functional team was greater post-task than pre-task. This can be seen in the increased social identification (consistent with H1a), decreased subjective uncertainty (consistent with H1b), increased similarity (inconsistent with H3a), and the increased perception of the task group as a single group (consistent with H2a). Effort (consistent with H4a) and trust (consistent with H4b) were also found to increase which suggests there will be better performance from work groups after exposure to either identity management strategy. These results were found in both conditions. The significant decrease in heterogeneity (consistent with H3a) reported by those from the intergroup condition also suggests participants were more accepting of social self-definition with their mono-functional team after experience of the identity management process.

Unexpectedly, there were no significant post-task differences between conditions for social identity (inconsistent H1a), heterogeneity (inconsistent with H3a), similarity (inconsistent with H3a), single group conceptualisation (inconsistent H2a), separate groups conceptualisation (inconsistent with H2a), individualised conceptualisation (inconsistent with H2a), effort (inconsistent with H4a) and trust (inconsistent with H4b). This suggests either the intragroup or the intergroup strategy

will be as effective as the other in improving the functioning of a mono-functional team. However, inconsistent with H6, contest outcome (winning or losing) was related to between groups' differences in two variables. One variable was subjective uncertainty and the other was the description of the mono-functional team as subgroups within a single group.

It may be possible to suggest these two results make the intergroup identity management strategy inferior to the intragroup alternative in the context of a mono-functional team. For example, increased awareness of intragroup division may be a sign that the group could fracture along lines of assigned blame (West, 2002; Jassawalla & Sashittal, 1999; Husted & Michailova, 2002). However, the 'single group' conceptualisation increased to the same extent in winning and losing teams, suggesting increased awareness of subgroups within the mono-functional team would not necessarily create problems. This idea is supported by the absence of significant differences in social identification, effort and trust. In other words, there is no reason to infer increased awareness of subgroups automatically means the group will disintegrate. To the contrary, it may be suggested that although there could have been some competence based intragroup differentiation, shared social identification allowed a benevolent attitude towards those who contributed to the loss (De Cremer, 2000).

There is no sign the level of uncertainty reported by losing teams signals a resistance to self-categorising as a part of the mono-functional team. To the contrary, the association between social identity and subjective uncertainty is consistent with the uncertainty reduction hypothesis of SCT (Hogg, 2004). There was no difference in social identification that could be attributed to winning or losing the competition. Failure to find a lower level of social identification after a loss is consistent with

loyalty expressed as a socially creative form of reaffirming the importance of the social identity (Turner et al, 1984; van Vugt & Hart, 2004) or due to a greater concern for establishing the distinctiveness of a novel group than group superiority (Ellemers et al, 2002; Spears et al, 2002). Increased social identification in the intragroup condition is consistent with the idea that pre-task social (above the scale midpoint in both conditions) identification can be reinforced by intragroup interaction if interaction is explicitly predicated on the social identity group (Yzerbert et al, 2004) while reflecting increased salience of a social identity in the intergroup condition (Turner et al, 1994). Therefore neither the awareness of subgroups inside the single group nor the levels of uncertainty reported by losing teams actually signify social disintegration.

The final results for ‘uncertainty’ may reflect the nature of the instrument located within a specific post-task evaluative context. It is not unreasonable to suggest members of losing teams would report lower certainty in these areas, thereby acknowledging reality, rather than unwillingness to self-categorise. Self-categorisation processes, such as uncertainty reduction, are not automatic and ego-serving, but are the outcome of effortful cognitive processing which acknowledges social reality from an ingroup perspective (Turner, 2000; Hogg, 2004; Spears et al, 1999; Nolan et al, 1999). Therefore the results are consistent with SCT in that participants acknowledged reality. Measurement issues will be addressed more fully in the limitations section.

The general conclusion that can be reached from study one is that functioning of a mono-functional team can be improved through applying knowledge of intergroup level psychological processes. SIT and SCT were useful conceptual guides from which to manage mono-functional teams. Neither strategy appeared better than

the other for a mono-functional team. In practical terms, it could be simpler to organise the intragroup than the intergroup process. Increasing pre-task social identification capitalises on the ability of social identity to be both an independent and dependent variable. Doing so may increase the ability of the mono-functional team to cope with failure. Research into the uncertainty reduction hypothesis could benefit from the use of a more comprehensive measure.

Study two summary.

The current results suggest it is appropriate to manage relationships within a cross-functional team by manipulating normal psychological processes that operate at the intergroup level. This would be consistent with the argument mounted by the author that a cross-functional team should not be thought of as an intragroup context just because it might be referred to as a 'team' as the team is less psychologically important to members than the subgroups represented on the team (van Knippenberg & van Schie, 2000; Northcraft et al, 1996).

Unlike Study one, the data suggests a cross-functional team will respond better to the intergroup strategy. Social identity (consistent with H1a), effort (consistent with H4a), trust (consistent with H4b), and the belief that the cross-functional team was a single group (consistent with H2b) all increased. There were significant decreases in subjective uncertainty (consistent with H1b), and considering the cross-functional team to be most like separate groups (consistent with H2b) or separate individuals (consistent with H2b). With the exception of the separate groups conceptualisation, (non-significant trend towards a lower post-task level in the intergroup condition) and status (non-significant trend for less awareness in the intergroup condition) there were significant differences between intergroup and intragroup conditions. Post-task levels of social identity (consistent with H1a),

considering the cross-functional team to be a single group (consistent with H2b), effort (consistent with H4a) and trust (consistent with H4b) were higher while post-task levels of uncertainty (consistent with H1b) and perception that the cross-functional team was a meaningless aggregate of separate individuals (consistent with H2b) proved lowest in the intergroup condition. Unexpectedly (inconsistent with H3b) undergoing the intergroup identity management process (but not the intragroup condition) led to movements in similarity and heterogeneity consistent with a state of moderate inter-functional distinctiveness. Past research suggests this was likely to create heightened threat responses on the part of participants (Jetten et al, 1998). However, the general pattern across all DVs (see Table 8) suggests the cross-functional team will be more productive, psychologically safe, accepted as a valid source of self-definition and therefore more open to the informational diversity within its borders (Edmondson, 1999; Jassawalla & Sashittal, 1998; 1999; Maltz & Kohli, 1996; Sethi, 2000*b*; Kane et al, 2005; van Knippenberg et al, 2004) following exposure to the intergroup identity management strategy. Integration of the present results with previous research suggests a cross-functional team will be more useful to organisations, and a better experience for employees, if the intergroup identity management strategy is employed (Ricketta, 2005*a*; Haslam, 2001; Cunningham & Chelladurai, 2004; Bergami & Bagozzi, 2000; Sethi et al, 2000*b*; Haslam et al, 2003).

It should be noted that the intragroup identity management strategy was not necessarily a precursor to inter-functional disintegration, but nor was there any marked improvement in functioning indicated by pre-post within groups differences. Stability, rather than post-task improvement or decline, was the general pattern (see Table 8) suggesting that a bad situation would not improve if the intragroup strategy were used. Given cross-functional teams are often entered with mixed motives

(Brewer, 1996; Hansen et al, 2005), and the positive effect social identification can have in terms of aligning motives (Kramer, 2001; Brewer, 2001; van Knippenberg & Haslam, 2003), it could be suggested facilitating the development of pre-task social identification with a cross-functional team may go some way to ensuring stability is merely the absence of improvement in a tolerable situation, rather than a maintenance (as opposed to an escalation) of inter-functional hostilities for the duration of the teams life. Providing information in initial communications (regarding interdependence, group purpose, symbolic connections, value of diversity) to prospective group members (before the group meets) may be effective (Wigboldus et al, 2000; Postmes et al, 2000).

Table 8

Difference between strategies in post-task cross-functional team functioning

Condition	SI	SU	Sg	Sub	Sepg	SepI	Het	Sim	Effort	GT	Status
Intragroup	ns	ns	ns	ns	ns	ns	ns	s<	ns	ns	ns
Intergroup	S<	s>	S<	s>	s>	s>	s>	s<	s<	s<	ns

Note. S< = significant pre-post increase, s> = significant pre-post decrease, ns = non-significant pre-post difference, SI= social identity, SU = subjective uncertainty, Sg= single group, Sub = subgroups in single group, SepG = separate groups, SepI = separate individuals, Het = intra-subgroup heterogeneity, Sim = intragroup-intergroup similarity, Effort= effort, GT = group trust, Status = intragroup-intergroup status

As with Study one, the uncertainty reduction hypothesis was supported. For example, social identity was found to increase as uncertainty decreased. In Study two, stability in social identity reported by those from the intragroup condition was matched by stability in subjective uncertainty. In other words, when uncertainty moved, so did social identity in the direction suggested by the social identity approach. Conversely, when social identity did not move, neither did uncertainty.

This would be expected if uncertainty and social identification were co-contributors to self-definition with a specific group (Hogg, 2004).

Bourhis and Gagnon (2001) noted a lack of convincing pre-post evidence that supported the uncertainty reduction hypothesis. The current research joins Hogg and Sussman (1999; cited in Hogg, 2004) in finding significant pre-post differences in uncertainty associated with increases in social identification. Therefore the current research goes a small way to addressing concerns for the lack of pre-post evidence consistent with the uncertainty reduction hypothesis. It could also be noted that this is possibly the first study to examine the uncertainty reduction hypothesis within a cross-functional team setting.

It must be acknowledged that post-task levels of uncertainty were affected by membership on a winning or losing team. Members of losing teams reported more post-task uncertainty than those from winning teams in both studies. However, interpretation of effect size rather than significance (Minium et al, 1993), plus the fact uncertainty tended to decrease in the intergroup condition, but increase in the intragroup condition, would tend indicate uncertainty reduction is more likely if a cross-functional team is exposed to an intergroup identity management strategy, even on the part of losing teams.

The instruments only allowed expression of uncertainty towards the task and the context. It is not unreasonable to suggest members of losing teams would report lower certainty in these areas, thereby acknowledging reality rather than unwillingness to self-categorise. Self-categorisation processes, such as uncertainty reduction, are not automatic and ego-serving, but are the outcome of effortful cognitive processing which acknowledges social reality (Turner, 2000; Hogg, 2004; Spears et al, 1999; Nolan et al, 1999). It is possible there are additional causes of

uncertainty in rendering a social judgement within a cross-functional team compared to a mono-functional team. Therefore, as noted with regards to Study one, a more comprehensive measure of subjective uncertainty would have been appropriate. This issue will be addressed in the 'limitations' section.

In summary, the results of Study two suggest the functioning of a cross-functional team would be improved through manipulation of intergroup level social psychological processes. SIT and SCT provided an appropriate conceptual base for managing inter-functional integration at a social psychological level within a cross-functional team. As would be expected if the cross-functional team is simultaneously intragroup and intergroup, the intergroup identity management strategy was most influential in terms of statistically significant pre-task-post-task differences. The differences could be considered consistent with an improvement in the social fabric of the cross-functional team. The intragroup strategy was associated with stability rather than improvement. If an intragroup strategy is to be used, it could be useful to build some willingness to consider the cross-functional team a shared social identity before interaction. This may give employees a reason to have less resistance to inter-functional task work.

The broad trend across both studies can be summarised as follows. Intergroup level psychological processes can be manipulated for an improvement in the functioning of both mono-functional teams and cross-functional teams. However, mono-functional teams and cross-functional teams do not always respond the same way to the same identity management strategy. The choice of strategy is less crucial in a mono-functional team than a cross-functional team. In cross-functional teams it was the intergroup identity most consistently related to improvement while the intragroup strategy is most likely to be associated with stability. The intergroup

strategy produced the most desirable outcomes in terms of self-definition, team climate, inter-functional integration and performance potential so is most appropriate in a cross-functional team. SIT and SCT were useful for explaining what was observed in the groups, making them potentially useful as theoretical guides for practice in organisations (Lembke & Wilson, 1998; Hogg & Terry, 2000; Haslam, 2001; Ellemers et al, 2003). Willingness to accept a task group social identity prior to actual interaction may set the scene for benevolence within task groups. The content of the prototype may be more important than attempting to create a particular perception of the task group as either a single group or subgroups within a single group (van Knippenberg & Haslam, 2003; Gonzalez & Brown, 2003; Dovidio et al, 1998). Finally, the utility of the intergroup strategy is not reduced by the fact one team must win and the other must lose. These results suggest cross-functional teams are more likely to function optimally if the relationships within the team are managed in recognition of the intergroup dimension to the contact within the team. SIT provides a pragmatic and conceptually sound guide for managing the social psychological aspect inherent in a cross-functional team context.

Limitations

The present results can not be attributed to the presence or absence of rewards or the accountability of individual participants to other group members. However, it is possible the sample was over-represented by those most attracted to group situations. For example, participants knew they would be engaged in a group based activity before agreeing to participate. Most of participants were female, who, stereotypically, are believed to be more relationally oriented than males (Gabriel & Gardner, 1997).

