

**The Impact of Work Relationship on Job Satisfaction and
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Author

Hung, Jia-Yi

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Griffith Business School

Submitted in fulfilment of the requirements of the degree of

Doctor of Philosophy

by

Jia-Yi Hung

October 2008

**The Impact of Work Relationship on Job Satisfaction
and Commitment of Taiwanese Nurses**

Jia-Yi Hung

B.Sc. (Food Science & Food Service), M.Sc. (Hospitality Management)

Department of Management

Griffith Business School

Griffith University

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Abstract

Job satisfaction has been found to relate to nurse turnover and organisational commitment. In an era of high nursing turnover, nurses' job satisfaction therefore is an important issue to health care service administrators regarding nursing human resource management (HRM). Front-line managers are in charge of the implementation of many human resource practices; therefore, they play a critical role in an organisation in shaping members' perceptions towards the job and/or the organisation. However, research on the link between HRM and organisational performance has neglected the role of front-line managers. This thesis examines the significance of supervisor-subordinate relationships to nursing management in Taiwan. The research question being addressed is "What is the value of supervisor-subordinate relationships to nursing in Taiwan?" In particular, this thesis investigates the impact of supervisor-subordinate relationships (in the form of leader-member exchange) and other work-related factors on Taiwanese nurses' job satisfaction and organisational commitment.

Using the literature review as a point of departure, and being strengthened by in-depth interviews, a conceptual model is developed. It is argued that leader-member exchange is an important indicator of Taiwanese nurses' job satisfaction and/or organisational commitment, because it not only has direct impacts on job satisfaction and/or organisational commitment of Taiwanese nurses, but also has indirect impacts on both outcomes through autonomy, opportunity to learn, co-worker interaction, work atmosphere, and safety climate.

In total, 14 research hypotheses are established. Two of them investigate the impact of leader-member exchange on Taiwanese nurses' job satisfaction and organisational

commitment. Five hypotheses examine the relationships between leader-member exchange and autonomy, opportunity to learn, co-worker interaction, work atmosphere, and safety climate. Another five look into the impact of autonomy, opportunity to learn, co-worker interaction, work atmosphere, and safety climate on job satisfaction. One hypothesis investigates the relationship between co-worker interaction and work atmosphere. The last hypothesis explores the impact of job satisfaction on organisational commitment.

The research design of this thesis is a mix of qualitative and quantitative approaches within the positivist paradigm. The main advantage of this design is the integration of the rich information from the qualitative research and the objectivity and generalisability of the quantitative research. The qualitative phase was conducted prior to the principal quantitative study to provide information on the context and subjects, as well as to strengthen the conceptual model. A total of 14 in-depth interviews were conducted, and two additional variables emerged from the interviews.

With respect to the quantitative survey, the steps suggested by Dillman (1987), Alreck and Settle (1995), and Fowler (2002) were adopted for the administration of the instrument in this thesis. Data collected from the quantitative survey were analysed by SPSS using descriptive statistics, reliability tests, correlation, exploratory factor analysis, and regressions. The results demonstrated significant relationships between the constructs in the model. That is, leader-member exchange (LMX) has a significant and direct positive impact on autonomy, co-worker interaction, opportunity to learn, work atmosphere, safety climate, job satisfaction, and organisational commitment. Likewise, autonomy, opportunity to learn, work atmosphere, and safety climate have a significant and direct positive effect on job satisfaction. The

relationship between co-worker interaction and job satisfaction is not significant, but co-worker interaction has a significant and direct positive impact on work atmosphere. Lastly, a significant and positive direct relationship is found between job satisfaction and organisational commitment.

The main contribution of this thesis is the confirmation of the value of supervisor-subordinate relationships to nursing in Taiwan. The supervisor-subordinate relationship not only has direct impacts on Taiwanese nurses' job satisfaction and organisational commitment, but also has indirect impacts on both factors through autonomy, opportunity to learn, co-worker interaction, work atmosphere, and safety climate. This thesis also contributes to methodology by developing two new constructs, i.e. co-worker interaction and work atmosphere. Contributions to practices, limitations of this thesis, and future research are then discussed to conclude this thesis.

Statement of Originality

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

.....

Jia-Yi Hung

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Chapter 1 Introduction

1.1 Research Background

Taiwan is an island country located southeast of mainland China, 394 kilometres in length and 144 kilometres wide. The total area of Taiwan is 36,000 square kilometres, and its population is roughly 23 million (Department of Health, 2008). During the past 20 years, Taiwan has experienced rapid industrialisation, which transformed its economy, and thus improved Taiwanese people's standard of living dramatically (Smith & Shiao, 2001). Due to the improved standard of living, the mortality rate of Taiwanese people has decreased, while their life expectancy has increased. In addition, a shift towards more acute care developed as the Taiwanese population suffer more from diseases associated with prosperity, such as heart disease and cancer. A growing number of older people also necessitates a greater demand for nurses particularly within the aged nursing care sector. With prosperity, chronic diseases have now become the leading causes of death in Taiwan (Smith & Shiao, 2001). These changes in demography have led to the flourish of health care service in terms of quantity, quality and accessibility. The demand for nursing services in Taiwan has also evolved as a result of these changes.

In general, there are three types of hospitals in Taiwan: medical centres (minimum 500 beds), regional hospitals (minimum 250 beds), and district hospitals (minimum

20 beds) (Chang, Cheng, & Das, 2004; Huang, Lu, Tang, & Huang, 2004). Medical centres and regional hospitals deal with high-precision medical operations, teaching, training, and research. Hospitals accreditation is performed by the Taiwan Joint Commission on Hospital Accreditation (TJCHA), which is funded by Taiwan's Department of Health (DOH), Taiwan Medical Association, Taiwan Hospital Association, and Taiwan Non-governmental Hospital and Clinics Association (Her, 2008). The hospital accreditation commenced in 1978, with health care institutions needing reassessment every three years. The current statistics show that there are 450 accredited hospitals, among which 19 are medical centres, 105 are regional hospitals, and 326 are district hospitals (Department of Health, 2007).

