Teacher self-efficacy and middle years teaching: An insight into a unique cohort of middle years educators

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Teacher self-efficacy and middle years teaching: An insight into a unique cohort of middle years educators

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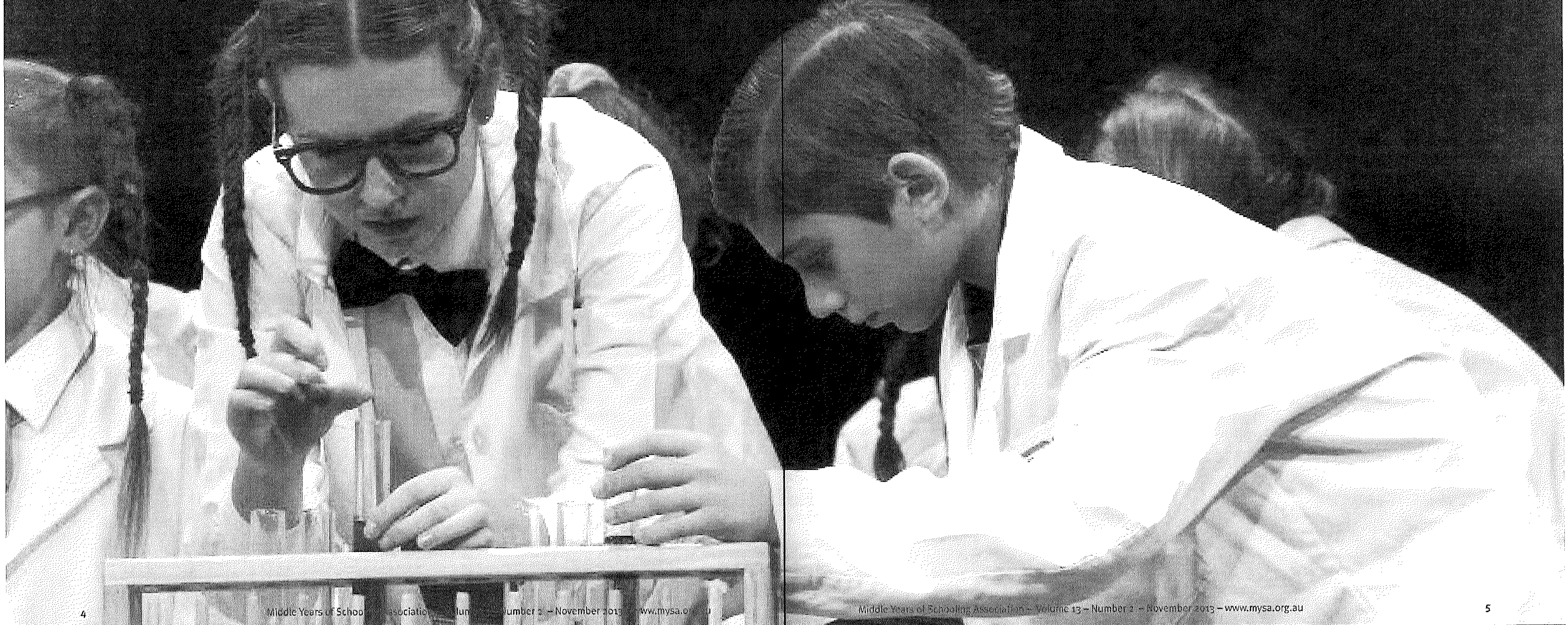
Abstract

Middle years teacher education has been on the margins of mainstream teacher education in Australia for several decades despite calls for teachers with specific capabilities to teach young adolescents. Strong evidence indicates that the quality of teaching is of major importance in influencing student achievement outcomes, outweighing other associated factors (Dinham and Rowe, 2007). Furthermore, the quality of teaching is linked to self-efficacy (i.e. the belief that they can be successful in the classroom), which is increasingly accepted as a key variable influencing teacher practice and student outcomes (Bruce, Esmonde, Ross, Dookie, & Beatty, 2010; Ross, 1994). This study of 161 middle years teachers investigated the extent to which teaching practices associated with middle years education are actually used in classrooms, as well as the self-efficacy of the teachers employing these approaches. This study mapped the landscape of middle years teaching at a point in time. Findings reveal that the majority of the respondents (93%) report using middle years practices, with organisational strategies being the most frequently employed. The self-efficacy scores of the teachers reveal lower self-efficacy with respect to their confidence and competence to motivate students (M=4.07) and higher levels for cooperating with colleagues and parents (M=4.82). Interestingly, teachers in independent schools report a greater collective self-efficacy than teachers from either Catholic or government schools. This study is important as it serves as a benchmark for comparison with future data sets, especially those with middle years expertise, to investigate the role of formal qualifications on the self-efficacy of teachers, which in turn impacts on teaching quality and student outcomes. It is recommended that further studies be conducted where qualifications are used as a factor for comparison.



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Introduction

Education policy in Australia reveals an uneven commitment to middle years reform over the last two decades. In 1996, the Australian Curriculum Studies Association reported that in v adolescents' (aged 11-15 years) academic progress commonly stalled and in some cases even regressed and that this age-group had a greater incidence of disruptive behaviour, absenteeism, alienation and disengagement. Other, more recent studies confirm that this trend persists today, highlighting the issue as a long-term problem that has not been adequately addressed in the Australian education context (Lamb, Walstab, Teese, Vickers, & Rumberger, 2004). In recent times, the *Melbourne Declaration on Educational Goals for Young Australians* identified enhancing middle years development as one of eight areas for action (MCEETYA, 2008), putting education for young adolescents back on the education policy agenda. The declaration acknowledges that the middle years are an important period of learning in which knowledge of fundamental disciplines are developed and yet there is an increasing trend for young adolescents to disengage from learning compared to those at a younger age (Hill, Holmes-Smith, & Rowe, 1993; Education Queensland, 2003).