Research on self-other orientation would suggest there *is* a gender difference in social value orientation with females tending to be more prosocial than males (van Lange, Otten, De Bruin, & Joireman, 1997). However, there is evidence this gender difference disappears once the characteristics of the family are controlled for. Specifically, in order for any single participant to be more pro-social than other participants they would have needed to have a higher number of older sisters than average plus a more secure attachment style. This condition is true for both males and females (van Lange et al, 1997), reducing the importance of gender as a precursor for developing a specific social value orientation. In addition, the current sample was primarily young adults, the age group least likely to be pro-social (van Lange et al, 1997). Gender is not usually found to have an association with differences in social identification research (Haunschild et al, 1994; van Der Vegt & Bunderson, 2005; Riketta, 2005b) and was not even included as a moderating variable in the meta-analyses of Jetten et al (2004) or Bettencourt et al (2001). Males and females have been found to respond in the same way to intergroup contact (Turner et al, 1994). The suggestion is the gender imbalance has not invalidated results reported within the present research.

The present results cannot be attributed to any individual tendency to have a collective orientation independent of gender. Individual pre-task levels of social identification and subjective uncertainty did not have statistically significant relationships with post-task levels of these variables in any condition of either study. Therefore individual predispositions for a collective orientation cannot account for the results. As participant interdependence was framed by pre-task acceptance of a shared social identity, and not individual attraction, the results cannot be reduced to an explanation based in interpersonal interdependence (Turner, 1996; 2000; Bourhis

& Gagnon, 2001). In other words, the current results cannot be attributed to the personal orientation of individual participants or a largely female research population.

Another potential issue is that the ecological validity, and therefore the generalisability of the present research, has been limited to some extent because of the exclusively student based research population (Brown, 2000). However, Brewer (2000) suggests that a laboratory based study is not necessarily ungeneralisable or ecologically invalid just because it is a laboratory study. Rather, the ecological validity and generalisability of laboratory based research intended to be applied in organisational or other social settings can be established with reference to two criteria. One criteria is the similarity between the results and conclusions of a laboratory study with those reached by previous research conducted within the same conceptual tradition but in natural settings. The second criteria is that the difference between the research setting and the organisational context should be small (Brewer, 2000; Scandura & Williams, 2000).

With reference to the first criteria, the present results are consistent with both field and laboratory studies concerned with cross-functional teams, SIT/SCT, and conceptualisation of the aggregate (Haslam, 2001; Eller & Abrams, 2004; Gonzalez & Brown, 2003; van Knippenber & Haslam, 2003; Drury & Reicher, 2000; Maltz & Kohli, 1996; Sethi, 2000*b*; Gaertner et al, 1999*b*; 2001; Veenstra & Haslam, 2000; Rothgerber, 1997; van Der Vegt & Bunderson, 2005; Kane et al, 2005). The convergence between the current research and previous research from both field and laboratory settings suggests the use of student participants did not reduce the generalisability of the present work (Scandura & Williams, 2000). In essence, the proposition is that the ecological validity and generalisability of the present work is bolstered by convergence (results, interpretation, and explanation) with the extensive

volume of research demonstrating the validity of SIT/SCT processes in laboratory and field settings, including organisations at large and cross-functional team in particular (Haslam, Ryan, Postmes, Spears, Jetten, & Webley, 2006; Cunningham & Chelladurai, 2004; Kane et al, 2005).

With reference to the second criteria, there are differences between laboratory contexts and organisations. For example, in the real world an extended history exists between subgroups, a history filtered through ingroup favouring explanations and attributions (Haslam, 2001; Vonk & Konst, 1998; Husted & Michailova, 2002; O'Brien et al, 2004). In the present research, participants interacted for short periods in groups that may have no meaning (as specific groups) beyond the boundaries of the present study. This may mean, in common with other laboratory studies, that there is less resistance to interfunctional integration within a laboratory setting (Branscombe et al, 2000; Brown, 2000; Lau & Murnighan, 2005; Brewer, 1996).

However, in the present work the groups were 'natural' groups within the prevailing organisational context of the university with genuine intragroup and intergroup histories, giving a real basis for intergroup differentiation within the university and research contexts. This is proposed to make the present research more 'real' than would be possible with purely minimal groups (Branscombe et al, 2000; Scandura & Williams, 2000). Further, the participants interacted freely, allowing the opportunity for good or bad interactions to influence post-task results. In addition, there is nothing in the current research that cannot be adapted easily to the field. For example, a practitioner could easily use electronic communication as a means of increasing social identity before groups actually meet in person (Wigboldus et al, 2000; Postmes et al, 2000). In addition, the tasks performed by the participants was similar to that performed by cross-functional teams in the sense that this type of team

is used when inter-functional knowledge needs to be integrated to give an organisation a competitive edge over their competition (van Dick, 2004; Lau & Murnighan, 2005).

It may be possible that 'time' within the research group is an ecological validity issue as employees spend much more time together than research participants. Time could also be an issue in that participants from the intergroup condition were together for one hour more than participants from the intragroup condition. However, organisational research regarding the effects of 'time' on social identity and team functioning would suggest one hour is not a sufficient time difference to constitute a confound for the purposes of the present research. For example, Sethi (2000b) reported a positive association between team longevity and superordinate identification. This would seem to support the charge of a time based confound. However, team longevity only accounted for 1.4% of the variance in superordinate identification after cross-functional teams were together for an average of 14.9 months. Similarly, Pelled et al (1999) reported that group longevity reduced conflict in cross-functional teams, but noted groups had to interact for a minimum of seven months before time could be associated with improved functioning. Richter et al (in press) found frequent cross-functional contact was beneficial to the organisation if boundary crossing employees had a high level of identification with the shared organisational identity. For example, frequent inter-functional contact when organisational identification was low was associated with more relational conflict than when organisational identification was high. Stewart and Barrick (2000) could not report a statistically significant correlation between group longevity and group cohesion. Lau and Murnighan (2005) found volume of communication did not lead to improved interactions while van der Vegt and Bunderson (2005) found tenure based diversity did not have an association with team identification. The cited research

would suggest that one extra hour is not long enough to account for the difference between conditions in the present study. Further, importantly for the issue of generalisability, the extra time spent in contact within an organisation does not lead to improved inter-functional relationships. The establishment of a shared social identity appears to be a necessary before 'time' has a positive association with the quality of cross-functional interaction.

The generalisability of the present work is bolstered by the convergence of past laboratory and field research with the present research. This convergence lends generalisability from both a theoretical standpoint and an applied standpoint as the difference between the present context and organisational contexts would not necessarily have led to different results (Lembke & Wilson, 1998; Haslam et al, 2006). Having said this, the author acknowledges that there is scope for future research to combine experimental, field simulation, and field research in one study (Scandura & Williams, 2000). Doing so would provide more direct evidence in support or negation of the position adopted in the present work as well as allowing identification of the effects issues such history and power has in applied settings.

At an internal level, there is a possible confound in the different level of physical activity required by each condition. The intragroup was relatively sedentary compared to the intergroup. However, results similar to the current research have been found where the competition was relatively sedentary (Ouwerkerk et al, 2000; Worchel et al, 1998; Holtz & Miller, 2001; Haunschild et al, 1994) This suggests physical activity difference does not detract from the validity of the current research. Any concerns could be alleviated by a study where differences in physical activity are controlled by making both the intragroup and intergroup task sedentary. For example, in the intergroup condition there could be two groups trying to come to a consensually

shared and correct solution to the 'Who finds the fish' problem used in the intragroup component of the current research, in the shortest possible time. Alternatively, Riketta et al (in press) suggest benchmarking may be useful for increasing the salience of an intergroup competition. For example, two groups (either mono-functional teams or cross-functional teams) could be seated within sight of each other. Participants could be given (either real or bogus) information that would reflect the 'standing' or performance of the outgroup in comparison to the ingroup (van Dick et al, 2005; van Dick, 2004). If the aim is to study social psychological responses to inter-functional diversity, the research groups could be given a task where knowledge held by the different subgroups was necessary to arrive at the decision (van Knippenberg & Haslam, 2003).

Alternatively, physical activity could be assumed to add to the beneficial effects of competition. In other words physical activity could be thought of as a valuable asset to be capitalised on when attempting manage internally diverse teams. Testing this assumption could involve three conditions. The first condition might involve participants doing little more than running around together for a specified limit of time. There would be no need for cooperation to fulfil a task and no competing group. A second condition would require participants to fulfil an active task in the absence of an outgroup. For example, the scavenger hunt task used in the current study could be used, except there would be no intergroup competition. The third condition could involve performing the scavenger hunt task as used in the current study. The nature of the clues could be varied depending on whether mono-functional teams or cross-functional teams are of interest.

It may also be possible that the present research was remiss in not accounting for differences in pre-task mood. Mood is included in the Common ingroup identity

model (see Figure 12) on the basis of research demonstrating that those with a positive mood are more open to accepting shared superordinate identification with those from what is initially an outgroup (Gaertner et al, 1999*b*). However, it can be argued that participant mood did not impact on the final results. The rationale is that if participant mood always affects openness to shared social self-definition ‘outgroup’ members (Gaertner et al, 1999*b*) then pre-task scores would reflect the pre-contact mood of each participant. In no condition were pre-task scores found to have a statistically significant impact on the post-task conceptualisation of the aggregate, social identification or subjective uncertainty. Therefore there is indirect evidence that participant mood was not a confounding factor in the present research. More direct evidence would require future research where pre-task mood is measured for use as a covariate. Alternatively, researchers could compare the responses of participants assigned to different conditions based in experimenter mood manipulations (Gaertner et al, 1999*b*; Dovidio et al, 1995).

A further potential limitation of the current research is the content of some measures. The two item subjective uncertainty measure contained only one item concerned with task certainty and another concerned with contextual understanding. Uncertainty was unusual in that winning or losing the competition led to significant differences between groups in both Study one and Study two. Losing teams could be expected to display less certainty regarding these two dimensions of uncertainty than winning teams which could explain why there was less uncertainty reduction. In the discussion sections it was suggested subjective uncertainty research may benefit from the development of measures incorporating social understanding. For example, certainty regarding the prototypical standards of the ingroup (Chattopadhyay et al, 2004) or certainty regarding the extent of the functional ingroup acceptance of each

other as valid members of a cross-functional team (Branscombe et al, 2000; Jassawalla & Sashittal, 1998; 1999). Having said this, present results cannot be discounted. For example, the fact losing teams reported more uncertainty is consistent with the position of SCT that uncertainty will not reduce in line with self-categorisation unless the areas of uncertainty accurately reflect reality (Hogg, 2004). Further, identifying the need for a measure accounting for multiple identity contexts is a useful contribution to research in cross-functional teams.

The need to develop measures specifically for use in cross-functional team research can also be raised with regards to intra-subgroup heterogeneity. The measure of heterogeneity used in the current research did not specify the level of group items were referring to (subgroup or cross-functional team). The researcher intended the items to refer to the variability within each subgroup (Jetten et al, 1998). In future cross-functional team research it would be beneficial if items were reworded to better specify whether the word 'group' refers to the cross-functional team or the ingroup subgroup. For example: "Members from my functional ingroup are very different from each other". Or: "Members of my functional ingroup are very different from the other groups represented on this team", if inter-functional heterogeneity is the issue of interest. It should be noted this issue is overstated as pre-task levels of social identification, and post-task levels of the dependent variables are unlikely to have been as reported if the inter-functional climate was threatening (Hornsey & Hogg, 2000c; Jetten & Spears, 2003; Jetten et al, 2004; Edmondson, 1999; Brewer, 2001). This comment is relevant as gauging threat was the reason for including a measure of heterogeneity.

The measurement of intragroup-intergroup status may also be improved upon. In addition to the task competence basis for status differences could be added

contextual performance (Johnson, 2001), relative pride in the ingroup function and respect from members of outgroup functions (Tyler & Blader, 2001; 2002) and status derived from membership in the cross-functional team compared to other organisational groups (Roccas, 2003). In cross-functional team research it is also conceivable SIT could be more strictly applied (in terms of measurement) through items relevant to the permeability of inter-functional boundaries and the security of the status-quo from the perspective of different subgroups (Haslam, 2001; Bettencourt et al, 1999; Scheepers & Ellemers, 2005). Research indicates status differences become less influential when it is harder for a single subgroup to claim a higher level of relative prototypicality (Chattopadhyay et al, 2004; Waldzus et al, 2005). Therefore the relative prototypicality of each subgroup (as members of a cross-functional team) could also be usefully assessed (Weber et al, 2002; Waldzus et al, 2004; 2005).

This does not mean the measure of inter-functional status used in the current research is invalid. Items were written in with reference to results found in field and laboratory research (Cunningham & Chelladuri, 2004; Jost & Elsbach, 2001; Jassawalla & Sashittal, 1999; Hornsey et al, 2003c; Doosje et al, 2002; 1995; Reynolds et al, 2000b). Further, post-task levels of other dependent variables are as would be expected in the absence of status based threats to distinctiveness. This suggests the present instrument did measure aspects of status germane to the research context. However, it is acknowledged that future research could benefit from a more comprehensive measure, particularly in cross-functional teams. The next section will draw implications for research and organisational, practice.