Nurses in Taiwan can be categorised into the following ranks: professional registered nurse (hulishi), registered nurse (hushi), nurse assistant (juli hushi), nurse aide (zhushou hushi), and nursing interns (shixi yishi hushi) (Smith & Shiao, 2001). Both professional registered nurse and registered nurse in Taiwan are equivalent to registered nurse in Australia. A nurse assistant in Taiwan is equivalent to an enrolled nurse in Australia. A nurse aide in Taiwan is equivalent to an assistant in nursing in Australia, while a nursing intern in Taiwan is equivalent to a student nurse in Australia. This thesis focuses on the professional registered nurses and the registered nurses, as they represent the main nursing workforce in Taiwan.

The contemporary nursing structure in Taiwan can generally be divided into two categories: administrative nurses and practicing nurses (Tzeng, 2003). The administrative nurses consist of three levels, with directors/associate directors occupying the highest rank of Taiwanese nursing, followed by the middle managers called supervisors, whilst the head nurses/assistant head nurses serve as the front-line managers. On the other hand, practicing nurses are nursing employees who have direct contact with patients and who provide nursing care to patients. This thesis focuses on the practicing nurses because they reveal a low level of job satisfaction (Smith & Shiao, 2001; Yeh, Liu, Ke, Chen, & Wang, 2004), which may deteriorate the performance of their hospitals.

In 1995, the Department of Health (DOH) initiated a National Health Insurance (NHI) program to provide universal medical care to Taiwanese citizens, and by 2008, 99% of the total population is covered by the NHI (Her, 2008). The purpose of the NHI is to provide Taiwanese citizens equal accesses to small and large hospitals alike at an affordable cost. Under the NHI scheme, health care providers are reimbursed on a fee-per-patient visit basis. However, this regulation has created an incentive for health care providers to generate a high volume of services to increase their revenue, in turn leading to an increased financial burden on the government. In light of the deficiency under the NHI, Taiwan government has developed successive policies

since the implementation of the NHI with the aim of ensuring effectiveness and efficiency of Taiwan's health care system (Tzeng, 2002a). For example, the government has initiated a shift on hospital reimbursement from a fee-per-patient visit basis to a fee-per-case basis. Additionally, the government has set a cap on the total annual medical expenditure for health care providers.

Due to the policy changes, hospitals in Taiwan have gone through reforms, such as reducing operation costs and improving firm performance, to adjust to the transition. One of the reforms associated with expenses reduction has been to reduce the overall personnel costs (Wu & Lee, 2006). Nursing employees, as the majority of employees in a hospital (Lan, Hsul, Chen, & Chang, 2006), may have suffered most from this transition. In addition, although there was a crucial nursing shortage about 20 years ago, Taiwan is currently experiencing an oversupply of nurses (Lin, 2006; Smith & Shiao, 2001). Yet, the nursing turnover still remains high (Lai et al., 2008). The oversupply and high turnover may be indicators that relate to the extent to which Taiwanese nurses see nursing as a meaningful and useful work.

1.2 The Meaning of Working

Working comprises one third of an individual's everyday living in developed countries (MOW International Research Team, 1981); hence, working is an important activity in an individual's life. The 'Meaning of Working (MOW)' theory addresses

why working might be important to an individual's life, the purpose for an individual to work, and the value that working brings to an individual's life. Thus, the MOW theory suggests that working has various meanings to people, and the meanings differ among individuals. Likewise, different perceptions of the meaning of working may also apply to professionals who possess highly specialised knowledge that other members of a society need (Boyt, Lusch, & Naylor, 2001).

Professionals possess specialised knowledge based on education and training (Kearney & Sinha, 1988). In addition, professionals are characterised by devotion to a full-time occupation and to the function of serving society, affiliation with professional associations, formation of a code of ethics, belief in self-regulation, and demands of autonomy (Boyt et al., 2001; Hall, 1968; Shafer, Park, & Liao, 2002).

According to the Anglo-American models of professionalisation, professional associations work with universities and the government to control "the licensing, accreditation and practice arrangements" of professionals (Evetts & Buchner-Jeziorska, 1997, p. 239). Thus, professionals possess not only specialised knowledge based on education, but also certified licenses from the government. Based on the Anglo-American model, one group of professionals recently recognised is nurses (Brunetto, 2002).

The role of nurses is to protect, promote, and optimise health and abilities; to prevent illness and injury; to ease suffering through diagnosis and treatment; and to care for individuals, families, communities, and populations (Wilson, 2005). Nursing professionals therefore play an important role in the delivery of health care services. However, research has identified the limited job satisfaction of many Taiwanese nurses (Smith & Shiao, 2001; Yeh et al., 2004), and this trend may still exist at present due to the aforementioned changes in the health care system. In addition, hospital executives of Taiwan indicate that it is not clear whether they are satisfying their nurses on the job factors that concern them (Tzeng, 2002b). This provides an ideal opportunity to examine factors affecting the job satisfaction of Taiwanese nurses within the 'Meaning of Working' theoretical framework.

1.3 Why is Nurses' Job Satisfaction Important?

Nurses' job satisfaction is important for the following three reasons. Firstly, nurses' job satisfaction is an important indicator of several organisational outcomes, such as nurse turnover (Blegen, 1993), nursing quality outcome (Tzeng, 2002a), patient's satisfaction with nursing care (Tzeng, Hsieh, & Lin, 2004; Tzeng & Ketefian, 2002), and patient's intent to return to the hospital for services (Tzeng & Yang, 2005). Research has shown that nurses who are more satisfied with their job are more likely to remain in the employing organisation (Price & Mueller, 1981; Yin, Yang, & Liu,

2001), and also are more committed to their employing organisation (Lok & Crawford, 2001; Price & Mueller, 1981). Hence, nurses' job satisfaction has implications for tackling nurse turnover and for maintaining hospital success. Secondly, as mentioned earlier, Taiwanese nurses seem to have a low level of satisfaction toward their job (Smith & Shiao, 2001; Yeh et al., 2004), which in turn suggests the necessity to investigate the reason(s) why Taiwanese nurses reveal such a low level of job satisfaction. Lastly and foremost, executives of Taiwan hospitals indicate that it is not clear whether they are satisfying their nurses on the job factors that concern them (Tzeng, 2002b), which may suggest an urgent need to explore factors that affect the job satisfaction of Taiwanese nurses in order to effectively manage nursing employees. As a result, nurses' job satisfaction is chosen as one of the outcome variables in this thesis.