The link between student disengagement in the middle years and failure to achieve academic potential is well established and evidenced by declines in literacy and numeracy indicators along with students' reduced aspirational goals (Dinham & Rowe, 2007). The national study, *Beyond the Middle: A Report about Literacy and Numeracy Development of a Target Group Students in the Middle Years of Schooling* (Luke et al., 2003) acknowledged the social consequences of deficient literacy and numeracy skills as they are linked with 'success' in work, civic and social life. The Australian Language and Literacy Policy concurs, noting that 'there is a strong and well demonstrated relationship between low levels of literacy or English language competence and high levels of unemployment and other forms of social disadvantage' (Dawkins & Department of Employment, Education and Training, 1991:1). Promoting literacy and numeracy achievement is a core national concern in the middle years and is at the foundation of many educational initiatives currently driving reform agendas (for example, see Masters, 2009; MCEETYA, 2008). This concern is also visible in the *Melbourne Declaration* (MCEETYA, 2008), which calls for developmentally appropriate teaching and learning strategies and for teachers with pedagogical competence to teach middle years students. This explicit call for teachers with competence and confidence in the teaching of the middle years aligns with the advocacy agenda of the Association for Adolescent Success (formerly the Middle Years of Schooling Association (MYSA)), which urges systems and organisations providing middle years education to 'employ staff with specialised knowledge and abilities to teach and lead in the middle years' (MYSA, 2008:2).

MYSA defines middle schooling as 'an intentional approach to teaching and learning that is responsive and appropriate to the full range of needs, interests and achievements of middle years students in formal and informal schooling contexts' (MYSA, 2008:1). Using an evidence-based approach with clearly articulated outcomes, such as developing current and lifelong learning attributes; enhanced academic outcomes; creation of a love of learning are also seen as imperatives to effectively teach this age group (MYSA, 2008:1). Further, to teach this age-group, teachers must have a clear personal philosophy

around middle schooling practices that is relevant to the context and includes a comprehensive range of pedagogies that engage young adolescents in relevant, meaningful and challenging learning that is supported by organisational initiatives to facilitate their implementation.

The correlational links between teacher expertise, their sense of self-efficacy and improved student outcomes are increasingly understood. A causal link between teachers' self-beliefs about their capacity to teach and 'make a difference', which are indicators of their self-efficacy, and students' actual learning outcomes has also been evidenced. The correlation is a positive one, with teachers' increased self-efficacy resulting in improved engagement and motivation of students and enhanced student outcomes (Bruce, Esmonde, Ross, Dookie, & Beatty, 2010; Goddard, Hoy, & Woolfolk Hoy, 2004; Ross, 1994; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). Conversely, where teachers are required to teach in areas where their self-efficacy levels are low, reduced learning outcomes for students are reported (Bruce, Esmonde, Ross, Dookie, & Beatty, 2010). Hence, the platform for this research is provided by:

i) the continued prevalence of disengagement with schooling of young people in the middle years with a concomitant reduction in learning outcomes and

ii) the argued need for specialised middle years teachers who are self-efficacious.

Literature review

Teaching and learning in the middle years

In a major review of literature on teaching and learning in the middle years, Dinham and Rowe (2007) reported that there is strong evidence to indicate that the quality of teaching is of major importance in influencing student achievement outcomes. They also reported that effective or quality teaching far outweighs other associated factors. Bandura (1986) also noted that the collective efficacy (i.e. the belief that working together can achieve success in a situation) of teachers can be a stronger predictor of student achievement than the socioeconomic status of students. Yet, with the exception of a comparatively small number of innovative teacher education institutions (Pendergast, 2010), few programs exist nationally to prepare specialist teachers for the middle years. Furthermore, professional learning that might facilitate an increase in the 'quality' of teaching for the middle years is variable across all sectors.

Combined with the apparent lack of specific training to teach young adolescents is the trend among teachers, particularly in the secondary school environment, to avoid teaching in the middle years. This trend has been attributed to teachers' perceived lack of self-efficacy to teach effectively in what have been reported as challenging years (Carter and Carter, 2000). Reasons cited for this reluctance included behaviour management issues and the reportedly 'poor' attitudes of the young adolescent learner (Carter and Carter, 2000). Moreover, where teachers teach in areas where their self-efficacy levels are low, the relationship with student outcomes predictably leads to lower academic outcomes for students. This is the case particularly in the middle years in Australia where there is no requirement for explicit middle years pre- and in-service teacher training at the national level. The lack of specific teacher training to meet the diverse needs of students in the middle years raises concerns and 'the potential for significant educational problems is obvious' (Luke et al., 2003:36).