Implications for research and practice

There are a number of implications for research and practice within the current work. One implication is that SIT and SCT are useful conceptual bases from which to

develop strategies for managing relationships within either a mono-functional team or a cross-functional team. The current results are fully amenable to concepts of fit, functional antagonism, intelligent construction of a prototype in response to incoming social data and social identification. One conceptual contribution made by the present research is demonstrating the uncertainty reduction hypothesis can be supported in pre-post research. Together with Hogg and Sussman (1999; cited in Hogg 2004) the present research addresses concerns raised by Bourhis and Gagnon (2001) that the uncertainty reduction hypothesis would not be validated without support from pre-post research. Furthermore, to the authors knowledge, this research is first to demonstrate the uncertainty reduction hypothesis in a cross-functional team.

A further contribution to research is identifying the need for the development of instruments specifically for use in cross-functional teams. As suggested in the 'Limitations' section subjective uncertainty, intra-subgroup heterogeneity and intragroup-intergroup status measures should be developed in recognition of the inter-functional dimension that exists in a cross-functional team. Researchers have suggested psychological processes underlying employee's response to demographic fault lines on task groups are similar to what would occur in the presence of inter-functional fault lines (Lau & Murnighan, 2005; Li & Hambrick, 2005). If this is so, it is possible comprehensive measures developed for use in cross-functional teams may also prove applicable to demographic fault line research. The SCT derived concept of relative prototypicality (Walczus et al, 2003; 2004; 2005; Kessler & Mummndey, 2001) would appear to have particular utility in measures utilised in cross-functional team research.

The concepts underlying SIT/SCT allow a degree of intellectual flexibility. This flexibility allows explanation for all findings in this research, whether predicted

or not. While this may garner criticism in academic circles (Spears et al, 2002), in applied settings it is probably a boon to find a well validated theory that can be gainfully applied to a wide range of contexts and observed behaviours.

The author assumes a practitioner would profit from discovering that a cross-functional team will not necessarily respond the same way as a mono-functional team to the same identity management process. In a mono-functional team either an intragroup or an intergroup strategy may be appropriate. In a cross-functional team the intergroup strategy would be preferred. The intragroup strategy was associated more with stability than improvement while the intergroup strategy was related to generalised improvement. The implication is the intragroup strategy will not lead to an improvement, but only maintenance of the status quo. The desirability of this may depend on the nature of the status quo as relevant to cross-functional teams (Jassawalla & Sashittal, 1999; Huang & Newell, 2003). This research adds to the growing body of literature which indicates management of internally diverse task groups must be made in awareness of the problems diversity presents over and above a purely intragroup context (Lau & Murnighan, 1998; 2005; Li & Hambrick, 2005; Hansen et al, 2005; Kane et al, 2005; Cunningham & Chelladurai, 2004; van Knippenberg et al, 2004; Schneider & Northcraft, 1999).

The value of establishing acceptance of a task group social identity before the groups actually is suggested by the present research. The idea is shared social identity gives a reason to begin interactions with a benign intentions (Brewer, 2001; Kramer, 2001) as well as increasing the readiness of perceivers to use a desired self-categorisation (McGarty, 1999). This is important as a safe climate is more likely to develop over the group's life span if initial contact fosters sufficient trust for disagreement to be focused on task rather than relationship issues (Jehn & Mannix,

2001; Simons & Peterson, 2000; De Dreu et al, 1999; Hansen et al, 2005). It is possible that without the pre-task level of social identification that there would be more concern for positive distinctiveness of subgroups (Kane et al, 2005; van Dick et al, 2004; McGarty, 1999) than social creativeness, resulting in more concern for attributing blame for the groups loss (Spears et al, 2001; Jassawalla & Sashittal, 1998). Establishing pre-task social identification should be achievable in an organisation by the same means used in the present research. This being carefully worded communications stressing the desired social identity as a loci of commitment (Wigboldus et al, 2000). It may also be worthwhile stressing how membership in the new group would be a source of respect within the organisation (Tyler & Blader, 2001).

It may be possible to argue the current research did not actively demonstrate the value of pre-task social identification as there was no condition where social identity was not established before task performance. However, there is a wealth of past research indicating an undesirable difference in the behaviour of unaffiliated individuals compared to those who have voluntarily adopted a shared self-definition with a psychologically prepotent identity (Ellemers et al, 1998; Turner, 2000; Dimmock et al, 2005; Doosje et al, 2002; Lembke & Wilson. 1998; Haslam, 2001; Gonzalez & Brown, 2003).

A further practical implication is the intergroup identity management strategy may go some way to protecting the cross-functional team from problems based in threatened subgroup distinctiveness. There are a number of areas where this can be seen. One area is that membership on a losing team can be discounted as a source of threat. With the exception of subjective uncertainty (in both studies) membership in a winning or losing team did not have an association with post-task levels. As noted

previously this may be due to acknowledgment of reality rather than threatened distinctiveness. Given the tendency to assign blame across subgroup boundaries, and the negative impact of blame on the functioning of a cross-functional team, the non-significant relationship of winning or losing suggests shared social self-definition may play some part in attenuating the need to assign blame. This can be expected to protect the perceived value of each subgroup within the cross-functional team, thereby removing a need to respond to a perceived threat (Branscombe et al, 2000).

Another area indicating the intergroup identity management strategy may have protected the group from perceiving a dangerous level of threat is there was no sign of inter-functional antagonism, despite the fact subgroups came to be viewed as only moderately distinct within the team. Past research suggests moderate distinctiveness has the potential to increase the chance of inter-functional friction (Jetten et al, 1997; 1998; 2000c; Jetten & Spears, 2003; Hornsey & Hogg, 1999). Unexpectedly, the weak effect of the intragroup strategy on judgements of heterogeneity allowed a balanced level of subgroup distinctiveness, instead of the expected 'moderate' level. The suggestion is use of the intergroup identity management strategy may give rise to problems within a cross-functional team as the distinctiveness of each subgroup is at its most threatened (Brewer, 1996). Using the intragroup strategy would avoid this particular problem. However, the difference between identity management strategies conditions was not statistically significant for either similarity or heterogeneity. Further, the level of heterogeneity approximated the scales mid-point whereas it is extreme levels that intergroup amalgamation threatens distinctiveness (Jetten et al, 2004). Self-definition with the cross-functional team, trust, and effort were all found to increase in the intergroup condition whereas stability was generally found in the intragroup condition. This pattern of results is assumed to be unlikely if participants

felt moderate subgroup distinctiveness was threatening within the cross-functional team.

SCT and SIT, which served as the conceptual guides in the development of the present research, can be used to explain how experience of the intergroup identity management strategy could remove the need for inter-functional differentiation in the face of moderate distinctiveness. Past research has demonstrated competitive interaction increases perceived compatibility between subgroups (Broemer & Diehl, 2004; Riketta 2005*a*; Wilder & Thompson, 1988). SCT contributes the idea of fit. Research has shown that standards of 'fit' broaden within competitive contexts (Oakes et al, 1991; Haslam & Turner, 1995), promoting inter-functional assimilation within a cross-functional team.

The SCT idea of the contextually variable prototype, constructed by active interpretation of incoming data (Brown & Turner, 2002), is consistent with current results. Competition increases the salience of the shared cross-functional team social identity, which tends to increase the acceptance of inter-functional difference as a component of the content of the social identity (Hogg & Terry, 2000; Ashforth & Johnson, 2001; van Dick et al, 2004). The suggestion is inter-functional diversity can become a prototypical feature of a superordinate group such as the cross-functional team (van Knippenberg et al, 2004; van Knippenberg & Haslam, 2003; Waldzus et al, 2003; Mummendey et al, 2001) which would lessen the likelihood of threat based responses to inter-functional integration.

The potential shortcomings of the heterogeneity measure are acknowledged. However, the results should not be completely discounted on the basis of measurement error as other dependent variables, such as trust, would not have increased in the face of distinctiveness threat or incongruence between different levels

of social identity (Scott et al, 2001; van Knippenberg et al, 2002; Brewer, 2001; Maltz & Kohli, 1996).

A third area where there was potential for threatened distinctiveness to create friction within a cross-functional team was in the post-task conceptualisation of the aggregate. The researcher expected the intergroup strategy to create the perception of the team as one where multiple loci of identity were simultaneously salient. This was expected to allow improved functioning in a cross-functional team (Gaertner et al, 1999c, Gaertner et al, 2000; Hornsey & Hogg, 2000c; Cunningham & Chelladurai, 2004; Northcraft et al, 1996; Brewer, 1996). However (in direct contrast to Study one) members of cross-functional teams who experienced the intergroup identity management strategy came to perceive the cross-functional team to be most like a single group. Participants from the intragroup condition reported a pattern of results consistent with the more complex version of the common ingroup identity management strategy. These participants viewed the cross-functional team as a single group containing subgroups through an increase (using effect size rather than statistical significance) in the sense that the team was a single group. This was accompanied by maintaining the pre-task level of the belief there were meaningful subgroups within the single group. Apart from the increase in the single group conceptualisation, no changes were reported in the intragroup condition. In contrast, there were statistically significant changes in each potential 'conceptualisation of the aggregate' was reported by those from Study two. The implication is that a less potent identity management strategy is likely to promote a complex perception of the cross-functional team as a single group containing subgroups.

It should be noted that SCT proved useful for explaining how a particular conceptualisation of the aggregate could arise post-task. For example, consistent with

functional antagonism, the increased salience of one possible conceptualisation tended to be associated with a decrease in alternate conceptualisation of task groups. The SCT idea of contextualised self-definition is observable in that equivalent conditions (intergroup compared to intergroup and intragroup compared to intragroup) there was an inversion in which conceptualisation was considered most accurate by participants. Principles of perceiver readiness, 'fit' and uncertainty reduction explain how the active interpretation of information available within a social frame (Turner et al, 1994; Brown & Turner, 2002; Hogg, 2004) contributes to the development of a dominant view of a task group.

The absence of any post-task differences consistent with a feeling of threat is notable as threatened distinctiveness of functional subgroups is implicated in the failure of cross-functional teams (Hewstone et al, 2002; Hornsey & Hogg, 2000c; 1999; van Dick et al, 2004; Hansen et al, 2005). Research into intergroup contact has found multiple identification to be a potentially effective means of reducing intergroup conflict (Gaertner et al, 1999c, Gaertner et al, 2000; Hornsey & Hogg, 2000c) and therefore of improving inter-functional interactions within a cross-functional team (Richter et al, in press). However, there were more beneficial outcomes (effort, trust, alignment of self-definition) following exposure to the intergroup strategy than the intragroup strategy. These results are assumed to indicate the fundamental safety of the cross-functional team climate (West, 2002). Logically, therefore, the intergroup condition was associated with a safer climate than the intragroup condition despite being the site of lower subgroup awareness. These results indicate it is not necessarily the conceptualisation of the aggregate (either single group or multiple group) that alleviates threats to subgroup distinctiveness.

In this, the current research is consistent with research by Eller and Abrams (2004) and Gonzalez and Brown (2003) where there was no difference between single or multiple group conceptualisations in terms of improving intergroup contact. One reason for the absence of threat in response perceiving the cross-functional team to be a single group may be participants reported both pre-task and post-task social identification above the scale mid-point. Pre-task social identification would increase perceiver readiness to accept the task group as a self-category (McGarty, 1999). Increased post-task social identity suggests that the cross-functional team was accepted as 'real' and worthy of commitment (Turner, 2000). In other words, initial interaction within the cross-functional team was contextualised by shared self-definition. Recent research suggests the psychosocial climate within a cross-functional team is better if contextualised acceptance of the group as a shared social identity (Cunningham & Chelladurai, 2004; Dovidio et al, 1998; van Knippenberg et al, 2004; van Dick et al, 2004; Kane et al, 2005). It is possible either of these two group conceptualisations, based as they are in acceptance of shared social self-definition, will be useful if they are voluntarily accepted by participants as making sense within the prevailing context (Dimmock et al, 2005; van Dick, 2004; Turner, 2000). Therefore the intergroup strategy is probably more beneficial for a cross-functional team in practice.

The informational diversity within a cross-functional team can still be accessed even if it is seen as a single group. This would be conditional on prototypical standards of the group developing in a way that contextualises the diversity as a defining aspect of the cross-functional team self-category. (van Knippenbeg & Haslam, 2003; Haslam et al, 2003; Kane et al, 2005; van Der Vegt & Bunderson, 2005). Participants in the current study were exposed to a number of pieces of

information which encourage inclusion of inter-functional diversity as part of the cross-functional team prototype. For example the complexity of the cross-functional team was symbolically emphasised. Social complexity is also observable to participants as intragroup roles converge with the specialised knowledge, skills, and abilities of each functional subgroup while the cross-functional team is seen to be nested within a more distant inclusive identity group. Complex social structures have been found to be marked less by intergroup aggression than simple structures (Brewer, 2001; Crisp & Hewstone, 1999).

In addition, knowledge diversity was both necessary for the group to complete its task, and the reason for inclusion of different functions in a group. The competitive context gives direction for the symbolically represented multiple identities while broadening the idea of who fits the ingroup (Rothgerber, 1997; Wilder & Thompson, 1988). This may guard against potentially negative consequences of increasing subgroup salience without balance provide by a source of unity (Haslam, 2001). It is possible to suggest that the combination of competition with emphasising how each loci of identity is at once 'nested' and 'crosscutting' (see Figure 15 in Chapter Five) directs social psychological processes in a way that makes inter-functional diversity within a cross-functional team valuable.