The high turnover rate among nursing staff has been recognised worldwide (Hegney, Plank, Buikstra, Parker, & Eley, 2005; Lee, Yang, & Chen, 2000), and has posed problems for the human resource management by health care service administrators (Archibald, 2006). The high nurse turnover rate also creates a dwindling workforce, resulting in more being expected from the remaining nurses. In addition, such a high turnover rate results in a waste of hospital resources, as the cost to recruit professional employees is high (Chu, Hsu, Chen, & Hsu, 2004), and it takes a great amount of

resources to train new employees (Lan et al., 2006). Organisations value commitment from employees, as committed employees are less likely to leave the organisation (Mathieu & Zajac, 1990), which in turn reduces turnover rate and recruitment costs. Organisational commitment has been found to be a significant predictor of employees' intention to quit (Hartmann & Bambacas, 2000; Mathieu & Zajac, 1990), of employees' intent to stay (Kim, Price, Mueller, & Watson, 1996), and of the actual turnover (Huang, Chen, Tsai, & Lin, 2006). As a result, organisational commitment may be an important indicator of employees' turnover behaviours. This thesis includes organisational commitment as an outcome variable because organisational commitment may have practical implications in terms of nurse retention for hospitals.

Studies have been conducted in the States (Best & Thurston, 2004; Blegen, 1993), in the UK (Adams & Bond, 2000; Price, 2002), and in Australia (Brunetto & Farr-Wharton, 2005; Lok & Crawford, 1999, 2001) on the causes of nurses' job satisfaction. However, factors that contribute to Taiwanese nurses' job satisfaction remain unclear (Tzeng, 2002b). Professionals are characterised by their demands for autonomy (Boyt et al., 2001; Hall, 1968; Shafer et al., 2002). Nurses, as one of the professionals, may have a higher expectation of work autonomy than other occupations. In addition to autonomy, Taiwanese nurses generally hold a positive attitude towards continuing education (Pan, 1993), which suggests their desire to gain

new knowledge and skills from work. As a result, autonomy and opportunity to learn may be two important factors that influence Taiwanese nurses' job satisfaction.

Another factor that may affect Taiwanese nurses' job satisfaction is the quality of the supervisor-subordinate relationship. Research has indicated that Taiwan reflects a collectivist culture (Hofstede, 1980; Hofstede & Hofstede, 2005), which suggests an emphasis on interpersonal relationships. In addition, Taiwanese generally value human interactions (Wang, Chang, & Chu, 2006), which indicates that Taiwanese nurses may feel a need to establish good interpersonal relations at work. The first-line manager in a nursing work unit, called the 'head nurse' in Taiwan, works directly with her/his members in terms of scheduling staff shifts, conducting employee performance appraisals, and delivering organisational policies to the members. The head nurse may develop varied relationships with the staff due to regular contacts with the members for various work tasks. Leader-member exchange (LMX), the unique relationship developed between a supervisor and a subordinate (Mueller & Lee, 2002), represents such diverse relationships and may be of value to Taiwanese nurses. Accordingly, management of Taiwan hospitals may consider LMX to be an important factor in determining Taiwanese nurses' level of job satisfaction.

In addition to affecting Taiwanese nurses' job satisfaction, LMX may also influence the staff nurse's opportunity to learn. Taiwanese nurses have revealed one of the

reasons for their occasional absence in training courses is due to shift rotation (Pan, 1993). Since the head nurse has the power in shift scheduling, when a nurse has a good relationship with his/her head nurse, the head nurse may change that nurse's shift so that he/she can attend training courses. Likewise, the head nurse can decide how much autonomy she/he wants to grant subordinates (Graen & Scandura, 1987). Hence, LMX may also affect the level of autonomy a staff nurse can possess.

1.4 Research Question

The central issue this thesis addresses is "What is the value of supervisor-subordinate relationships to nursing in Taiwan?"

A number of specific research questions derived from this general research issue:

- 1 What is the impact of leader-member exchange (LMX) on Taiwanese nurses' overall job satisfaction?
- 2 What is the impact of LMX on Taiwanese nurses' organisational commitment?
- 3 How does LMX affect Taiwanese nurses' job satisfaction?
- 4 How does LMX affect Taiwanese nurses' organisational commitment?
- 5 What is the role of autonomy in Taiwanese nurses' job satisfaction?
- 6 What is the role of opportunity to learn in Taiwanese nurses' job satisfaction?

1.5 Significance of this Thesis

The importance of the research question to hospital administrators has been highlighted by the uniqueness of nursing in Taiwan. Although Taiwan currently has an oversupply of nurses (Tzeng et al., 2004), its nursing turnover still remains high (Lai et al., 2008). This situation may be caused by the limited level of satisfaction Taiwanese nurses have towards their job, thus provides an ideal opportunity to explore factors that contribute to Taiwanese nurses' job satisfaction. Since job satisfaction is about individuals' work attitudes, the 'Meaning of Working' theory, which emphasises the meaning that working brings to individuals, may serve as an appropriate theoretical framework for this thesis. Thus, it is expected that this thesis makes the following contributions:

- 1 Determine the factors that are likely to result in higher overall job satisfaction of Taiwanese nurses.
- 2 Develop a better understanding of the effects of supervisor-subordinate relationship on overall job satisfaction of Taiwanese nurses.
- 3 Provide hospital executives with evidence that quality of supervisor-subordinate relationship can lead to a higher level of overall job satisfaction of Taiwanese nurses.

- 4 Develop a better understand of the relationship between supervisor-subordinate relationship and organisational commitment.
- 5 Provide practical inputs into workplace design in order to enhance Taiwanese nurses' job satisfaction.
- 6 Provide practical measures of co-worker interaction and work atmosphere.
- 7 Develop a better understanding of the role of autonomy in Taiwanese nurses' job satisfaction.
- 8 Develop a better understanding of the role of opportunity to learn in Taiwanese nurses' job satisfaction.
- 9 Provide a test of the efficacy of path analysis using regressions in supervisor-subordinate relationship research.
- 10 Develop a better understanding of the role of co-worker interaction in Taiwanese nurses' job satisfaction.

In summary, this thesis is expected to make theoretical, methodological, and practical contributions. The main theoretical contribution is the addition of new knowledge to the 'Meaning of Working' theory in terms of its underlying factors. Another theoretical contribution is the addition to knowledge on leader-member exchange and

job satisfaction. The main methodological contribution is the use of mixed methods within the positivist paradigm, which is an advance on the mainly quantitative methods used in the extant literature. The main contribution to practices is the application of the research findings from this thesis to establish better human resource management strategies for staff retention, in turn leading to more effective and efficient organisational performance.