It should also be noted that teacher efficacy levels are shown to have the greatest increase during pre-service teacher training. Furthermore, teacher efficacy levels are also shown to have the most potential to continue to increase within the first years of teaching (Hoy & Spero, 2005). Given the importance of student achievement in literacy and numeracy, middle years teachers' self-efficacy potentially holds the key to enhancing student outcomes in these areas. Student motivation and engagement in these years can 'be influenced by tailoring approaches to teaching with learning activities and learning environments that specifically consider the needs of middle years students' (MCEETYA, 2008:10). Pre and in-service teacher training in critical pedagogies to cater to the developmental needs of this age-group are paramount.

Improving the quality of teaching in the middle years

The first stage of a study of pedagogical effectiveness commissioned by the Queensland Department of Education, Training and The Arts to establish a framework for monitoring middle years classroom practice in Queensland state schools longitudinally was undertaken in

2008. Among the findings were:

> *for all dimensions, there are clear differences between the quality of pedagogies in Integrated/Rich Task lessons (high) and lessons in most other [isolated] Key Learning Areas (low) … These findings suggest that an emphasis on integrated curricula and tasks in the middle phase of learning has resulted in higher quality pedagogies. (Goos et al., 2008, p. 8)*

The research findings suggested that when integration (i.e. the combining or two or more curriculum areas) as a pedagogical approach is used, pedagogical scores are higher, and the opportunity for student learning outcomes is enhanced (Pendergast, Nichols, & Honan, 2012). An integrated curriculum is one of several teaching practices, often used in combination with others, that have been argued to optimise learning outcomes for middle years students (Beane, 1996; Wallace, Sheffield, Rénnie, & Venville, 2007). These practices are collectively known as 'middle schooling signifying practices' (MYSA, 2008).

Teacher efficacy

Teacher efficacy is a multi-faceted construct that has significant implications for teacher practices and student outcomes. Teacher efficacy has been related to a range of behaviours linked to classroom practice, including the level of teacher effort invested in planning and organisation, goals and aspirations, risk taking with new pedagogies to meet the needs of students and persistence and resilience when things go awry (Bandura, 1986; Tschannen-Moran & Woolfolk Hoy, 2001). Teachers with a high sense of self-efficacy are able to picture success scenarios that provide constructive processes and supports for performance. Moreover, Bandura (1993:117) argued that a teachers' level of confidence to 'motivate and promote learning affect the types of learning environments they create and the level of academic progress their students achieve'.

A body of research has also focused on the sources that develop teachers' self-efficacy. This construct can be described as 'the extent to which the teacher believes he or she has the capacity to affect student performance' (Berman, McLaughlin, Bass-Golod, Pauly, & Zellman, 1977:137). Guskey and Passaro (1994:4) extended this definition to include a teacher's 'belief or conviction that they can influence ... even those who may be difficult or unmotivated'. Bandura's (1986; 1997) social cognitive theory posited that teachers' self-efficacy is developed from four main sources: (a) enactive mastery experiences (past teaching successes), (b) vicarious experiences (demonstrated by others and making inferences from social comparison), (c) verbal persuasion (encouragement from others to believe in their capabilities) and (d) physiological arousal (resilience). Of these sources, mastery experiences (i.e. performing a task well) is the most effective in increasing a teacher's sense of efficacy (Tschannen-Moran & Woolfolk Hoy, 2007). Ingvarson, Meiers and Beavis (2005) noted that, where teachers were able to see effective practice modelled and then 'try it out', they were more likely to implement new practices or programs. Furthermore, Ingvarson et al. found a causal chain that links teachers' sense of efficacy to teachers' improved practices and to improved student academic outcomes.

Teachers' self-efficacy; however, is seen as context-specific and an individual teacher may not feel successful in all teaching situations (Bandura, 1997). A teacher's sense of efficacy can be linked to school-level variables, such as its structure and culture, programs and leadership (Goddard, Hoy, & Woolfolk Hoy, 2000). A teacher's sense of self-efficacy remains relatively stable after forming during their pre-service teacher experiences and the early years of teaching (Hoy & Spero, 2005). However, research has also suggested that professional development can contribute to a teacher's increased sense of self-efficacy where the professional development facilitates mastery experiences or where participant interaction increases opportunities for vicarious experiences and/or verbal persuasion (Ross and Bruce, 2007). Further, where a school has the structures, programs and leadership in place, teachers are also able to access other sources that further enhance their sense of self-efficacy. Sources such as vicarious experiences and verbal persuasion may be more easily accessed when school structures and programs promote close working relationships, such as those experienced in middle school teaching teams (Bandura, 1997).

Teacher self-efficacy is increasingly accepted as the central variable influencing teacher practice (process) and student outcomes (product) (Bruce et al., 2010; Ross, 1994). However, Bruce et al. caution that teacher efficacy is a mediator not a causal link: Teacher efficacy does not directly result in improved student outcomes but, rather, it affects the process or teachers' goal setting and persistence, and subsequently the opportunity for learning

by students, with expected enhancement of learning outcomes. Teachers' self-efficacy has also been shown to be the best predictor of the degree of teacher change, the level of student outcomes and the routinisation or sustainability of an innovation or change to teaching practices (Bruce et al., 2010).