If inter-functional diversity is valued due to task relevance it is likely be considered a prototypical property of the cross-functional team (van Knippenberg & Haslam, 2003; van Knippenberg et al, 2004). If diversity is relevant to the task and contextualised within a shared social identity then the potential for disintegration of cross-functional team should be minimised. Therefore the intergroup identity management strategy would have allowed the cross-functional team to benefit from inter-functional diversity without threatening subgroup distinctiveness. It may be

possible to verify this idea through research based around the idea of identity congruence.

When multiple loci of social identities become congruent there would be less resistance to inter-functional collaboration (Scott et al, 1999; Foreman & Whetten, 2002) which should create a safer, more productive cross-functional team climate (Jassawalla & Sashittal, 1998; 1999; van Der Vegt & Bunderson, 2005; Kane et al, 2005; van Knippenberg et al, 2004; Richter et al, in press). Identity congruence research may be useful in uncovering the potential role of relative inter-functional prototypicality in inhibiting or facilitating shared self-definition with a cross-functional team, as well as whether the point of incongruence lies in a specific loci of identity within an organisational context (Brown et al, 1999; Kessler & Mummendey, 2001; Waldzus et al, 2003; Waldzus et al, 2005). It may also be useful to see which of the two identity management strategies used in the present research is most effective for increasing inter-functional identity congruence.

Furthermore, it has been suggested that the conceptual representation of the aggregate can change over time which would suggest longitudinal studies could make a valuable contribution to research in cross-functional teams and intergroup conflict in general (Eller & Abrams, 2004; Gaertner et al, 2000). It would be possible to discover if a multiple group conceptualisation changes to a single group conceptualisation (or the other way around) and whether there is only a single instance of change or do people shift back and forth depending on the influence of the broader organisational context.

Additional evidence that the intergroup identity management strategy did not constitute a threatening environment is in the post-task awareness of intragroup-intergroup status. Inter-functional status differences were included as status

differences represent a threat (Scheepers & Ellemers, 2005) which can create intergroup conflict within a cross-functional team (Jassawalla & Sashittal, 1998; Haunschild et al, 1994). Status differences were expected to be less noticeable to participants from the intergroup condition compared to the intragroup condition. Unexpectedly, there were no statistically significant differences found either within or between conditions. However, the *trend*, although statistically non-significant, was consistent with H5 while H6 was supported as ‘outcome’ did not impact on post-task status levels.

It should be noted that the groups within the current research appear free from pre-task status differences. As addressed in the ‘limitations’ section, this may partly be due to the status instrument. However, post-task levels of other dependent variables are consistent with an absence of status based threat. Therefore measurement error is not of sufficient magnitude to warrant completely disregarding the present results.

An alternate reason for the low level of salience accorded intragroup intergroup status differences may be the pre-task acceptance of the cross-functional team as a social identity and the post-task acceptance of the cross-functional team as a single group (Eggins et al, 2003; Seta et al, 2000). The task was one where informational diversity of each subgroup was equally valuable to the group. Complexity and equally valuable contributions reduce salience of intergroup status differences while increasing acceptance of a shared social identity (Dovidio et al, 1998; Hewstone et al, 2002; Haslam et al, 2003). Easily observed inter-functional diversity draws attention to the complexity of the cross-functional team, reducing the accuracy of any one subgroups claim to being most prototypical for the composite group. Reducing the level of relative intergroup prototypicality has been found to

decrease intergroup biases that would otherwise appear legitimate by virtue of perceived status differences (Weber et al, 2002; Chattopadhyay et al, 2004; Waldzus et al, 2005). There was no sign of inter-functional bias as would occur if subgroup distinctiveness was threatened (van Knippenberg et al, 2002). The suggestion is observable complexity may have facilitated the preservation of each subgroup as valued part of a newly developed composite prototype.

Although the absence of status differences may be unusual in an organisation (Terry, 2003), the present research allows an opportunity to see what can be expected from cross-functional teams not marred by inter-functional biases inspired by status differentials. For example, trust, effort, and acceptance of the cross-functional team social identity could be expected to increase if inter-functional status differences could be minimised within the cross-functional team (Dovidio et al, 1998; Jassawalla & Sashittal, 1998; 1999; Weber, 2002; Cunningham & Chelladurai, 2004). Research has shown status differences can be used to legitimise ignoring contributions of low status team members, potentially lessening access to informational diversity, which is the lifeblood of a cross-functional team (Reynolds et al, 2000; Weber et al, 2002; Husted & Michailova, 2002). In other words, a cross-functional team will be most likely to function well if there is only minimal awareness of inter-functional status differences.

A further practical implication relevant to inter-functional status differences is that cross-functional teams may function better if they are seen as a distinct group in its own right, rather than a group run by any single functional group there will be no perceived discontinuity of a valued subgroup identity. The rationale behind this idea is that the participants did not display any negativity towards each other whereas cross-functional teams that are dominated by a single function tend suffer from a low

degree of collaboration and internal politics (Jassawalla & Sashittal, 1998). This may suggest that a potentially beneficial practice would be to treat a cross-functional team as a standalone entity rather than being administrated under the auspices of a single dominant function this could remove a no reason for resentment, and attendant undesirable outcomes, from being placed in a dominated (lower status) position.

The current research suggests the intergroup identity management strategy could be more effective than the intragroup strategy at negating status based threat within a cross-functional team. It can also be suggested that status based differentiation may be minimised if the cross-functional team is a novel, standalone entity, if some effort is made to gain some pre-task commitment to the group, and if inter-functional diversity is stressed as an explicit reason for the groups existence. The reason is these contextual features will increase the chance functional diversity will be included in the prototypical standards of the cross-functional team.

A final practical implication is that the present work may complement another suggested application of SIT/SCT into organisations. The ASPIRE model (Actualising Social and Personal Identity Resources) is an attempt to use SIT/SCT as means of increasing an organisations social capital. Social capital is resources inherent in the web of intra-organisational relationships that contribute to feelings of loyalty, trust, pride and commitment (Haslam et al, 2003; Eggins et al, 2003). There is some research support for the ASPIRE model such as Obrien et al (2004) and Eggins et al (2002). The ASPIRE model prescribes four phases that together create the scene for developing an organic organisational identity. An organic social identity incorporates a value for diversity. The differences residing within organisational subgroups are not barriers to between groups interaction as integration of different

knowledge, skills and perspective is best for achieving shared goals (Haslam et al, 2000; Eggins et al, 2003).

The process begins with identification of the social identities used by employees (AIRing), establishing subgroup (Sub-Casing) and organisational (Super-Casing) goals. Importantly, in the Super-Casing phase, subgroups are treated as resources to be valued for the contribution they will make to fulfilling higher order goals (Eggins et al, 2003). In the final phase participatory goal setting and planning is conducted, preferably involving representatives of the subgroups as well as organisational leadership (ORGanising). The perspective of employees should be one where they have a full understanding of the organisation, and the complementarity of roles within it, as part of an organic superordinate social identity (Haslam et al, 2003; Eggins et al, 2003). The potential exists for the intergroup identity management strategy employed in the current research, involving as it does and emphasis on intragroup intergroup complexity, the value of inter-functional diversity and a reason to become more inclusive, to play a role during the Super-Casing phase.

Conclusion

This study investigated the application of two different identity management strategies to cross-functional teams. In answer to the research question (see Chapter One), the current results suggest it is possible to manage relationships within both mono-functional and cross-functional teams by manipulating normal psychological processes that operate at the intergroup level. SIT and SCT proved useful for explaining what was observed and for designing identity management strategies in both mono-functional and cross-functional teams. These theories are therefore

potentially useful as a conceptual basis for guiding team development and team management practice in organisations.

With reference to the second part of the research question (see Chapter One) the choice of strategy was less crucial in the mono-functional team than the cross-functional team. In cross-functional teams it was the intergroup identity most consistently related to improvement. The intergroup strategy was associated with higher levels of trust and effort and signs of decreased sensitivity to inter-functional status differences when compared to the intragroup strategy. The intragroup strategy was associated with stability rather than improvement. The intergroup strategy appears free from distinctiveness threat, encouraging shared self-definition, thereby lowering resistance to inter-functional assimilation. The utility of the intergroup strategy was not reduced by the fact that one team must win and the other must lose. In other words, a cross-functional team will be most effective from the organisations perspective, and safer from an employee's perspective, if relationships within the cross-functional team are developed within an intergroup context.

The current research suggests establishing some pre-task social identity with a task group as a locum of social identity provides some basis for benevolence in both mono-functional and cross-functional teams. It is possible to do so using similar methods to those used in the pre-task phase of the current research. In addition, creating a context wherein inter-functional diversity can become a valuable component of a cross-functional team prototype may be more important than attempting to create a particular perception of the task group as either a single group or subgroups within a single group. This idea requires verification through future research as there was no attempt to assess prototypical content in the current research. However, previous research suggests the value of diversity is more likely to be

realised if the information within the context surrounding the task group facilitates the construction of a prototype in which intragroup-intergroup diversity is placed centre stage. Although the current finding that cross-functional team functioning will improve if managed at an intergroup level of processing, particularly in a competitive intergroup context is attributable to measurement error, future research would benefit from development of measures specifically tailored for cross-functional teams.

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Appendix A: Teamwork and Intra-organisational Diversity

Overview

The aim in Appendix A is to establish the rationale for applying social psychological theory to an organisational context. It will be argued that an organisation wishing to benefit from internal heterogeneity will need to apply ideas from social psychology into the organisational context. The logic of this position will be established through discussion of team based work and demographic diversity in the workplace. It will be demonstrated that there are both beneficial and detrimental outcomes derived from the use of internally heterogeneous workgroups (Bowers, Pharmer & Salas, 2000). It will be demonstrated that successful groups have a different social climate when compared to unsuccessful groups. Further, it will be shown that healthy climates differ from unhealthy climates in the quality of the integration between subgroups. It will be argued that the quality of social integration will be higher if the team is accepted as a shared social identity group.

It should be noted that the basic definition of a ‘team’ or ‘task group’ in the present work is as a *‘discrete collective entity, embedded in a larger social system, whose task fulfilment requires interdependence’*. This definition is closely modelled on Guzzo and Dickson (1995) but differs in that there is no requirement for the work to affect others, for example customers. By extension, the definition utilised for internally diverse workgroup is *‘a discrete collective entity, embedded in a larger social system, whose task fulfilment requires interdependence, composed of members from different demographic backgrounds’*. In the current chapter demographic background is intended to reflect characteristics such as age, gender or ethnicity (Brickson, 2000, Guzzo & Dickson, 1995). The next section will be an overview of research into team in the workplace.

Team based work

There are a number of reasons for researchers to be interested in the examination of task-group functioning in general and in internally heterogeneous task-groups in particular. One reason is that modern organisational systems are increasingly using teams as basic units of production (West, Borrill, & Unsworth, 1998). For example Lawler, Mohrman, and Ledford (1995, cited in Nijstad & De Dreu 2002) report that 68% of the top 1000 companies in the United States employ self-managing work groups. Benders, Huijgen, Pekruhl, and O'Kelly (1999, cited in Nijstad & De Dreu 2002) report 84% of a sample of 5000 European companies use autonomous work groups. A second reason for examining work teams is the poor understanding of how to reliably achieve the potential benefits team based work offers organisations compared to tasks performed by independent individuals (Nijstad & De Dreu, 2002; van Der Vegt, Emans & van De Vliert, 1998; Devine & Phillips, 2001).

One of the assumptions made by organisations who structure work around teams is that employees will be motivated to work harder (Charbonnier, Huguet, Brauer, Monteil, 1998). This assumption has found support in research by van Der Vegt et al (1998) who examined whether team work explained any additional variance in personal work outcome variables of 'social satisfaction', 'internal motivation' and 'general satisfaction' beyond the factors of Hackman and Oldhams (1976; cited in van Der Vegt et al, 1998) Job Characteristics Model (JCM) of employee motivation. The basic individually focussed JCM model assumes that five core features of a task (task identity, task significance, skill variety, autonomy and feedback) will predict employee motivation and job satisfaction by engendering a sense of meaningfulness and responsibility within individual

employees (van Der Vegt et al, 1998). The researchers extended the JCM to include 'task interdependence' and 'outcome interdependence'. The significance of the addition of 'interdependence' to the JCM rests in the recognition that teams require interdependence (West et al, 1998), signifying a social dimension not explicitly considered by the individually focused JCM.

Van Der Vegt et al (1998) reported team interdependence explained an additional 10% of variance above the basic JCM, which accounted for 61% of the variance, for felt responsibility for other team members' work. In turn, responsibility was positively related to the three outcome variables of general satisfaction, internal motivation, and social satisfaction. The implication is, given positive outcome interdependence (each member benefits from each other members success) and task interdependence (van Der Vegt et al, 1998), a team based organisation can have employees with higher satisfaction and motivation than otherwise similar non-team based organizations.