1.6 Research Design

In order to answer the research questions mentioned earlier, the research design of this thesis is four-fold, and is described below.

- 1 Reviewing the literature: This phase presents the main research issues by analysing previous research in the areas of meaning of working (MOW), leader-member exchange (LMX), autonomy, co-worker interaction, opportunity to learn, job satisfaction, and organisational commitment.
- 2 Proposing a conceptual model of job satisfaction for Taiwanese nurses, based on the literature review: This proposed conceptual model extends the extant literature by filling the research gaps. Factors affecting Taiwanese nurses' job satisfaction are made explicit in the conceptual model. In addition, definitions of each construct are presented to help establish the items measuring the constructs.

Hypotheses are also proposed for testing.

3 Conducting qualitative research: There are two aims for qualitative research.

Firstly, there is a need to develop a new construct for co-worker interaction. In addition, the measurement for the co-worker interaction construct and other constructs that are unavailable in the literature are developed with the assistance of in-depth interviews with Taiwanese nurses. The second aim is to strengthen the proposed conceptual model. The model may be refined using the rich ideas and feedbacks from the participating Taiwanese nurses.

4 Conducting quantitative research: A survey is conducted with Taiwanese nurses.

Data obtained from the survey are analysed with path analysis using regressions to confirm whether the proposed conceptual model holds. The advantage of quantitative research is that the results are more precise indications of which variables are more important in the conceptual model. Using path analysis with regressions possesses an advantage that it allows testing the direct and indirect effects among the variables. It is essential to test the hypotheses to find out the most important influences on Taiwanese nurses' job satisfaction and organisational commitment. A number of hypotheses are tested, such as the relationship between leader-member exchange (LMX) and job satisfaction, the relationship between autonomy and job satisfaction, and the relationship between co-worker interaction

and job satisfaction.

1.7 Chapter Organisation

This thesis is structured into seven main chapters. Chapter 1 is the introduction that lays the foundation for this thesis. Chapter 2 presents the theoretical framework of this thesis, the 'Meaning of Working' (MOW) theory. The theory is first discussed, and then the focus of this thesis is indicated. Chapter 3 covers a thorough literature review relevant to this thesis. Issues with regard to leader-member exchange are firstly discussed, followed by topics related to autonomy. Then subjects on co-worker interaction are investigated, followed by issues concerning opportunity to learn. Next, the extant literature on job satisfaction is reviewed. This is followed by a review of the literature on organisational commitment. Research gaps in the existing literature are identified, and hypotheses for testing are proposed. The chapter concludes with a conceptual model of Taiwanese nurses' job satisfaction.

In Chapter 4, research methodology employed during empirical testing of the conceptual model presented in Chapter 3 is detailed. The chapter begins with the research paradigm, followed by a discussion of the research methods utilised in this thesis. Then, the sampling method in terms of the choice of key informants and the selection of the sample is discussed. Next, data collection procedure details how in-depth interviews and the field survey are conducted to collect the data.

Administration of the survey instrument is also discussed. Then, the topic turns to qualitative data analysis strategy, followed by a discussion of quantitative data cleaning methods, including replacement of missing data and test of normality. The next section then moves on to quantitative data analysis strategy, covering Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, Cronbach's alpha reliability test, convergent validity analysis, discriminant validity analysis, face validity analysis, and path analysis using regressions.

Chapter 5 begins with the findings from the in-depth interviews, which are used to strengthen the proposed conceptual model in Chapter 3, and also to develop the measurements for constructs. The chapter then turns to discuss development of the conceptual model which is to be tested empirically at the later stage. Definitions of all the constructs are also included in the chapter. Then, hypotheses to guide the empirical research are established.

Data gathered from the empirical work are analysed with SPSS Version 14, and the results are shown in Chapter 6. The evaluation of the conceptual model in terms of adjusted R square and the results of hypothesis testing are presented in detail.

The final chapter, Chapter 7, discusses the research findings compared with the extant literature. This is followed by discussing theoretical contributions, methodological

contributions, and practical contributions. Limitations of this thesis, along with future research directions are covered in the next section. The chapter then concludes with comments relating to this thesis.

1.8 Definitions

- Taiwanese nurses: are defined as practicing nurses who were born in Taiwan, who have graduated from a nationally accredited nursing program in Taiwan, and who hold a professional license.
- Leader-member exchange: is defined as the quality of supervisor-subordinate relationship existing on a continuum from high- to low-quality.
- Autonomy: is defined as the level of control employees possess regarding work method, work scheduling, and work criteria.
- Co-worker interaction: is defined as an individual's encounter with specified colleagues in terms of task-related professional interaction and non-work-related private interaction.
- Opportunity to learn: is defined as employees' perceptions of management's behaviour and willingness to let them attend training courses and learn.
- Work atmosphere: is defined as employees' perceptions of the spirit and the

partnership within the unit they act.

- Safety climate: is defined as management's commitment to safety and employees' involvement in safety.
- Job satisfaction: is defined as the extent to which employees are satisfied with their job.
- Organisational commitment: is defined as employees' affection to and identification with their organisation.

1.9 Chapter Summary

This chapter lays the foundation for this thesis about the value of work relationship to nursing in Taiwan. The chapter began with an overview of the research background, followed by the research problem. Then the chapter presented the justification of the proposed research and the research methodology. Based on these foundations, the next chapter proceeds to the theoretical framework of this thesis.

Chapter 2 Theoretical Framework

2.1 Introduction

This chapter discusses the theoretical framework of this thesis, the ‘Meaning of Working’ (MOW) theory. It begins with a review of the MOW theory in general. This is followed by a justification for the focus of this thesis, which is the ‘valued working outcomes and work goal preferences’ domain of the MOW theory. The next section explores the three relevant facets of the ‘valued working outcomes and work goal preferences’ domain, and discusses their implications for Taiwanese nurses. An overview of the focus on the ‘valued working outcomes and work goal preferences’ domain for this thesis is then presented, and proposed factors for further investigation are included. This is followed by a summary to conclude the chapter.