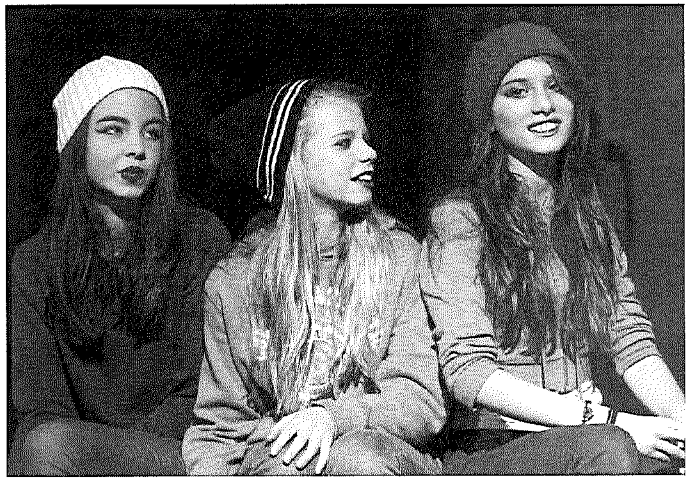
Ghaith and Yaghi (1997) identified four main variables that influence teachers' willingness to implement new instructional innovations: (a) congruence (alignment with present practices), (b) cost (time and effort to implement innovations), (c) difficulty (perceived importance and difficulty of implementation) and (d) self-efficacy (belief in the positive action-outcome relationship). Research has shown that congruence and cost influence teachers' degree of implementing new instructional practices insofar as teachers are 'willing to implement instructional practices that are similar to their current practices and less costly' (Ghaith & Yaghi, 1997:451). Sparks (cited in Ghaith & Yaghi, 1997:452) reported that 'teachers' perceptions of the importance of the new practices were positively correlated with implementation'.

Across a wide range of professions there are increasing pressures toward the identification of 'effective, efficient, and evidence-based practices that deliver improved outcomes' (Webster-Wright, 2009:721). It has also been recognised that undergraduate training is just the beginning of the theory and practice learning journey that continues throughout an individual's professional career (Bruce et al., 2010). The need for continued professional learning has been identified and, in many instances, mandated (Queensland College of Teachers, 2008). The impetus behind such mandates is to ensure an implicit responsibility to continue to engage in 'best practice' is upheld and enforced through the requirements for ongoing registration. The challenge for the acceptance and implementation of any new practice is to align the implementation of the pedagogies with teachers' current practices in such a way that teachers understand the congruence of these pedagogies with their current practice, that the costs in terms of time and effort are minimal and that there is data-driven evidence of the effectiveness of practices that improve the learning outcomes of middle years students.

Bandura (1997) noted that teachers with a high sense of efficacy were more likely to attempt to overcome challenges and to motivate and challenge themselves to be successful as teachers. With a trend for teachers to avoid teaching in the middle years and a recognised need for quality teachers within this sector, identifying the factors that enhance or limit their sense of efficacy is critical.

Tschannen-Moran and Woolfolk Hoy (2007) recommended further exploration into the antecedents of teachers' self-efficacy. Research-based evidence surrounding the links between teacher efficacy, curriculum, pedagogy and middle schooling signifying practices will significantly advance pre- and in-service teacher education for middle years teachers. Results from the proposed research will provide a new direction for in-service and pre-service support and training for teachers and to promote the uptake of positions within the middle years.

The research conducted by Goos et al. (2008) and previously noted in this literature review did not set out to audit the presence of middle schooling signifying practices beyond curriculum integration, nor did it investigate the teachers' self-efficacy and willingness to use these practices. This provides an opportunity for this work to be undertaken. As such, the contribution of the present study is that it begins to analyse the relationship between teacher



efficacy, the implementation of signifying practices within a middle schooling framework and the opportunity for enhancing student outcomes.

Method

In 2011, an online survey was distributed to 220 teachers who attended an Australian middle years teaching conference. The online survey explored the reported self-efficacy of this sample of middle years teachers and the extent to which middle schooling signifying practices, as defined by MYSA (2008) were implemented by these teachers. Given the respondents were all attending a national middle years conference, it is a limitation of this study that the respondents are likely to be ideologically committed to the concept of middle years education. Nevertheless, the opportunity to investigate self-efficacy for this cohort is an important research insight.

There were 161 responses, which was reduced to 142 after incomplete responses were removed (64.5% response rate). Participants were asked a series of closed demographic questions (location, age, year level taught, school sector, gender) to allow the sample to be defined. Participants were asked to complete the Norwegian Teacher Self-Efficacy Scale (NTSES) (Skaalvik and Skaalvik, 2007), which is used to determine self-reported teacher efficacy. The NTSES has six dimensions measured by four items within each. The dimensions are instruction, adapting education to individual students' needs, motivating students, keeping discipline, cooperating with colleagues and parents, and coping with changes and challenges. Responses were given on a 7-point Likert scale from 'not certain at all' (1) to 'absolutely certain' (7). The six sub-scales are extensively described and validated elsewhere (Skaalvik and Skaalvik, 2007). An example of an item on the NTSES is '*How certain are you that you can provide realistic challenge for all students even in mixed ability classes?*' In this study, Cronbach's alpha for the entire scale was 0.961. Cronbach's alpha is a measure of internal consistency of a scale. A value of 0.961 is deemed to be excellent internal consistency (George and Mallery, 2003) and indicates that the responses of our sample were internally consistent and stable across time.