Although satisfaction and motivation are desired organisation outcomes, they may not be the best indicators of the value of team work. This observation is relevant as the main reason an organisation would use teams is to increase performance relative to an individual working in isolation (Kirkman & Shapiro, 2000). While indicative of an individual's positive attitude or affective experience, these outcomes may not actually translate into measurable performance gains. For example, Baldwin, Bedell and Johnson (1997) reported teams with the most satisfied members had the lowest academic performance. Therefore, if trying to demonstrate the value of teams, it is necessary to show a performance gain of some type that can be attributed to the use of teams instead of individuals. There are a number of studies where teams have been found to outperform individuals.

One example is a study by Nijstad, Stroebe, and Lodewijkx (1999) where a linear relationship was found between 'group size' and 'persistence' as groups worked longer than individuals in a brainstorming setting. It was noted that although there was a small and statistically insignificant drop in the number of ideas generated by groups during a problem solving task, the increased persistence compensated for the marginally fewer ideas generated. Further, Nijstad et al (1999) reported there was no loss of productivity when group members expected to have repeated interactions. Nor was satisfaction or enjoyment related to persistence. In other words team members participated as long as they were able to make a meaningful contribution to the group, irrespective of individual feelings about the task (Nijstad et al, 1999). The implication is that use of teams will not decrease productivity as group work encourages continued effort from members.

Research by Stasson and Bradshaw (1995) goes further than Nijstad et al (1999) in providing evidence that teams can perform better than the individual members working in isolation. Stasson and Bradshaw (1995) compared the problem solving performance of individuals (control condition) to members of teams. Team members were measured individually and as team members. Results indicated groups outperformed the individuals who served as controls. Teams attained higher scores for problem solving ability than the individual score of the best member. In addition, teams improved their performance to a greater degree than their best individual member improved. Also noteworthy is some teams were composed entirely of individuals who failed to provide a correct solution to the problem. Members of these teams showed a marked improvement as they provided a correct solution 28.1% of the time whereas only 4% of individuals in

the control condition were able to improve (Stasson & Bradshaw, 1995). The suggestion is that groups can provide a gain in performance over individuals.

This suggestion is corroborated by a meta-analysis concerned with the relationship between team member cognitive ability and team performance. Devine and Philips (2001) found the average level of cognitive ability within a team will be more predictive of performance (accounting for double the variance of performance) than the member with the most cognitive ability or the member with the least cognitive ability (Devine & Philips, 2001). The suggestion is that the use of teams may be effective for maximising the available cognitive resources within an organisation. However, Devine and Philips (2001) noted the positive effect of cognitive ability on team performance was attenuated in organisational settings compared to laboratory settings.

One possible implication is that teams may be less useful outside the laboratory. Alternatively, low generalisation outside of a laboratory setting could be attributed to a criteria issue. For example, all the research cited by the author as support for the use of teams employs some permutation of 'problem solving ability' as the criteria for group performance. It may be that the use of work teams will not be of benefit to an organisation where the task does not emphasise conceptual operations (Devine & Philips, 2001). The issue of ecological validity as a function of criteria for team performance will be considered below.

Banker, Field, Schroeder, and Sinha (1996) conducted field research in an engine manufacturing plant in the process of replacing individualistic with team based work practises. At the conclusion of a longitudinal study, the researchers reported quality (frequency of defective product), and productivity, defined as the number of units assembled per hour, improved since the inception of team based work

practices on three out of four production lines. The indication is that behavioural tasks can be performed at a higher standard when designed around teams.

Batt (1999) conducted research in a call-centre. Number of sales and sales quality were used as the criteria for team effectiveness. When compared to the performance of staff members who worked individually, team membership accounted for a 9.3% increase in sales and a 6.3% rise in service quality. The potential confound of a Hawthorne effect (performance lifts due to observation) was accounted for by measuring team performance on 16 separate occasions over 18 months. The idea, based in previous research, was that the Hawthorne effect lessens as the novelty of working in teams declines (Batt, 1999). Results indicated although there was a seasonal rise and fall in sales patterns, teams always outperformed individuals (Batt, 1999). Stewart and Barrick (2000) conducted research in three manufacturing sites. Those employed in conceptual roles were compared to those in behavioural roles. The researchers found no evidence of a negative relationship between task type and supervisor ratings of performance (Stewart & Barrick, 2000). In other words team work will be positively related to performance of both conceptual and behavioural tasks.

If the aforementioned studies are considered as a whole it can be concluded that teams can be beneficial outside of laboratory settings. Furthermore, teams can be useful for either behavioural or conceptual tasks. Therefore, in contrast to the proposal by Devine and Philips (2001), it is argued that the difference between laboratory and organisational research cannot necessarily be attributed to task type (behavioural or conceptual).

Task interdependence and intragroup processes.

An alternate explanation can be derived from Stewart and Barrick (2000) who reported that task interdependence was an important factor in the performance of behavioural versus conceptual tasks. Interdependence was curvilinearly related to performance. The direction of curvilinearity was opposite for teams engaged in conceptual work compared to those primarily engaged in behavioural tasks. For conceptual teams interdependence aided performance when it was high or low (an inverted 'U'). When the task was behavioural a moderate level of interdependence had the greatest association with performance.

One possible suggestion that could be made based on the Stewart and Barrick (2000) results is that the key to managing teams for maximum gain is to match the level of task interdependence with the task. For example, moderate interdependence for behavioural tasks and a judicious mix of high and low interdependence for conceptual tasks. However, further examination of Stewart and Barrick (2000) suggests that magnitude of interdependence may not be the single most important factor to be aware of when managing teams. The reason is that 86% of the effect of interdependence was mediated by intra-team processes for 'conceptual' teams. For 'behavioural' teams intra-team processes accounted for 55% of interdependences relationship with team performance.

Intra-team processes are interactions within a group that have cognitive, verbal and behavioural consequences (Marks, Mathieu, & Zaccaro, 2001). For example is there conflict or cooperation (Cohen & Bailey, 1997)? Do people loaf or work well (Stewart & Barrick, 2000)? Intra-team processes have a basis in the psychosocial integration within the group (Lembke & Wilson, 1998; Marks et al, 2001). Therefore the mediation of the interdependence-performance relationship reported by Stewart and Barrick (2000) would imply there is an element of team

performance attributable to the social fabric of the team. This is potentially more important than the level of interdependence required to achieve a task or the task-type.

More evidence supporting this idea is evident in two studies conducted within the same firm but a number of years apart with different participants: Campion, Medsker and Higgs (1993), using a sample of workers engaged in behavioural tasks, and Campion, Papper, and Medsker (1996) using workers engaged in conceptual tasks. Although task interdependence was related to team performance, it was the quality of intra-team processes with the strongest relationship to team performance for both behavioural and conceptual tasks.

Jordan, Field, and Armenakis (2002) performed research with teams of air force officers. These teams were measured for performance on both conceptual and behavioural tasks. An advantage gained by comparing the same occupational group, instead of, for example, white versus blue collar, is the level of control provided over potential confounds that may arise from comparing different occupations on common criteria of performance. For example, Bain, Mann, and Pirola-Merlo (2001) found a difference in performance between teams engaged in 'research' and teams who specialised in 'development'. Both tasks are conceptual yet research teams have more opportunity than development teams to be 'innovative'. The effect of this was that although 'team climate' impacted on team performance for both groups, a stronger association with performance (operationalised as innovation) was found for 'research' as the criteria was not representative of the 'development' teams main work. Mismatching the criteria to the task thereby lowered the relationship between an intra-team process variable and a desired outcome.

Jordan et al (2002) reported that differences in intra-group processes were associated with differences in performance. Group potency (shared belief that the team will be an effective unit) was a particular strong predictor of performance. Group potency accounted for unique variance above social cohesion and 'team member exchange' (the quality of interaction between an individual team member and other team members) in performance of both task types.

The studies cited above can be contrasted with Charbonnier et al (1998) who shows how an individual who does not integrate into a team may detract from team performance. Specifically, the more an individual feels 'unique' or 'better' than other team members, the more likely the person is to withhold personal effort and rely on the work of other group members. Social loafing has been positively associated with intragroup conflict and negatively associated with supervisor ratings of group performance (Stewart & Barrick, 2000). Simons and Peterson (2000) reported levels of intragroup trust moderated levels of relationship conflict within task groups. The research suggests low levels of social integration can detract from performance through the quality of the intra-team processes.

This conclusion is supported by Sparrowe, Liden, Wayne, and Kraimer (2001) who compared a number of groups across five organisations and found, firstly that overall group performance was lower than individual performance, and secondly, while membership in some groups was positively associated with higher performance (both in-role and extra-role) in other groups the opposite was true. Sparrowe et al (2001) noted that there are informal groups of people in organisations that behave in ways that are counter-productive to the explicit aims of their organisations. The more contact within these 'hindrance networks', the bigger the negative impact of the informal group on organisational outcomes.

Similarly Worchel et al (1998) reported that under certain conditions, a high sense of group membership can decrease productivity to below that achieved by individuals. However, this result can be reversed if the task affords an opportunity for the work-group to demonstrate superiority relative to other groups (Worchel et al, 1998). The motivation to establish group superiority is one of the fundamental signs of social psychological connection within a group (Haslam, 2001) suggesting a social dimension to work group performance. This is corroborated by the aforementioned studies, which collectively indicate negative as well as positive outcomes can have a point of genesis in group level phenomena. Therefore work teams can be legitimately approached at a group level of analysis.

Results reported in the above studies indicate teams can outperform individuals. This is observable in both laboratory and field research. However, teams will not always solve the problems of a low performing organisation (Ouwerkerk, Ellemers, & De Gilder, 1999). Teams can be distinguished from each other by the quality of intra-group social processes, and an accompanying willingness to direct effort either for or against task fulfilment. The quality of social processes can be at least as important as matching task type to individual member ability, and this holds whether tasks were conceptual or behavioural. Therefore, it can be suggested teams will be most useful where there is a careful management of the social processes within a task group. This need is exacerbated within teams that are internally heterogenous. The next section demonstrates the importance of social processes when employing demographically diverse work groups.

Diversity in task groups

The majority of organisational diversity research is based in demographic differences such as age, gender and race (Harrison, Price & Bell, 1998). This section

reviews research examining the impact of demographic diversity on team outcomes. It is proposed that the difference between successful and unsuccessful heterogenous groups is a function of the quality intragroup social integration.

Demographic diversity.

Organisations are seeking to use the increasing heterogeneity of the workforce to their advantage by fostering interdependence between employees of different demographic categories (Schneider & Northcraft, 1999). The assumption is diversity will allow a work group to capitalise on the cross-fertilisation of ideas, skills, abilities and values that interdependence should encourage. To date, research examining the validity of this assumption shows that neither success nor failure can be guaranteed (Chatman & Flynn, 2001). The practical difficulties, but also the perceived potential value of diversity, have become so noticeable many organisations have created diversity management policies and positions (Schneider & Northcraft, 1999) rather than abandon efforts to capitalise on workforce heterogeneity.

Evidence that supports the composition of teams around members of different backgrounds derives from Fields and Blum's (1997) work on gender representation in work groups and job satisfaction. Based on phone interviews of 1634 workers the researchers reported gender composition does have an effect on employee job satisfaction. Both male and female participants felt more job satisfaction in groups of mixed gender composition than gender homogenous groups. The potential benefits of gender diversity on non-affective criteria is supported by Knouse and Danby's (1999) finding that the most effective groups (in a large military sample) were those with the same number of male and female members.

Further research indicating a relationship between group performance and diversity was conducted by Watson, Johnson and Merritt (1998). The researchers used participants from a university management course. Teams were together an entire semester. Each team was measured three times at five week intervals. The type of diversity of interest to the researchers was cultural, with each team in the diverse condition comprised of at least a white American, a black American, a Hispanic American and a member of non-American origin such as Asian. The diverse teams were compared to culturally homogenous teams on the quality of a team project. Culturally diverse teams outperformed homogenous teams, having produced better team projects in two out three evaluations (Watson et al, 1998). A meta-analysis conducted by Bowers et al (2000) found that heterogeneity in team composition was most beneficial when teams were performing more difficult, intellectually challenging tasks. This relationship held for heterogeneity based in personality, initial member task ability, and gender (Bowers et al, 2000).

The studies cited above could be construed as evidence that the key to implementing an effective workgroup is to ensure that members are demographically heterogenous; however a deeper reading of findings renders this a questionable conclusion. For example, in Bowers et al (2000) it was reported that if 'heterogeneity' and 'homogeneity' are directly compared there is a small and statistically non-significant trend in favour of heterogeneity rather than a significant performance gain. Further, where the task was less ambiguous and of lower complexity there was an advantage to be gained from using homogenous groups.

In Watson et al (1998), the performance advantage reported for culturally diverse groups was replaced by a higher standard of performance for homogenous teams at the third and final time of measurement. This increase in performance for

homogenous teams was accompanied by an increase in team oriented behaviours. Heterogenous teams lower performance coincided with an increase in self-oriented behaviours (Watson et al, 1998). It can be suggested changes in intra-group behaviour from self-centred to other-focused or other-focused to self-centred can lead to changes in the performance of demographically diverse groups. This indicates support for the proposed role of social integration in heterogenous work groups. However, it should be noted there was a similarity to Bowers et al (2000), namely that Watson et al (1998) found no significant advantage (or disadvantage) to be gained through use of internally diverse groups. Knouse and Danby (1999) found a curvilinear relationship between diversity and performance. Team effectiveness decreased once female membership became less than 11%, or more than 50%. Lower performance also occurred when other minority groups (not gender based) made up more than a 30%, or less than 11% of a team. Knouse and Danby (1999) proposed that once the upper levels of numerical representation were exceeded intragroup competition, based in demographic category membership, detracted from performance.