2.2 Meaning of Working (MOW) Theory

There are various definitions for the concept of work. The broadest definition of work is “the opposite of rest” (Drenth, 1991, p. 126). Some researchers define work as “paid activities in an industrially organised context”, while others define work as “any activity which produces something of value for other people or any activity that produces means for the satisfaction of needs which are accepted by society” (Drenth, p. 126). Other definitions of work stress the detail that work is done under compulsion, that work requires physical or psychological efforts, that work is carried out in certain places and/or at certain times, and that work implies doing things for someone (Drenth). Although there are numerous definitions for the concept of work, these definitions indicate that work is an activity; hence, the word “working” is used instead of “work” to reflect the active mindset of work.

Working is an important part of an individual’s life. In developed countries, working

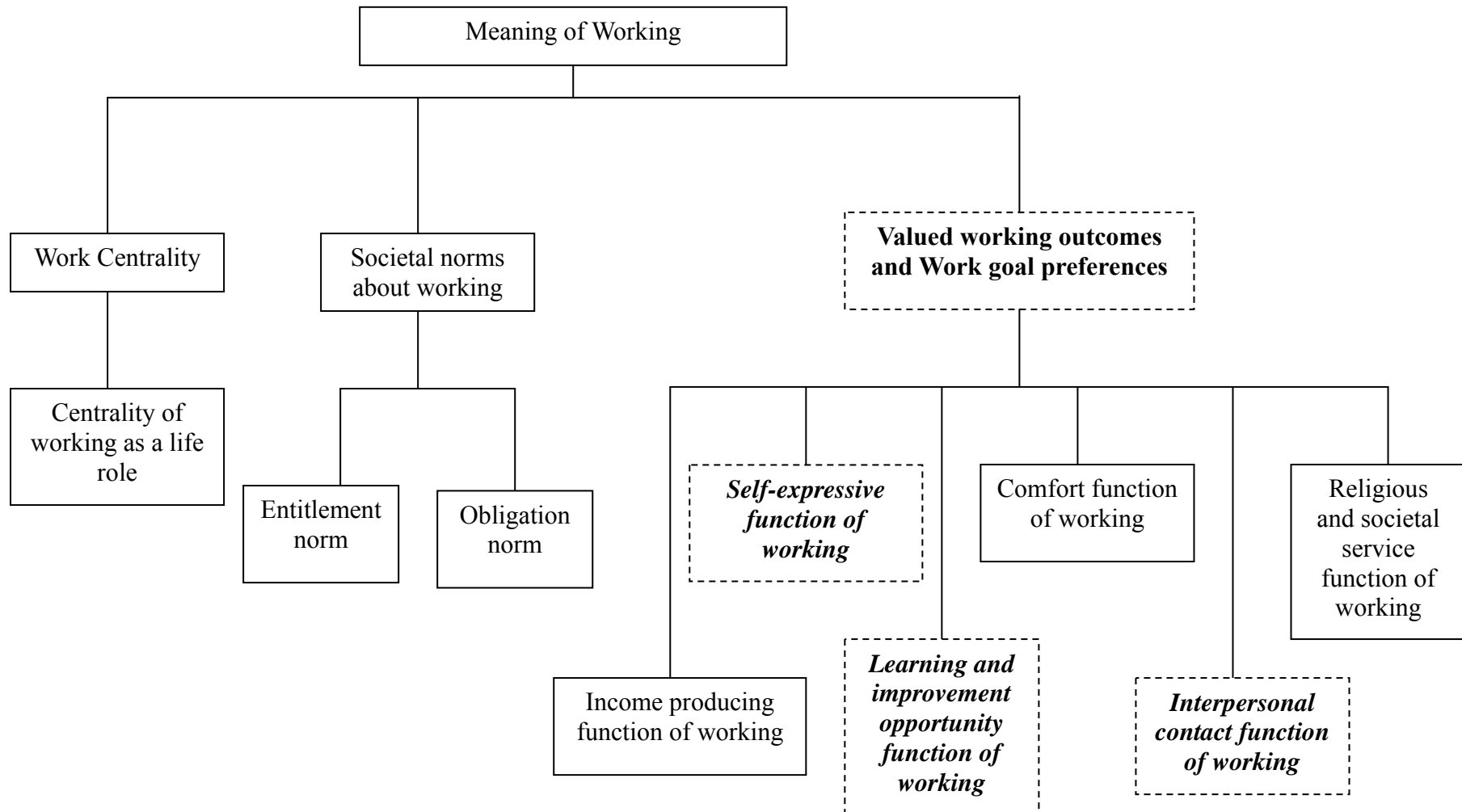
accounts for approximately one third of an individual's everyday activities (MOW International Research Team, 1981, 1987). In addition, the amount of time an individual spends on preparing and training for working, as well as on worrying about being unemployed and planning for a better work is significant (MOW International Research Team, 1981, 1987). Working is so closely interwoven into an individual's life that it is difficult not to think about the meaning and importance of working (Kanungo, 1991). The theory of the 'Meaning of Working' (MOW) addresses why working might be important to an individual's life, the purpose for an individual to work, and the value that informs what working brings to an individual's life.

The 'Meaning of Working' (MOW) theory was developed by the MOW International Research Team (1987). Data of this research were collected from eight countries (Belgium, Britain, Germany, Israel, Japan, Netherlands, United States, and what was then Yugoslavia), with both a national sample and ten occupational samples (unemployed, retired, chemical engineers, teachers, self-employed businessmen, tool- and die-makers, white-collar employees, textile workers, temporary workers, and students) within each country. The aim of this international research was to understand the psychological meaning of working—"the significance, beliefs, definitions and the value which individuals and groups attach to working as a major stream of human activity that occurs over much of their lives" (MOW International Research Team, p. 13). The research team suggested that the meaning of working comprised the following three domains: (i) work centrality, (ii) societal norms about working, and (iii) valued working outcomes and work goal preferences. Figure 2-1 shows the content sets of the meaning of working suggested by the research team.

As noted in Chapter 1, this thesis intends to explore factors that contribute to

Taiwanese nurses' job satisfaction by using the 'Meaning of Working' (MOW) lens. Although there are three domains representing the meaning of working, this thesis relates to only one of them, namely 'valued working outcomes and work goal preferences'. This is because the 'valued working outcomes and work goal preferences' domain contains features that individuals look for from working, and thus may be related to their job satisfaction. Specifically, this thesis draws on the findings of the chemical engineers and teachers in the MOW International Research Team (1987), because they are defined as professionals based on Hall (1968), and therefore may possess similar working values as their nursing counterpart. By unveiling factors underlying the 'valued working outcomes and work goal preferences' domain, this thesis may uncover factors that contribute to Taiwanese nurses' job satisfaction, and thus provides a foundation for answering the research questions stated in Chapter 1. The factors may also have practical significance to healthcare administrators in Taiwan. Further elaboration on the 'valued working outcomes and work goal preferences' domain follows.