Participants were also asked to comment on the extent to which their school was implementing middle schooling signifying practices (1= Yes, 2= Some, 3= No, and 4 = No Answer) using the MYSA definition of signifying practices referred to earlier in this paper. Participants were also asked to comment on their level of agreement with seven middle years teacher statements (e.g. *We can get even the most difficult pupils engaged in their schoolwork*) that had been adapted from the Norwegian Perceived Collective Teacher Efficacy Scale (NPCTES) (Skaalvik & Skaalvik, 2007). The items focused on instruction, motivation, controlling student behaviour, addressing students' needs, and creating a safe environment. Participants could select answers from a six point scale which included: (1) false; (2) mostly false; (3) more false than true; (4) more true than false; (5) mostly true; and (6) true. For this scale, Cronbach's alpha was 0.898. A value of 0.898 is deemed to be good internal consistency (George and Mallery, 2003), indicating that the responses of our sample were internally consistent and stable across time.

Findings and Discussion

Demographics

Sixty-four percent were located in Queensland, 16% in New South Wales, 10% in South Australia, 4% in Northern Territory, 4% in Australian Capital Territory and 1% each in Western Australia and Tasmania. The majority of participants described themselves as located in urban settings (87%) with the remainder of participants (13%) located in a rural setting. Participants worked in a range of schooling sectors, including government (22%), Roman Catholic (17%) and independent (61%). Participants taught either in a particular year level or across year levels. The lowest year level was Year 4 and the highest was Year 12. Sixty-six percent of participants were female and 34% of participants were male. Sixteen percent of participants were aged 21-30 years, 26% were aged 31-40 years, 34% were aged 41-50 years, 22% were aged 51-60 years and 3% were older than 61 years.

Participants were asked to report their highest teaching qualification and whether they had obtained a middle years specialisation (Figure 1). The majority of participants indicated they held a Bachelor level teaching qualification (70%). Only a small number of participants indicated they had a middle years specialisation at any level. Approximately equal proportions of respondents indicated they held a middle years specialisation at Diploma (6%), Bachelor (9%) and Graduate Diploma (8%) levels.

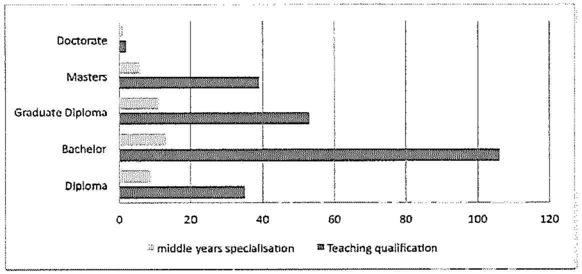


Figure 1: Teaching qualifications of participants

Respondents taught a wide range of subjects, with 25 different subjects being reported. Of these, mathematics was the most frequently reported subject (56 responses), followed by history (45 responses), science (39 responses) and integrated curriculum (32 responses). Table 1 provides the detailed distribution of subjects taught by the respondents.

Table 1: Subjects taught by respondents

Subject	Number of Respondents
Mathematics	57
History	45
Science	39
Integrated Curriculum	32
ICT, Information Literacy	22
Technology	20
HPE, Sport	15
Art	8
Drama	8
SOSE	7
LOTE	6
Christian Studies	6
Geography	5
Religion	5
Business, Commerce & Economics	3
Learning support	3
Music	2
Home Economics, Food Technology	2
ESL	2
Graphics	1
VET	1
Latin	1
Thinking Skills	1
Chemistry	1
Legal Studies	1

Teacher self-efficacy

The mean for each item in the teacher self-efficacy scale are presented in Table 2. Item 3 (co-operating with parents) received the highest rating for perceived teacher self-efficacy (Mean = 5.12), while item 10 (desire to learn even among the lowest-achieving students) received the lowest rating (Mean = 3.92).

Table 2: Mean scores for individual items of the NTSES scale

Item	Number of Respondents	Mean	Standard Deviation
1. Explain central themes in your subjects so that even the low achieving students understand.	140	4.71	0.954
2. Get all students in class to work hard with their schoolwork.	138	4.12	1.153
3. Co-operate well with most parents.	139	5.12	1.018
4. Successfully use any instructional method that the school decides to use.	138	4.33	1.198
5. Organise schoolwork to adapt instruction and assignments to individual needs.	139	4.40	1.220
6. Maintain discipline in any school class or group of students.	140	4.79	1.345
7. Find adequate solutions to conflicts of interest with other teachers.	135	4.59	1.254
8. Provide good guidance and instruction to all students regardless of their level of ability.	137	4.82	1.031
9. Control even the most aggressive students.	133	4.04	1.602
10. The desire to learn even among the lowest-achieving students.	138	3.92	1.296
11. Provide realistic challenge for all students even in mixed ability classes.	140	4.38	1.035
12. Answer students' questions so that they understand difficult problems.	139	4.72	1.029
13. Collaborate constructively with parents of students with behavioural problems.	136	4.61	1.156
14. Get students with behavioural problems to follow classroom rules.	140	4.11	1.325
15. Get students to do their best even when working with difficult problems.	138	4.25	1.011
16. Explain subject matter so that most students understand the basic principles.	139	4.91	0.928
17. Manage instruction regardless of how it is organised (group composition, mixed age groups, etc.).	139	4.62	1.024
18. Adapt instruction to the needs of low-ability students while you also attend to the needs of other students in class.	138	4.26	1.155
19. Get all students to behave politely and respect the teachers.	139	4.50	1.375
20. Manage instruction even if the curriculum is changed.	135	4.85	1.055
21. Motivate students who show low interest in schoolwork.	138	4.03	1.273
22. Co-operate effectively and constructively with other teachers, for example, in teaching teams.	138	4.94	1.176
23. Organise classroom work so that both low- and high-ability students work with tasks that are adapted to their abilities.	139	4.45	1.091
24. Teach well even if you are told to use instructional methods that would not be your choice.	136	4.01	1.291

The NTSES consists of six sub-scales, or divisions of the overall scale, as shown in Table 3 with the mean and standard deviations for the subscales.