The above research suggests that intragroup diversity in of itself will not necessarily create a performance gain or a performance loss. The capacity of team members to socially integrate despite there being obvious differences also effects the performance of demographically diverse teams. Social integration depends on relative numerical representation of demographic categories on teams. Therefore, if attention is paid to the numerical representation of different demographic categories there will be less disagreement and therefore higher performance. However, the efficacy of this solution rests on the potentially simplistic assumption that conflict is detrimental to performance.

Research by Li, Karakowsky, and Siegel (1999) conducted research in teams of mixed race (Asian and Caucasian). Gender diversity was not salient as all of the participants were male. It was observed that when Asian students were in a clear numerical minority (>11%) there was an unwillingness to voice opinions in a group problem solving task compared to homogenous teams or teams of equal racial composition (Li et al, 1999). Although the silence on the part of the minority group members indicates an absence of intra-group conflict due to the lack of dissent (De Dreu & De Vries, 2000) there is no guarantee that high group performance will follow because 'withheld participation' removes the mechanism by which diversity is purported to be beneficial (cross-fertilisation of ideas provided by exposure to different viewpoints) (Brickson, 2000; van Knippenberg et al, 2004). That lack of participation is a valid concern is underscored when it is realised that the Bowers et al (2000) meta-analysis indicated complex problem solving tasks, as used in Li et al (1999), should be best served by a heterogenous work group. This result supports the proposal that the quality of social integration will play an important part in the performance of demographically heterogenous groups.

The basis for this contention is that unwillingness to express dissent can be seen as a sign that the minority group member does not trust, or feel trusted by, the majority group members (Dooley & Fryxell, 1999). A lack of trust implies the work group is not perceived to be psychologically safe (West, 2002). Low levels of intra-group safety would indicate that a low level of social integration within the group (West, 2002; Harrison et al, 1998). Low levels of intra-group safety have been shown to detract from the performance of individual work groups (Edmondson, 1999) and organisations as a whole (Baer & Frese, 2003). For example, Dooley and Fryxell (1999) reported higher strategic decision making ability in teams where dissenting

team members were sufficiently trusted to allow expression and discussion of their arguments.

Alternatively, it could be argued that the Li et al (1999) results are due to restricted sampling as all participants are male. If the male stereotype of being more aggressive than females is accepted as 'truth', it is possible to argue intra-group safety would not be an issue in teams that are racially diverse if all members are female. From this perspective Li et al (1999) offers little support for the idea that social integration would limit a teams performance outside of all male teams. However, Townsend and Dow Scott (2001) reported increased diversity in an all female sample resulted in fewer garments sewn in a 99% female sample of sewing machine operators working in self-directed teams. The researchers reported that the lower performance could be attributed to culture specific attitudinal differences. These attitudinal differences explained 63% of diversities effect on team performance (Townsend & Dow Scott, 2001).

Attitudinal differences, based in cultural values represent a mechanism by which membership in clearly delineated social groups can limit social integration (Harrison et al, 1998; Chatman & Flynn, 2001). In contrast, the argument that demography is insufficient cause for harmful intragroup conflicts is corroborated by Jehn, Northcraft, and Neale (1999) who found that while value based conflict detracted from team morale, intragroup functioning and group performance, gender based diversity did not contribute to poor quality teamwork or harmful conflict.

Jehn et al (1999) opined that one of the reasons for the inconsistent relationship between diversity and performance is that all forms of demographic diversity are not necessarily related to different social values. Therefore, when there are different value systems, such as in Townsend and Dow-Scott (2001), there will be

difficulties. However, where there is intragroup value homogeneity there is a greater chance of capitalisation of other forms of heterogeneity. This is observable in Harrison et al (1998) who reported that a negative impact of gender diversity on group cohesion reversed over time as interaction allowed team members to become aware of psychological similarities hidden by surface difference.

Similarly, Chatman and Flynn (2001), conducting research in student and organisational samples, reported heterogenous teams were initially lower performers than homogenous teams. However, intra-group performance increased dramatically as group members developed social norms of intra-group cooperation. Cooperative norms are agreed upon patterns of behaviour indicative of intra-group attitudes and intra-psychic definition of an individual as a member of a group (Haslam, 2001). Therefore the development of cooperative norms in association with increased performance implies that demographic diversity can be valuable when there is social integration facilitated by homogeneity at a deeper psychological level.

The importance of social integration can also be demonstrated through research where poor social integration has been the unintended outcome of diversity management initiatives. One example is Heilman and Alcott (2001) where participants had negative affective responses to being perceived as being selected in the interests of affirmative action rather than ability. Day, Cross, Ringseis, and Williams (1999) found the diversity management program in a university library resulted in social division between members of traditional minority groups and those viewed as members of traditional majority groups. The division was based in a perceived favouritism shown towards members of traditionally 'under-represented' groups (Day et al, 1999). At the level of individual employees this division could be associated with poorer job satisfaction, negative views of workforce diversity and the

perception of a lower quality group climate in members of traditional majority groups. At the dyadic level it was reported that traditional majority group members reported less positive relationships with management in the form of poor perceived leader-member exchange (Day et al, 1999).

Day et al (1999) noted that the procedures used to manage workplace diversity contributed to perceptions that the climate was procedurally unjust. Heilman, McCollogh and Gilbert (1996) found the reaction to preferential selection of females by males depended on the perceived procedural and distributive justice of the preferential treatment. Procedural injustice perception is conceptually based in the quality of intra-team relationships (Tyler, Smith, & Huo, 1996), providing further support for the importance of social integration within diverse work groups. Perceived injustice has been observed to lower performance in demographically diverse manufacturing teams (Colquitt, Noe, & Jackson, 2002). Higher levels of intra-organisational trust, assumed to be positively related to being treated justly (Tyler, 2003) is associated with behavioural and financial benefits for the organisation (Chami & Fullencamp, 2002; Mayer & Gavin, 2005). Therefore it can be suggested an organisation may incur a financial liability, in addition to poorer quality work experiences noted by Day et al (1999), from poorly managed heterogenous teams.

The poor group functioning and outcomes reported above can be contrasted with Drach-Zahavy and Somech (2002). These researchers reported increased gender diversity was positively related to intra-team member support (informational, emotional, instrumental, appraisal) and higher team performance. The instrument measuring intra-team support contains items such as 'Everyone's view is listened to even if it is a minority' (informational support) and 'There are consistently harmonious relationships among people in the team' (emotional support) (Drach-

Zahavy & Somech, 2002). Items such as these indicate a high level of team support is representative of a high level social integration related to visible collaboration.

Therefore it can be suggested the performance of internally diverse teams is a reflection of intra-team connectivity.

It should be noted that Drach-Zahavy and Somech (2002) reported a negative association between tenure, social support and performance due to a perceived higher intra-team status compared to relative newcomers. Intra-group status differentials violated an existing social norm of egalitarianism (Drach-Zahavy & Somech, 2002), implying poor social integration and decreasing the effort exerted on behalf of the group (Charbonnier et al, 1998). Similarly, Li and Hambrick (2005) found division along demographic factions led to increased conflict and decreased performance.

In contrast Campion et al (1996) reported heterogeneity was positively related to group functioning and performance when members identified with a single team. Riketta and Van Dick (2005) found identification with a subgroup led more concern for the wellbeing of the subgroup than the organisation. A dominant identification with the organisation led to more concern for the organisation than the subgroup. Randel (2002) found gender identity salience contributed to intragroup conflict more than gender diversity itself. Identification represents a psychological connection with other team members as representatives of a common group (Haslam, 2001). The research cited above suggests heterogeneity will be more likely to have a desirable effect if the tendency to separate along demographic boundaries is balanced by a degree of psycho-social connection with the work group (Seta, Seta & Culver, 2000).

Summary

The literature indicates teams can outperform individuals. This is observable in both laboratory and field research. However, team performance is affected by the social processes within the team. This holds whether the tasks are conceptual or behavioural. Research into organisational diversity based in demography is fundamentally similar to non-diversity based team research. Namely, socio-demographic diversity in a workgroup can have negative or positive individual, interpersonal and organisational level outcomes. It is suggested that demographic differences and similarities are secondary to deeper social psychological differences or similarities for determining group functioning and outcomes. In an effectively functioning internally diverse team psycho-social integration lays the foundation for intra-group interactions characterised by trust, connection, and feelings of psychological safety. In the absence of a deeper social psychological connection the environment is likely to be political, encouraging resentment, low trust and low group performance. It can logically be proposed that management of the social psychological connection within the team or group will increase then chance of an optimum outcome.

Appendix B: Theory/Practice Integration

Overview.

The author has argued the management of a cross-functional team would benefit through the integration of social psychological theory and research into the applied organisational context represented by the cross-functional team. Two fundamental principles underlie the researcher's position. The first principle is that research in organisational psychology should produce knowledge intended to drive a continuing improvement in practice so the wellbeing of those connected to an organisational system can be increased. The second fundamental principle is best encapsulated Lewin's classic dictum (cited in Lynham, 2000, p. 168) that "There is nothing more practical than a good theory".

The current researcher considers a reciprocal relationship between researchers and practitioners would be a mutually beneficial association (Anderson, Herriot, & Hodgkinson, 2001), particularly in cross-functional teams (Webber, 2002). Not making an effort to establish rigorous yet practical theory-practice integration is proposed to be detrimental to all who have an interest in the organisational sciences be they academics, practitioners or other stakeholders (Hodgkinson, Herriot, & Anderson, 2001).

The next section will examine possible reasons for practitioners and academics resisting collaboration. The examples used to demonstrate the different values within each 'camp' (job satisfaction and Hollands hexagonal model) are not directly relevant to a cross-functional team. However, they do allow a clear illustration of the gulf between researchers and practitioners. This is relevant to cross-functional teams as the lack of theory guided management of cross-functional teams. For example, Husted and Michailova (2002) state there is no 'standard wisdom' to draw on when

attempting to promote knowledge sharing between organisational units. They recommend forcing employees to share knowledge as a means of reducing hostility to knowledge sharing. Such atheoretical practice has been identified as one reason for sub-optimal functioning (Schneider & Northcraft, 1999). As an example, Jassawalla and Sashittal (1998; 1999) noted how enforced cooperation may drive conflict underground rather than promoting inter-functional collaboration.

Pedantic Science?

The rarity of collaborative academic-practitioner research can be seen in Anderson et al (2001). The researchers observed that only 3% of the articles published in 'Journal of Applied Psychology' in the 10 years period between 1990-2000 were the result of practitioner-academic collaboration. In comparison, 96% were the product of all academic research teams. This means that only 1% of the research published in The Journal of Applied Psychology during this period was produced solely by practitioners. Rynes, Bartunek and Daftl (2001) noted that less than 20% of articles submitted for consideration in a research forum explicitly aimed at collaborative research involved practitioners in either design or authorship. Only 53% of articles involved direct academic-practitioner contact.

Lynham (2000) suggests one reason for the low collaboration rate is the presence of an uncomfortable tension between academics and practitioners. The tension is an outcome of an expected conflict based in differentially prescribed values governing the output of practitioners and researchers. This assertion can be supported with reference to the previously cited Amabile et al (2001) where different values and external stakeholder demands created a degree of intragroup conflict.

Conventionally, it is believed academic researchers value empirical rigour over all other considerations (Anderson et al, 2001). One of the practices this

engenders is the reduction of the confounding effects of variables extraneous to the phenomenon of interest. This can cause problems for practitioners through a reduction of ecological validity (Scandura & Williams, 2000). In other words, higher experimental rigour can be achieved if results are obtained in an artificial environment that is not necessarily an accurate analogue of natural settings. The academic pursuit of experimental control over applicability constitutes what Anderson et al (2001) refers to as pedantic science.

Pedantic science can be considered to be analysis for the sake of conducting meticulously planned analysis. Replications of past studies, arguments based in a difference in a minute change in variance and the employment of complex statistical procedures for the sake of conducting complex statistical procedures are cases of pedantic science (Anderson et al, 2001). The purpose of this type of research is the creation of research, regardless of whether there is gain in applicable knowledge.

Example One: Job Satisfaction.

Job satisfaction research is one topic where pursuit of statistical rigour can be seen to detract from practicality. For example, statistical rigour conventionally demands the use of multiple items in a single scale. There are a number of sound statistical reasons for this. One reason is that more items increase scale reliability, although with diminishing returns as more items are added (John & Benet-Martinez, 2000). Another belief is that a single item will not adequately measure a complex multidimensional construct (Gardner, Cummings, Dunham, & Pierce, 1998). Further, there is pressure on academics to conduct analyses of increasing complexity (Anderson et al , 2001; Offermann & Spiros, 2001) and single item measures are inappropriate for use in sophisticated analytical techniques such as structural equation modelling (Smith, 2000; John & Benet-Maritnez, 2000). However, Nagy (2002)

reported that a single item measure of job satisfaction not only correlated significantly and positively with a multiple item measure of job satisfaction, but was found to be more predictive of job performance than the multiple item measure. The incremental validity of single versus multiple items coupled with benefits such as lower cost, shorter administration time, and higher face validity suggests that single item scales can be more practical than multiple items.