Figure 2-1 The Content Sets of Meaning of Working (Source: MOW International Research Team, 1987)



2.3 Valued Working Outcomes and Work Goal Preferences

‘Valued working outcomes and work goal preferences’ indicate the important and/or preferred outcomes individuals seek from working (MOW International Research Team, 1987). Alternatively, they may be viewed as important functions performed for individuals through working (MOW International Research Team). As a result, the ‘valued working outcomes and work goal preferences’ domain may reflect six functions of working (as shown in Figure 2-1 on the previous page): (1) income producing function of working, (2) self-expressive function of working, (3) learning and improvement opportunity function of working, (4) comfort function of working, (5) interpersonal contact function of working, and (6) religious and societal service function of working. Chapter 1 denotes that autonomy, opportunity to learn, and work relationship are three prospective factors contributing to Taiwanese nurses’ job satisfaction. As a result, this thesis explicitly focuses on the ‘self-expressive function of working’, the ‘learning and improvement opportunity function of working’, and the ‘interpersonal contact function of working’, as they reflect these three factors being explored within this thesis. Further elaboration on each of the three functions is detailed below.

2.3.1 Self-expressive Function of Working

The ‘self-expressive function of working’ indicates that individuals may value a work setting that contains a lot of variety, that is interesting, that matches one’s abilities and experience, or that contains a lot of autonomy. In the MOW international research (1987), all ten occupational samples revealed that interesting work was highly valued from working. A job that contains a lot of autonomy was rarely emphasised by most of the occupational samples. Yet, two of the occupational samples, self-employed businessmen and temporary workers, considered autonomy to be the next important

feature from working following the interesting work feature. The two professional samples, the chemical engineers and the teachers, placed a moderate level of importance on the autonomy feature. Chapter 1 notes that nurses are one group of the professionals (Wang, Chen, Shaw, & Chang, 2003), and professionals are characterised with demands of autonomy (Boyt et al., 2001; Hall, 1968; Shafer et al., 2002). In addition, autonomy is one of the most frequently reported reasons that would attract nurses to working (Stolte & Myers, 1995). Autonomy is also one of the key factors for nurse retention (Hegney et al., 2005). Hence, ‘autonomy’ as a factor underlying the ‘self-expressive function of working’ is being investigated in this thesis, as it could be an important factor affecting Taiwanese nurses’ job satisfaction.

2.3.2 Learning and Improvement Opportunity Function of Working

The ‘learning and improvement opportunity function of working’ centres on the growth and development opportunities in individuals’ working life, such as a lot of opportunity to learn new things, or the opportunity for upgrading or promotion. In the MOW international research (1987), all ten occupational samples put more emphasis on the opportunity to learn new things feature rather than on the good opportunity for upgrading or promotion feature. The two professional samples, the chemical engineers and the teachers, placed a relatively higher level of emphasis on the opportunity to learn new things feature compared with the other eight occupational samples. Similar results that highlight workers valuing the feature of opportunity to learn new things were also found in Westwood and Leung (1996), Westwood and Lok (2003), and England (1991). Taiwanese nurses generally hold a positive attitude towards continuing education (Pan, 1993), which suggests their desire to learn new knowledge and skills. In addition, Florence Nightingale once stated that: “Let us never consider ourselves as finished nurses.... We must be learning all our lives.”

(quoted in Pan, p. 277), suggesting the significance of learning in nurses' lives. In addition, the rapid change in science and technology of the last hundred years may reflect the necessity of learning new knowledge and skills for nurses as a means of demonstrating competence in clinical practice and improving the chances of job security. As a result, 'opportunity to learn' as a factor underlying the 'learning and improvement opportunity function of working' is being investigated in this thesis, as it could be an important factor affecting Taiwanese nurses' job satisfaction.

2.3.3 Interpersonal Contact Function of Working

The 'interpersonal contact function of working' indicates that individuals may value the type of people they work with, the interpersonal contacts with other people at work, or good interpersonal relations at work. In the MOW international research (1987), all ten occupational samples expressed the view that good interpersonal relations were more important than good physical working conditions, convenient working hours, or good opportunity for promotion. In addition, nine occupations, except the self-employed businessmen, revealed that good interpersonal relations were more important than autonomy. Again, nine occupations, except the textile workers, expressed that good interpersonal relations were more important than good job security. On the other hand, six occupations (retired, teachers, tool- and die-makers, textile workers, white-collar employees, and temporary workers) revealed that good interpersonal relations were more important than opportunity to learn new things. The two professional samples, the chemical engineers and the teachers, considered good interpersonal relations more important than good pay, a lot of autonomy, good job security, convenient working hours, good physical working conditions, a lot of variety, or good opportunity for promotion. Overall, the MOW international research suggested the importance of good interpersonal relations at