Table 3: Mean scores for the subscales of the NTSES scale

Subscale	Mean	Standard Deviation
Instruction	4.79	0.81
Adapt instruction to individual needs	4.35	0.97
Motivate students	4.07	1.04
Maintain discipline	4.33	1.25
Co-operate with colleagues and parents	4.82	0.89
Cope with change	4.46	0.87

The means and standard deviations reported in Table 3 suggest that within the sub-scales, participants in this survey reflected lower self-efficacy with respect to their confidence and competence to motivate students (Mean = 4.07). Participants ranked a higher level of perceived teacher self-efficacy for co-operating with colleagues and parents (Mean = 4.82). This means that the respondents felt much more capable and confident working with their colleagues than they did at motivating students.

Implementing middle schooling signifying practices

Participants were asked to comment on the following statement to which four options were available: yes, some, no and no answer:

> *Considering the definition of middle schooling taken from the Middle Years of Schooling Association Position Paper (2008), do you believe that you are implementing middle schooling practices within your classroom?*

Forty-one percent of participants agreed 'yes' with this statement, 52% of participants suggested they were implementing 'some' of the middle schooling signifying practices, six percent of participants responded 'no' to implementing middle schooling signifying practices and one percent of respondents selected 'no answer'. In addition, participants were invited to comment on how they were/were not implementing middle schooling signifying practices. Analysis of the open-ended responses is included later in this paper.

Perceived collective teacher self-efficacy scale

Participants in the survey were also asked to rate their degree of agreement with the middle years teacher statements around collective efficacy using a six point scale: (1) false, (2) mostly false, (3) more false than true, (4) more true than false, (5) mostly true and (6) true. For analysis processes the scale was recalculated to a five point scale. This is because Likert-type scales typically begin at one, whereas scales need to begin at zero before statistical analyses can be performed. Not rescaling artificially inflates the scores and is mathematically incorrectly. The mean for all responses ranged from 3.29 to 3.96 (Table 4) indicating that participants reported the statements as being 'more true than false'.

Table 4: Mean scores for individual items of the NPCTE scale

As a teacher in the middle years:	Number of Respondents	Mean	Statistical Deviation
We can get even the most difficult pupils engaged in their schoolwork	140	3.29	0.991
We can prevent bullying effectively.	140	3.28	1.067
We handle conflicts constructively because we work as a team.	139	3.78	1.008
We have a common set of rules and regulations that enable us to handle disciplinary problems successfully.	139	3.94	1.082
We successfully address individual pupils' needs.	139	3.73	0.931
We are able to create a safe and inclusive atmosphere even in the most difficult classes.	139	3.96	0924
We succeed in teaching maths and language skills even to low-ability pupils.	139	3.58	1.035

Means were calculated for the NTSE and NPCTE scales for each participant. A Pearson product-moment correlation was computed to assess the relationship between mean teacher self-efficacy (NTSES) and collective efficacy (NPCTES) scores. There was a moderate positive correlation (2-tailed) between the two variables ($r=0.596$, $n=115$, $p=0.001$). A scatterplot (Figure 2) summarises the results showing the line of best fit (thick line) and the 95% confidence intervals (thin lines). This indicates that the higher perceived self-efficacy of a teacher, as measured by the NTSE, moderately predicts a higher perceived collective self-efficacy, as measured by the NPCTE.

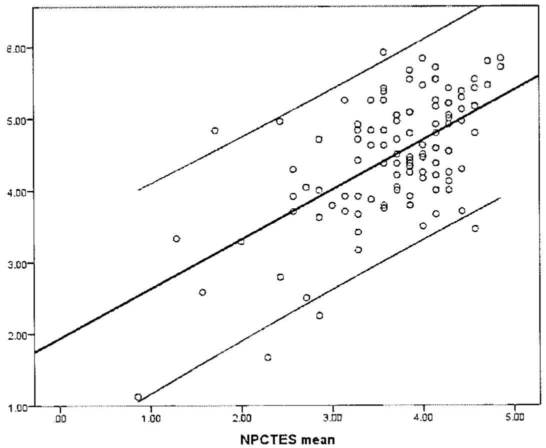


Figure 2: Correlation between individual NTSES and NPCTES means

One-way between subjects ANOVAs were conducted to compare the effect of state, age, sector and gender on both the NTSES and NPCTES scores. The only statistically significant effect was the sector on the NPCTES scores at the $p < 0.005$ level ($F(2,129)=5.692$, $p=.004$). The mean NPCTES scores of teachers from independent schools ($M=3.84$, $SD=.57$) were greater than the mean NPCTES scores for teachers from government schools ($M=3.37$, $SD=.92$). Figure 3 summarises these results. This result shows that teachers in independent schools reported a greater collective perceived self-efficacy than teachers from either Catholic or government schools.