Example Two: Hollands Hexagon.

Personnel selection is a domain where there has been a strong link between practice and research. For example, a large body of research has demonstrated the potential usefulness of properly validated personality assessment for improving firm financial (Hodgkinson et al, 2001) and job performance (Salgado, 1998; Bartram, 1995). One of the more influential typologies employed in personnel selection is Hollands hexagonal personality theory (Dawis, 2000).

Briefly, Hollands hexagonal model of personality-environment fit is based around six fundamental personality facets (realistic, investigative, artistic, social, enterprising, conventional). People of a particular type are assumed to have an affinity for work environments that match the characteristics of a particular type. An individuals profile, composed of a dominant characteristic accompanied by less dominant traits are matched to an occupation whose environment is of the same type. A person in an environment (divided into data/ideas people/things dimensions) congruent with their personality type is expected to be interested and satisfied with their occupation (Prediger, 2000).

Tinsley (2000) presented a critical review of literature concerned with Hollands model and person-environment fit. The conclusion reached was Holland's model lacked validity. The basis of this criticism is twofold. One, there have been

meta-analytic studies where satisfaction and hexagonal profile did not correlate significantly. Two, the *exact* hexagon (shape determined by distance between adjoining and opposing facets) has not always been perfectly reproduced in research. Evidence supporting the hexagon was discounted as having a basis in ambiguous inferential statistics that can have multiple interpretations (Tinsley, 2000). However, in a rejoinder to Tinsley (2000), Prediger (2000) noted the lack of statistically significant correlations between hexagonal profile and satisfaction was due to range restrictions and skewed distributions based in people working in jobs consistent with their interests. This point would suggest that Holland's idea is validated in practice. Therefore, ironically, ecological validation may be the source of statistical invalidation as analysis based in linear measurement and a normal distribution could not be expected in a sample with a skewed distribution (McClelland, 2000; Prediger, 2000).

Further, Prediger (2000) notes that the hexagonal shape appears in the exact order specified by Holland with *general* spatial relationships between types that supports the basic hexagonal nature when measured in real workplaces. Dawis (2000) opines that the use of six types may be too coarse to optimise statistical results in research yet this is offset by the practical benefits. For example communication between career counsellors and clients is easier with reference to a type than discussing norm referenced scores, even though the norm referenced score could be of higher statistical validity.

Taken together, the two examples above (single item-multiple item measures of job satisfaction and Holland's typology) suggest it is possible for academics to get overly enmeshed in the statistical minutiae of research. An outcome of this immersion can be that academics lose sight of the purpose of research in

organisational psychology. This purpose is to advance the knowledge of the impact organisational systems have on the wellbeing of those within the system (Anderson et al, 2001; Offermann & Spiros, 2001). The next section will demonstrate how pedantic research can ultimately be self-defeating.

Negative consequences of theory/practice division.

One negative consequence of being *overly* concerned with control is the separation of academics from areas that had previously been developed with reference to applied yet rigorous research. The employee selection industry illustrates this point. Selection and recruitment has been a lucrative growth industry. Selection practice was initially based in the research of organisational psychologists as the primary developers of practical yet research validated measures of phenomena such as personality mental ability. Yet the influence and presence of academic researchers in this field has in effect been negated as academia turned inward (Anderson et al, 2001). The vacuum has been filled with any number of alternate service providers, some from disciplines with little claim to specialised knowledge relevant to peoples psychological experience of organisational life such as accountancy (Hodgkinson et al, 2001; Rynes et al, 2001). The dubious abilities of some these alternate sources of organisational assistance (Offermann & Spiros, 2001) may have serious consequences.

Not the least of these consequences could be a loss of credibility for the organisational scientist. Credibility lost as a result of damage to clients who may not be aware of the distinction between a 'consultant' peddling a fad, and a professional whose practice is informed by relevant research (Anderson et al, 2001; Offermann & Spiros, 2001). In addition to concerns for the wellbeing of clients to this type of practice, there is a financial issue.

University funding is changing to place less dependence on public backing in favour of institutional self-sufficiency (Anderson et al, 2001). It is hard to see sense in making publication, promotion and employment contingent on slavish compliance to a narrow set of ingroup values that may serve to fulfil a social psychological need for elitism (Anderson, 1998) yet reduces the financial viability of universities. It can be suggested that long term survival of universities could in part depend on achieving a balance. Specifically, balancing the academic values and abilities underpinning elegant research design with a realisation that organisational science is inherently applied (Anderson et al, 2001). From this perspective practicality is a desirable quality in organisational science based research.

The issue of practicality is of paramount importance to the practitioner (Lynham, 2000). The valuing of practicality is driven by the need to produce quick, cheap, one off interventions targeted at meeting political (Haslam, 2001) or financial organisational concerns (Rynes et al, 2001). The impact of the organisational stakeholders on practice can be seen in Amabile et al (2001). Amabile et al (2001) noted that conflict arose over the issue of time. Specifically, academics wanted to ensure the data was statistically valid. Practitioners wanted to present findings to employers regardless of the statistical inaccuracies. The practitioner argument was that the research needed to demonstrate regular progress in order to justify itself to organisational stakeholders.

Further evidence that practitioners do not necessarily value academic research is observable in Offermann and Spiros (2001). These researchers reported practitioners and academics professed an equal valuing of current literature. However practitioners tended to favour less empirical information sources of information than academics. Further, 33% of the practitioners surveyed did not think empirical

literature was useful in practice. Offermann and Spiros (2001) noted their sample was drawn from members of the Academy of Management and therefore likely to have accessed practitioners more likely to read empirical literature than other practitioners. This concern is corroborated by Terpstra and Rozell (1997) who reported academic research was the least likely information source to be accessed by practitioners. Further, Terpstra and Rozell (1997) note practitioners can consider academic research to lack reliability, ecological validity, and be too difficult to understand for the amount of knowledge that may be gained. Informal conversations with practitioner colleagues were seen as the most common and important source of information (Terpstra & Rozell, 1997). These results suggest two things.

Firstly, Offermann and Spiros (2001) could be correct in their concern that their research over estimates the degree to which practitioners utilise empirical data. Secondly, practitioners and academics are alike as outgroup output is illegitimately devalued for non-conformity to a dominant ingroup favouring paradigm (Anderson, 1998). It is possible, just as academics can be overly focused on experimental minutiae in the belief that this is best way to approach organisational issues, practitioners may be focused on expedience and meeting stakeholder demands (Anderson et al, 2001; Offermann & Spiros, 2001). Therefore it is not impossible for the pursuit of the practical, unchecked by recourse to relevant academic literature could ultimately prove counter-productive, and therefore contradicting a simplistic rigor equals impractical stance by practitioners (Scandura & Williams, 2000). For example, Anderson et al (2001) offer that the conduct of practice without theoretical guidance can result in practice that guided by managerial pressure. This pressure may arise from media attention to a concept rather than a sound knowledge base (Anderson et al, 2001) or the desire to make a quickly observable rise in

organisational performance (Offermann & Spiros, 2001). An example of organisational practice that has been characterised as motivated by momentary expedience (Shimko, Meli, Restrepo, & Oehlers, 2000) or conforming to a trend rather than meeting real organisational need (Mone, 1997) is downsizing.

Downsizing is the large scale reduction in employee and job position numbers (Cascio, 1993) is promoted as a strategy for improving the ability of an organisation to survive and thrive in competitive business environments (Davis, Savage, & Thomas, 2003). The most common rationale for downsizing is the assumption that cutting the cost of employees will lower the cost of production and therefore there will be a rise in organisational profitability (Cascio, Young, & Morris 1997). Mone (1997) lists other potential benefits such as improving internal communication and removing excess administrative functions. Potential benefits to the employee include a sense of empowerment through greater control and competence from acquiring new skills (Mishra, & Spreitzer, 1998).

There is, however, little consistent evidence to suggest that downsizing will lead to have positive outcomes for either the organisation or the employee (Davis et al, 2003; Mone, 1997). For example, there is evidence that downsizing may actually reduce the ability of a company to increase profitability. Cascio et al (1997) reported that companies with the largest reductions were least able to retain profitability over a period of two years. In contrast, those who increased their workforce, or engaged in minimal restructuring maintained or increased profit. Shimko et al (2000) found not all firms who downsized did so in response to financial deficits. Yet all firms that downsized lowered their market value and their income. The suggestion is downsizing a financially healthy firm may not lead to a larger financial benefit than

would already be realised. Rather, it may detract from an organisations existing competitiveness.

McElroy, Morrow, and Rude (2001) conducted research in the banking industry at a sub-unit rather than organisational level. The researchers compared downsizing to voluntary and involuntary turnover for relationships with measures of organisational effectiveness. It was reported downsizing had the largest negative impact on performance. Downsizing could be positively associated with customer dissatisfaction and transaction costs and negatively related to productivity and profitability. These negative effects increased over time. Ganster and Dwyer (1995) found downsizing to have some positive outcomes at an individual level of analysis. At a group level of analysis, however, the individual positives failed to translate into higher group performance. Instead, a decrease in group performance could be observed.

Taken together the above studies suggest downsizing could contribute to a lack of competitiveness rather than an increase in competitiveness. In addition to the financial damage that can be associated with downsizing, there is a potential human cost. The human cost is indicated by Isaksson and Johansson (2000) who examined post downsizing wellbeing of ex-employees in an insurance firm. Satisfaction and wellbeing were lowest in those who were either involuntarily retired or retained. The ill effects of the downsizing process did not abate over a two year period. Cascio (1993) reported many downsizing survivors manifested symptoms of burnout. Knudsen, Johnson, Martin, and Roman (2003) compared those who retained employment after organisational downsizing with those unaffected by downsizing. It was found exposure to downsizing increased job stress and reduced commitment to the organisation. The reduction in organisational commitment (Knudsen et al, 2003),

lower morale, satisfaction, productivity and increased sabotage (Mone, 1997; McElroy et al, 2001; Mishra & Speitzer, 1998) that can occur subsequent to downsizing suggests the psychological cost to employees can have an unintended negative impact on the organisation. However, reviewers of downsizing literature have noted downsizing can occasionally have beneficial effects (Davis et al, 2003; Mone, 1997).

The lack of a consistent benefit or detriment that can be attributed to downsizing suggests it is possible to downsize correctly or incorrectly. Further, the nature of the outcomes noted in the cited literature suggests the cost incurred from downsizing has a basis in the psychological damage to employees. Therefore it is possible that downsizing correctly involves being aware of the psychological impact downsizing is likely to have on those effected (Mishra & Speitzer, 1998). For example, Isaksson and Johansson (2000) suggest that negative reaction on the part of employees could have been avoided if the organisation had been aware of literature concerned with the concept of the psychological contract. Specifically, as part of the downsizing program, all senior management were told they could retire if they wished. However a number were denied early retirement to prevent organisational deskilling. The unmet expectation can be construed to be a breach of the psychological contract between the employer and the employee. This is supported as breach of the psychological contract has been associated with dissatisfaction (Turnley & Feldman, 2000) as was reported to be a correlate with low psychological wellbeing by Isaksson and Johansson (2000).

In addition, organisational breach of the psychological contract may have unwittingly encouraged, rather than prevented, organisational deskilling as a number of those denied early retirement left the organisation of their own accord (Isaksson &

Johansson, 2000). Evidence to support this connection is provided by Lester, Turnley, Bloodgood, and Bolino (2002) who reported employees tend to discount the employers rationale for breaching a psychological contract in favour of a more hostile attribution. Hostile attributions were accompanied by lower organisational commitment (Lester et al, 2002) which would be consistent with the voluntary exit from the employer reported by Isaksson and Johansson (2000) on the part of those retained against their will.

Kernan and Hanges (2002) demonstrated how knowledge of psychological research could be used to downsize correctly. The researchers adopted an organisational justice framework to an organisation undergoing downsizing. It was reported that attending to employee input, open employer-employee communication, supporting victims and the match between managements stated intent and actual behaviour all predicted to a sense of justice. The most important facet of organisational justice for predicting employee outcomes was procedural fairness. Structural equation modelling showed procedural justice positively predicted organisational commitment, job satisfaction and trust of management whereas turnover intent was negatively associated. This association held over a ten month period demonstrating effects of downsizing tend to hold long term. Interpersonal justice and informational justice predicted trust in management over a shorter term (Kernan & Hanges, 2002).

One implication that can be drawn from Kernan and Hanges (2002) is that the negative impact of downsizing can be minimised if likely psychological responses are incorporated into the planning of the program. In turn, this suggests that an awareness of relevant organisational psychology research can make an important contribution to practice. For example, a practitioner could engage in an inductive reasoning process

beginning with an examination of Kernan and Hanges (2002). Observing procedural justice is an important predictor of success, the practitioner could develop general operating principles in line with the outcomes attributed to each variable and the content of items that measure each variable. Benefits achieved through theory guided practice will be reported below.