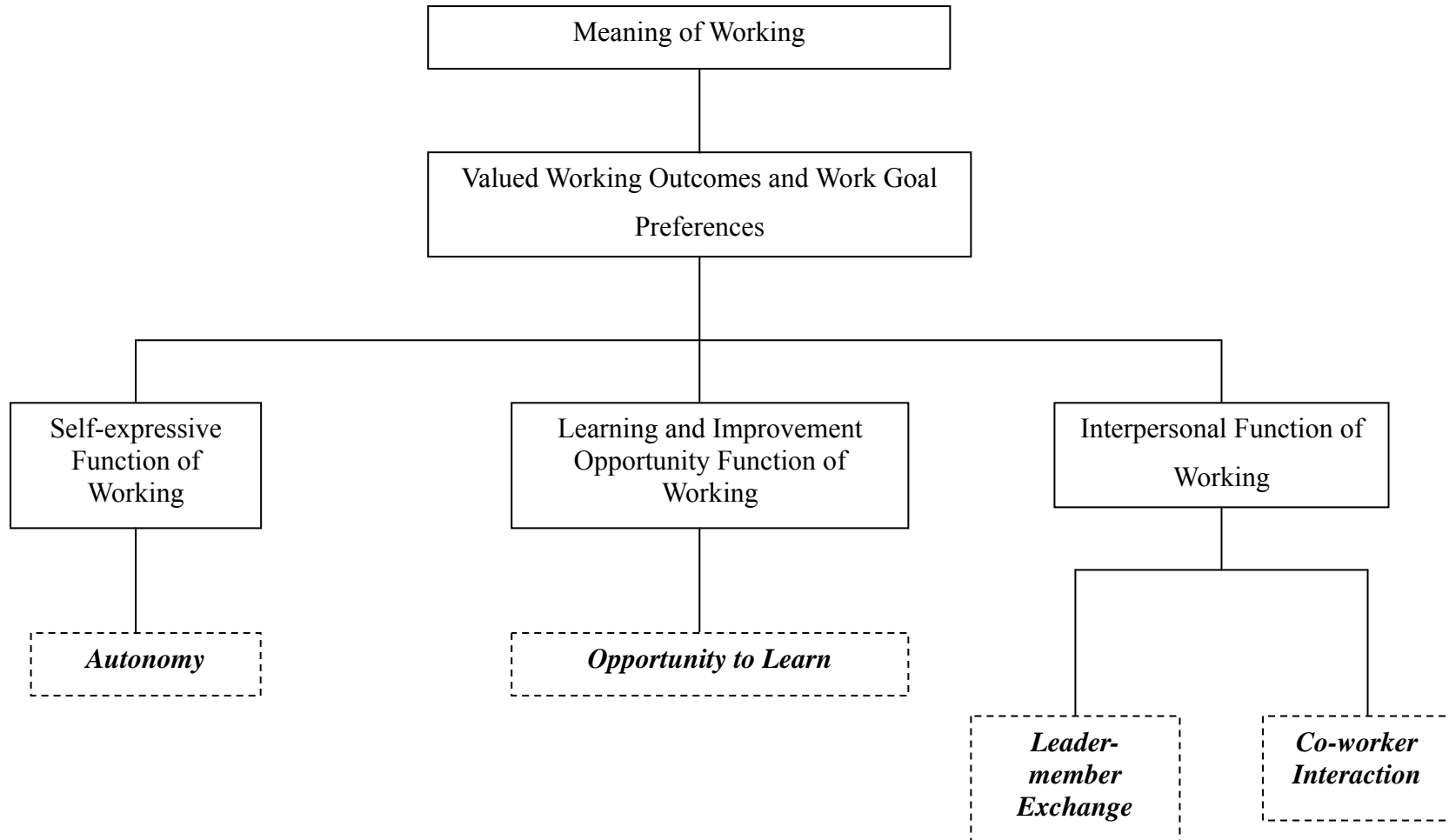
work, and similar results have been found in Ardichvili (2005), Westwood and Leung (1996), and Westwood and Lok (2003).

Research has shown that Taiwan reflects a collective culture (Hofstede, 1980; Hofstede & Hofstede, 2005), and its people value human interactions (Wang et al., 2006; Yeh et al., 2004). In particular, Taiwanese nurses reveal that support from family, supervisors, and colleagues is an important ingredient in their nursing career (Wang et al., 2003; Wang et al., 2006; Yin & Yang, 2002). This suggests that Taiwanese nurses may put relatively more emphasis on the ‘interpersonal contact function of working’ than on other functions of working. Generally, there are two types of working relationships; one is the relationship with supervisor, while the other is the relationship with colleagues (Er, 1989). The ‘interpersonal contact function of working’ to Taiwanese nurses may reflect the necessity of a good supervisor-subordinate relationship and good contacts with colleagues. Leader-member exchange, which denotes the quality of the supervisor-subordinate relationship, may represent such a relationship between the supervisor and the subordinate, while co-worker interaction may depict such contacts among colleagues. Accordingly, ‘leader-member exchange’ and ‘co-worker interaction’, as factors underlying the ‘interpersonal contact function of working’, are being investigated in this thesis, as they could be important factors affecting Taiwanese nurses’ job satisfaction.

In summary, this section discussed three functions of working under the ‘valued working outcomes and work goal preferences’ domain, namely the “self-expressive function of working”, the “learning and improvement opportunity function of working”, and the “interpersonal contact function of working”. This was because these three functions are related to autonomy, opportunity to learn, and work

relationship respectively, and thus would provide a foundation for answering the research questions stated in Chapter 1. Each of the functions was discussed in a separate subsection, and the implications in relation to Taiwanese nurses' job satisfaction were also examined. In the end, four factors that would affect Taiwanese nurses' job satisfaction were proposed, which are leader-member exchange, autonomy, co-worker interaction, and opportunity to learn. Further, it is possible that the 'interpersonal contact function of working' may be more highly valued by Taiwanese nurses, because of their valuing of human interaction. Figure 2-2 on the next page presents the factors derived from the 'Meaning of Working' theory for investigation in this thesis.

Figure 2-2 Proposed Factors for Investigation in this Thesis Based on the Meaning of Working Theory



2.4 Chapter Summary

This chapter discussed the theoretical framework of this thesis, the ‘Meaning of Working’ (MOW) theory. The chapter began with a review of the MOW theory in general. This was followed by a justification for the focus of this thesis, which is the ‘valued working outcomes and work goal preferences’ domain of the MOW theory. The next section explored three facets of the ‘valued working outcomes and work goal preferences’ domain, and discussed their implications to Taiwanese nurses’ job satisfaction. Figure 2-2 on the previous page serves as an overview of the factors being investigated in this thesis. The following chapter elaborates on each of the proposed factors and its relation to Taiwanese nurses’ job satisfaction.

Chapter 3 Review of Literature

3.1 Introduction

This chapter reviews the literature on the factors underlying the ‘Meaning of Working’ (MOW) theoretical framework. In particular, the review focuses on the factors in relation to job satisfaction and/or organisational commitment, with the aim of providing a foundation for answering the research questions stated in Chapter 1.

The literature review covers leader-member exchange (LMX), autonomy, opportunity to learn, co-worker interaction, job satisfaction, and organisational commitment. Based on these reviews, research gaps, drawn from the research questions mentioned in Chapter 1, are identified at the end of each section, and hypotheses are proposed. A summary and a proposed model are then presented to conclude the chapter.