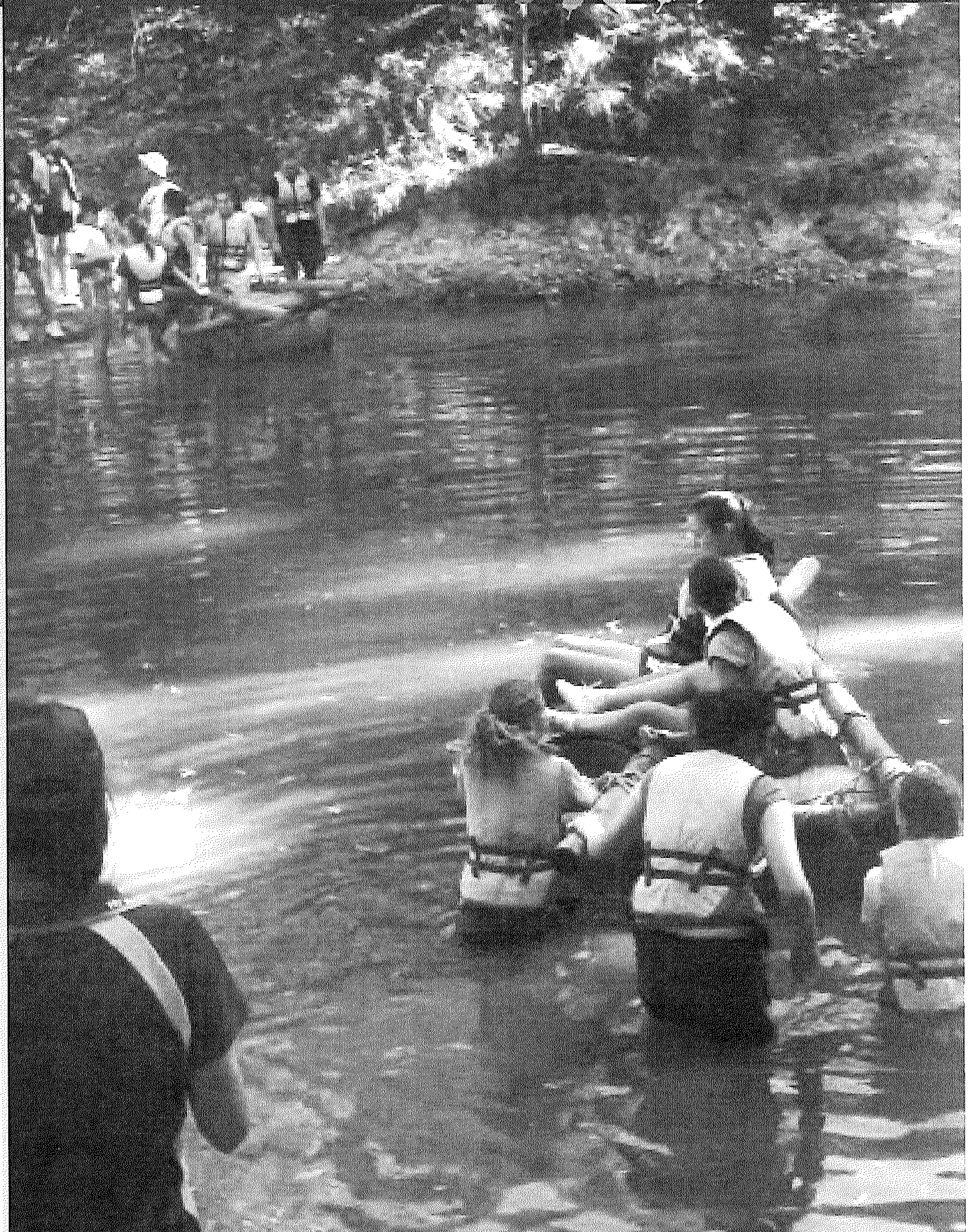
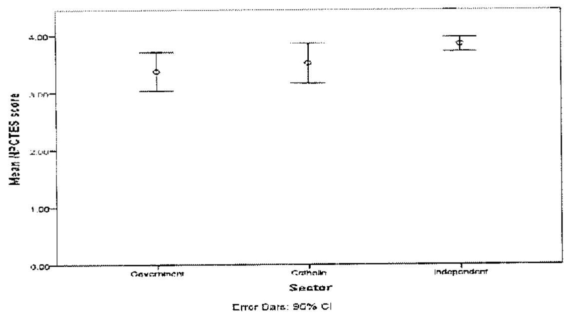


Figure 3: Mean NPCTES scores by sector



Respondents were provided with the opportunity to add an open response to the prompt, 'Describe the ways in which you are or are not implementing middle schooling signifying practices'. The 89 responses produced short response qualitative data that were analysed first using Leximancer, in order to identify broad themes and then using a line by line coding of the data. Leximancer is a data mining tool with the ability to give a bird's eye view of the data and an initial themed categorisation of frequency and correlation of concepts. However, this frequency and relationship does not take into consideration the 'context' and 'phrasing' of terms. Hence, following the Leximancer analysis, a line-by-line coding was conducted in order to ensure the themes identified by Leximancer remained supported by the deeper content analysis.

Due to the small amount of text and the ambiguous responses given by a number of participants, Leximancer was only used as a 'first look' at the data to assist in the identification of broad themes. In this case five broad themes were identified: (i) higher order thinking strategies, (ii) curriculum practices, (iii) student and teacher groupings and school environment, (iv) relationships and (v) assessment practices. These themes aligned with the middle schooling signifying practices outlined in the MYSA Position Paper (2008). The main themes identified through Leximancer, together with the key terms that supported the development of each theme, are outlined in Table 5.