Benefits from Theory Guided Practice.

Research by Offermann and Spiros (2001) found that the most effective team development practitioners, in terms of improvements in attitudes and performance both short and long term, were those who utilised empirical research as part of their knowledge base. Those who conducted practice without recourse to any academic literature were reported to be least effective at gaining short-term performance gains. Terpstra and Rozell (1997) found organisations were more profitable when academic research informed practice. No other source of information, whether informal information exchanges or non-academic publications had a statistically significant relationship with firm financial gain. This can be interpreted as evidence that practitioners who ignore academic sources of information as irrelevant and impractical may be mistaken. Further, this mistake impacts on their personal effectiveness and organisational profits. It is hard to see how atheoretical practice is very practical.

Another benefit that may be derived from theory guided practice is the development of a shared language with which to evaluate and modify practices in an appropriate manner (Lynham, 2000). For example, a practitioner who adopts an organisational justice perspective to downsizing is able to discuss the results of the intervention with either academics or practitioners. The importance of a shared linguistic framework is demonstrated by Offermann and Spiros (2001). These

researchers found the word 'team' is defined differently by practitioners and academics. Consequently, in the absence of detailed descriptions of 'teams', practitioners find it difficult to gauge the ecological generalisability of 'team' based research to a context that is not directly equivalent to the research setting. Therefore the practitioners are reluctant to apply research to practice, which detracts from practice outcomes (Terpstra & Rozell, 1997). In turn academics are excluded from a data source which can be used to improve research driven theory development (Scandura & Williams, 2000).

The need for a shared language or standard of evaluation should also be considered in light of the following. Firstly, team development practitioners and academic researchers share similar subjects of interest (Offermann & Spiros, 2001). This suggests there is scope for theory practice integration. Secondly, practitioners consider informal discussion with peers to be the most important sources of information (Terpstra & Rozzel, 1997; Amabile et al 2001). However, Offermann and Spiros (2001) found that 250 different conceptual models were in use, with little agreement as to the relative efficacy of any single theory. If this is considered along with the tendency to favour self-confirming evaluation (Van Knippenberg et al, 1994) then it is possible that the current level of conceptual diversity may detract from the critical evaluation necessary for the evolution of quality practice.

Finally, Offermann and Spiros (2001) reported that although there is a diversity of approaches to team development practice, there is a tendency to take an individualistic focus with individuals as individuals rather than group members. For example, the Myers Briggs Type Indicator, with its foundation in Jungian psychology, was reported to be the most common team assessment measure. Tuckmans model, also based in an individualistic view of psychology (Lembke & Wilson, 1998) was

reported to be the most common conceptual approach in organisational practice (Offermann & Spiros, 2001).

The dominance of individualistic psychology in group settings can be seen to be inappropriate. Specifically, organisational groups, including cross-functional team, can be legitimately approached as social systems. Group memberships, internal and external to the cross-functional team affect the manner in which group members think, feel and behave within the cross-functional team (Cunningham & Chelladurai, 2004; Schneider & Northcraft, 1999). The level of identity abstraction targeted for management attention should be matched to the desired organisational outcome (Riketta & van Dick, 2005). In other words, if improved intragroup collaboration is desired, a practitioner needs to work at an intergroup rather than an intrapsychic level of identity (Lembke & Wilson, 1998; Haslam, 2001). Therefore social psychological theory and terminology are needed if cross-functional team are to be understood in research and practice. Schneider and Northcraft (1999) and Northcraft et al (1996) noted there would be success with cross-functional teams if the social psychological process such as social identification were accounted for in a common conceptual framework. Social identification processes form the basis of SIT, suggesting that SIT may be a sound theoretical base from which to guide management of cross-functional team relationships (Li & Hambrick, 2005).

Summary.

In summary, the author has argued for the integration of theory with organisational practice. The cited research shows ignorance of researcher output (on the part of practitioners) and practitioner output by researchers, can be detrimental all stakeholders. It was argued the atheoretical, individualistic approach taken by many practitioners teams may be one reason why the potential

benefits of cross-functional teams are not always realised. Therefore a social psychological theory developed to account for intergroup level identity such as SIT/SCT should be useful. The next chapter will examine the fundamental concepts and validity of SIT and SCT.

Appendix C: Group assignment 'similarity' measure used in Study one'

Instructions

For the purposes of the experiment you will be placed in a group of people who are similar to yourself. The degree of similarity will be gauged from the preferences you provide below. There is no incorrect response. Your response will remain anonymous.

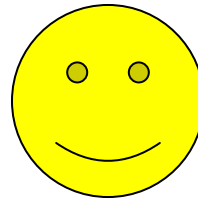
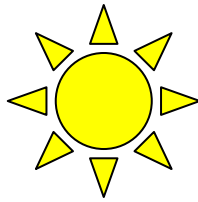
Please look at the three rows of geometric shapes. Rate the three rows in order of preference.

Rate your favourite with a 1

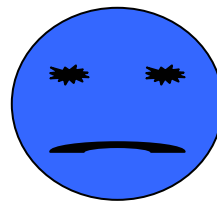
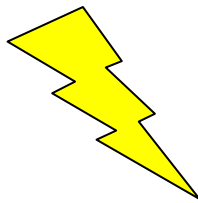
Your next favourite with a 2

Your least favourite with a 3

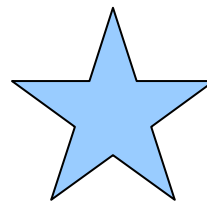
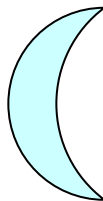
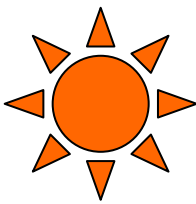
If replying via email you can record your preference by the written order of the row labels. For example A, B, C would mean you like row 'A' the best, row 'B', next, and row 'C' the least.



Row A



Row B



Row C

Appendix D: Who finds the fish problem used in intragroup conditions

Problem solving taskFacts

- *There are 5 houses in 5 different colours.
- *In each house lives a person with a different nationality.
- *These 5 owners drink a certain beverage, smoke a certain kind of cigar, and keep a certain pet.
- *No owners have the same pet, smoke the same brand of cigar or drink the same drink.

Clues

1. The Englishman lives in a red house.
2. The Swede keeps dogs as pets
3. The Dane drinks tea.
4. The green house is on the left of the white house.
5. The green house owner drinks coffee.
6. The person who smokes Pall Mall rears birds.
7. The owner of the yellow house smokes Dunhill.
8. The man living in the house right in the centre drinks milk.
9. The Norwegian lives in the first house.
10. The man who smokes Blend lives next door to the one who keeps cats.
11. The man who keeps horses lives next to the man who smokes Dunhill.
12. The owner who smokes Blue Master drinks beer.
13. The German smokes Prince.
14. The Norwegian lives next door to the blue house.
15. The man who smokes Blend has a neighbour who drinks water.

Now: WHO KEEPS FISH?

Your team has 20 minutes in which to solve the puzzle.

Appendix E: Scavenger hunt problem solving task used in the intergroup conditions

Rules of the gameScenario

You are members of a tribe who have been deemed worthy to pass up into the next level of the tribal hierarchy by virtue of your mental and physical prowess. However, before being granted the extra status and influence that will come with your promotion you must publicly demonstrate that you are truly worthy through a group initiation test. In this manner the tribe will be confident that your progression is not due to anything other than ability. This will allow your fellow tribesmen to have confidence in your decisions and put your status beyond dispute.

In addition to tribal concerns, this test will settle a border dispute with the neighbouring tribe in favour of your tribe. The test is in the form of a competition between your group and another from selected by your neighbours. Victory will bring great honour; defeat will bring ostracism from your family and tribe.

Article I. Object

Article II. The object of this test is to collect the missing pieces of a tribal idol that have been hidden around the Mt Gravatt Campus by elders of the rival tribe. Your group will win by finding all pieces (gaining points) and assembling the idol before the opposing tribal group.

Article III. To find each piece you will have to solve a clue that will reveal the location of the next piece.

Article IV. Your first clue is to be found at a location that will be provided to you by the head witch doctor (me).

Article V. Each piece you collect is worth 10 points.

Article VI. Being first to assemble the idol in the judgement zone will earn 20 extra points and finish the game.

Section 6.01 Bonus points

You earn 5 bonus points for your group by removing the velcro tag from the back of an opponents uniform.

Being captured costs your team 5 points

If you continue to participate after being caught I will deduct a further 10 points off your groups total.

*Section 6.02**Section 6.03 Time limit/restrictions*

Time limit is 1 hour from when I blow the starters whistle.

You are not allowed to move, steal or otherwise interfere with the clues of opposing teams. To do so will disqualify your team.

The captured tribesman must return immediately to the judgement zone.

No one can be caught in the judgement zone (psychology building)

All relevant state and federal laws and university regulations must be obeyed during the play of this game. Any one reported to be breaking laws and/or regulations will be reported to the relevant authority for prosecution.

Appendix F: Pre-task measures as reported Study one 'results' section.

Social Identification

	Not at all 1 - 7 very much						
I identify with other members of this group	1	2	3	4	5	6	7
I am like other members of this group	1	2	3	4	5	6	7
This group is a reflection of who I am	1	2	3	4	5	6	7
I would like to continue working with this group	1	2	3	4	5	6	7
I dislike being a member of this group	1	2	3	4	5	6	7
I would rather belong to another group	1	2	3	4	5	6	7
I think this group has little to be proud of	1	2	3	4	5	6	7
I feel good about this group	1	2	3	4	5	6	7
I have little respect for this group	1	2	3	4	5	6	7
I would rather not tell that I belong to this group	1	2	3	4	5	6	7

Intragroup Heterogeneity

	Not at all 1- 9 very much								
Members this group can be seen as very different from each other	1	2	3	4	5	6	7	8	9
Members of this group can be seen as very similar to each other	1	2	3	4	5	6	7	8	9

Intragroup similarity

	Not at all 1- 9 very much								
In terms of general attitudes and beliefs, I feel similar to other people in (group x)	1	2	3	4	5	6	7	8	9
I feel a sense of belonging with other people in (group x)	1	2	3	4	5	6	7	8	9
In general, I think I would like other people in (group x)	1	2	3	4	5	6	7	8	9

Conceptual Representation of the Aggregate

	Not at all 1 - 7 very much						
It feels most like one group	1	2	3	4	5	6	7
It feels most like subgroups connected within one group	1	2	3	4	5	6	7
It feels most like separate groups	1	2	3	4	5	6	7
It feels most like separate individuals	1	2	3	4	5	6	7

Subjective Uncertainty

	Not very much 1 - 9 very much								
I am certain that I understand the instructions and the problem.	1	2	3	4	5	6	7	8	9
I am confident that I can work out the correct answer.	1	2	3	4	5	6	7	8	9
I feel uncertain about the experimental environment	1	2	3	4	5	6	7	8	9

Effort

	Strongly disagree 1 - 7 strongly agree						
When there's a job to be done, I will devote all my energy to getting it done	1	2	3	4	5	6	7
When I work, I will do so with intensity	1	2	3	4	5	6	7
I will work at my full capacity	1	2	3	4	5	6	7
I will strive as hard as I can to help the group be successful in its work	1	2	3	4	5	6	7
When I work, I will exert myself to the fullest	1	2	3	4	5	6	7

Intragroup trust

	Strongly disagree 1 - 7 strongly agree						
Group members will not withhold ideas or information that would help the group's performance.	1	2	3	4	5	6	7

The group pays equal attention to the ideas of all members.	1	2	3	4	5	6	7
There is no risk of the group not listening to members input just because they are different.	1	2	3	4	5	6	7
No one in this group would deliberately act to undermine my efforts.	1	2	3	4	5	6	7
There is a destructive competitiveness among members of this group.	1	2	3	4	5	6	7
Group members won't make the task more difficult with sub-standard work.	1	2	3	4	5	6	7
I don't need to watch for laziness in other group members.	1	2	3	4	5	6	7
I can't rely on group members to put in a fair effort.	1	2	3	4	5	6	7
Group members have knowledge, skills and abilities that will improve the group's performance.	1	2	3	4	5	6	7
I expect that group members would prefer to advantage themselves instead of the group.	1	2	3	4	5	6	7
If I get confused other group members can and will provide valuable help	1	2	3	4	5	6	7
I trust the group	1	2	3	4	5	6	7

Demographic Information

In this last section please provide the important demographic information. This information will help assess the difference between different groups of people.

Please indicate your gender

Male

Female

Please indicate your age

Did your group win the competition? Yes No (intergroup
condition only)

Appendix G: Intragroup-intergroup status measure used in Study two.

Intragroup-intergroup status

	Strongly disagree 1 - 7 strongly agree						
My faculty is of higher status than the other faculties represented in this work group.	1	2	3	4	5	6	7
Members of my faculty have the highest status in this work group due to our unique knowledge, skills, and abilities	1	2	3	4	5	6	7
Members of my faculty have the highest status in this work group because we will make the most valuable contribution to the groups performance	1	2	3	4	5	6	7