Table 5: Broad themes and related terms identified through Leximancer

Theme	Concepts
Higher order thinking	Higher-order thinking, integrated areas, challenging curricula, thinking strategies
Curriculum practices/ learning	Relevant, work, cooperative, negotiated, focus areas, parental involvement
School culture	Safe-environment, middle-school practices, strong-relationships, collaborative
Grouping	Group work, individual, environment, teachers
Assessment practices	Assessment, high-expectations

Deeper content analysis confirmed these five broad themes and found some evidence of the other two signifying practices identified in the MYSA Position Paper (2008). That is, parental and community involvement and democratic governance. Line-by-line coding of the qualitative data with a targeted focus on the seven middle schooling signifying practices (MYSA, 2008) revealed that of the 86 respondents, 20 (23%) reported no evidence of any of the middle schooling signifying practices within their school context. Two respondents (2.5%) reported that they were doing 'most' of the signifying practices within their schools but did not elaborate on what 'most' meant. The remaining 64 respondents (74.5%) reported one or more of the middle schooling signifying practices being implemented within their school. However, the level of implementation (initiating, developing, consolidating, see Pendergast & Main, 2011) was not always evident.

The most common middle schooling signifying practice that respondents reported within their schools was in relation to 'groupings' including student and teacher groupings and cooperative and collaborative work (N=50). Comments such as, 'small groups of teachers working with students', 'small learning communities' and 'group work and cooperative learning' are representative of comments coded under this heading.

Specific curriculum practices were the second most commonly reported middle schooling signifying practice (N=27). Within these comments were a range of different practices that were being used to cater to this age-group. 'Meaningful and challenging learning', 'integrated studies and curriculum aimed at engaging the young adolescent', 'relevant subject matter embedded in real life experience[s]' and 'negotiated and flexible curriculum' were typical of respondents' comments. Of these 27 comments, 15 (56%) were related to the delivery of an integrated curriculum. In a number of instances, respondents reported that they were managing to integrate the curriculum (at least two or more learning areas) using the national curriculum. However, one respondent noted that an 'integrated approach [had] not always proven popular … [particularly] with teachers who teach in the senior school and who may be uncomfortable in teaching in areas they may not be specialists in'. This comment reflects an area that would challenge teachers' sense of efficacy.

Significant attempts were reported by respondents to implement higher order thinking strategies to ensure the curriculum was delivered in an engaging and challenging way (N=20). A number of specific strategies were reported including 'Blooms', 'inquiry and problem based learning', exposing students to 'complex issues' and 'reflective practices'. One respondent reported that they were aiming to 'include higher order thinking through [the] use of a BloomGard matrix, combining Bloom's Taxonomy with Gardner's Multiple Intelligences.'

Practices around assessment were the fourth most common middle schooling signifying practice reported (N=15). In the survey, the wording around assessment was linked to high expectations. However, respondents most commonly reported using 'authentic assessment' (N=7) and 'reflective assessment' (N=4) with 'high expectations' (N=4) being linked to the standard of work overall and not just assessment.

A key middle schooling signifying practice is strong teacher-student relationships. This practice is facilitated through the establishment of small learning communities and a smaller number of teachers being responsible for the same group of students. Respondents reported student groupings, small communities of learners, and teacher groupings more than any other signifying practice (N=50). However, only a small number of respondents reported strong student-teacher relationships as a signifying practice occurring in their school (N=12). Comments around this practice noted that within the respective schools there was a 'strong emphasis on student relationships' and 'pastoral care.' Respondents may not have specifically referred to improved relationships with students as often as other practices as it may be expected that closer relationships with students would naturally stem from small learning communities. However, this assumption is unclear from the data gathered.

The least reported signifying practices were parental and community involvement (N=6) and democratic governance (N=3). Comments around parental involvement focused on how the schools were building relationships with parents and the wider community. A range of strategies such as 'using email to keep [parents] up-to-date with school activities', 'parent afternoons' and encouraging 'parent and community involvement' were reported. Democratic governance was reported simply as 'democratic governance' with no further explanation.

Summary

Most (93%) of the respondents in this survey indicated they employed middle schooling signifying practices with the most prevalent being student groupings, teaching teams and small communities of learners. It is not surprising as these physical arrangements are much easier to implement than other signifying practices such as curriculum and pedagogy (Main and Bryer, 2007). Only a small number of participants indicated they held a middle years qualification and hence it was impossible to investigate the difference between teachers with middle years expertise through formal qualifications and those without. The collective self-efficacy scores of the teachers revealed participants in this survey reflected lower self-efficacy with respect to their confidence and competence to motivate students (M=4.07) with higher levels of perceived teacher self-efficacy for co-operating with colleagues and parents (M=4.82). Teachers in independent schools reported a greater collective self-efficacy than teachers from either Catholic or government schools.

It is reasonable to speculate that many independent schools have long subscribed to the principles of middle years education and are reform leaders in Australia, hence the teachers also report greater confidence and competence in working in the field and engaging the signifying practices.

A gap in the literature exists around the self-efficacy of teachers with middle years qualifications compared to those who do not have specific qualifications in this area. This study is important as it serves as a benchmark for comparison with future data sets, especially those with middle years expertise, in order to investigate the role of formal qualifications on the self-efficacy of teachers, which in turn impacts on quality teaching and student outcomes. It is recommended that further studies be conducted where qualifications are used as a factor for comparison.

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