3.2 Leader-Member Exchange (LMX)

As discussed in Chapter 2, Taiwan denotes a collectivist society (Hofstede & Hofstede, 2005), and interpersonal relations are valued by its people (Wang et al., 2006). In particular, Taiwanese nurses consider the interpersonal exchange as an important aspect in their daily work (Tzeng, 2002b). Accordingly, the ‘interpersonal contact function of working’ may reflect the desirability of a good ‘supervisor-subordinate relationship’ for Taiwanese nurses, which in turn may influence their job

satisfaction. Leader-member exchange (LMX), which refers to the unique relationship developed between a supervisor and a subordinate (Mueller & Lee, 2002), represents such a relationship. Accordingly, this section reviews the literature on LMX. The section begins with a review of Average Leadership Style (ALS), followed by LMX in general to show the distinctiveness of LMX in leadership theory. Next, the section discusses LMX in relation to job satisfaction, organisational commitment, and autonomy. Then the section ends with a summary to identify the research gaps in the extant literature.

Early leadership theory proposed that leaders interact in a uniform way with all subordinates. The foundation of this theory came from two underlying assumptions (Dansereau, Graen, & Haga, 1975). The first assumption was that subordinates under the supervision of the same supervisor in a work unit have identical perceptions, interpretations and reactions; hence, they can be judged as a single group. The second assumption was that the supervisor acts the same towards each subordinate of the work unit. Based on these two assumptions, a supervisor's behaviour towards his/her subordinates could be measured by averaging the supervisor's behaviour. Therefore, an alternative term for early leadership theory is Average Leadership Style (ALS).

Contrary to the Average Leadership Style (ALS), leader-member exchange (LMX) theory proposed that supervisors do not treat their subordinates in the same way, thus they develop different types of relationships with various subordinates (George & Jones, 2002). To be more specific, LMX theory describes different kinds of relationships developed between a supervisor and a subordinate, and explains what the supervisor and the subordinate gives to and receives back from the relationship. Hence, LMX focuses on dyadic relationships. A supervisor and a subordinate are considered as a pair and the relationship between a supervisor and a subordinate is the focus of LMX theory (George & Jones, 2002). This dyadic focus is very different from that of ALS which focuses on a group, organisation, or other aggregate as the unit of analysis (Borchgrevink & Boster, 1997).

The development of LMX theory can be categorised into four stages (Graen & Uhl-Bien, 1995). Stage one was the discovery of differentiated relationships between a supervisor and a subordinate. Stage two was the investigation of LMX relationships and their organisational outcomes. Stage three was the description of building up a dyadic partnership. Stage four was the assembling of differentiated dyadic relationships into group and organisational levels. This thesis focuses on the second stage of LMX theory, because one of the purposes of this thesis is to investigate the impact of LMX relationships on Taiwanese nurses' job satisfaction.

Research on the second stage of LMX has focused on two aspects: studies evaluating characteristics of the LMX relationships, and studies analysing the link between LMX and organisational outcomes (Graen & Uhl-Bien, 1995). Firstly, studies on characteristics of the LMX relationships included dyadic role-making processes (Graen, Novak, & Sommerkamp, 1982), communication frequency (Graen & Uhl-Bien, 1995), interactive communication patterns (Graen & Uhl-Bien, 1995), subordinate loyalty (Scandura & Graen, 1984), decision influence (Graen & Uhl-Bien, 1995), and member characteristics (McClane, 1991). Secondly, studies analysing the link between LMX and organisational outcomes included LMX and performance (Graen, Novak et al., 1982), turnover (Ferris, 1985; Graen, Liden, & Hoel, 1982), job satisfaction (Borchgrevink & Boster, 1994; Epitropaki & Martin, 1999; Green, Anderson, & Shivers, 1996; Janssen & Van Yperen, 2004; Liden & Graen, 1980; McClane, Mento, & Burbridge, 1991; Sagas & Cunningham, 2004; Scandura & Graen, 1984; Varma & Stroh, 2001), organisational commitment (Basu & Green, 1997; Borchgrevink & Boster, 1994; Epitropaki & Martin, 1999; McClane et al., 1991), performance appraisal (Duarte, Goodson, & Klich, 1994), job climate (Dunegan, Tierney, & Duchon, 1992), and organisational citizenship behaviour (Scandura, Graen, & Novak, 1986).

Regardless of its existence for over 20 years, the definition of LMX has been

inconsistent (Gerstner & Day, 1997). Previous studies have provided various theoretical definitions of LMX, such as interpersonal exchange relationship (Borchgrevink & Boster, 1994; Dansereau et al., 1975), quality of exchange (Basu & Green, 1997; Dunegan et al., 1992; Ferris, 1985; Graen & Schiemann, 1978; Green et al., 1996; Krone, 1991; Liden & Graen, 1980; Liden & Maslyn, 1998; Liden, Wayne, & Stilwell, 1993; Salzman & Grasha, 1991; Scandura & Graen, 1984; Scandura & Lankau, 1996; Schriesheim, Neider, Scandura, & Tepper, 1992; Stepina, Perrewe, Hassell, Harris, & Mayfield, 1991; Vecchio, 1985; Wilhelm, Herd, & Steiner, 1993), quality of exchange relationship (Graen, Liden et al., 1982; Graen, Novak et al., 1982), exchange quality of leadership relationship (Scandura et al., 1986), quality of relationship (Duarte et al., 1994), negotiating latitudes (McClane, 1991), exchange (Bhal & Ansari, 1996), team-making (Graen & Uhl-Bien, 1995), and quality of the dyadic relationship (Klein & Kim, 1998). The diverse LMX definitions may be due to a variety of operationalisation of the core construct (Gerstner & Day). However, they are in fact similar in terms of substance; that is, they denote the quality of the relationship formed between the supervisor and the subordinate. For this thesis, the definition of LMX was adopted from Muller and Lee (2002) who argued that LMX is the quality of supervisor-subordinate relationship existing on a continuum from high- to low-quality.

3.2.1 Leader-Member Exchange and Job Satisfaction

Studies have discussed the relationship between LMX and job satisfaction within different contexts. For example, Liden and Graen (1980) investigated the impact of LMX on job satisfaction in the service departments of a public university in the U.S.A. and found a positive relationship between LMX and job satisfaction. Using a field experiment approach, Scandura and Graen (1984) examined the effect of LMX on overall job satisfaction with computer-processing employees of a large government department in the U.S.A. Similar to Liden and Graen's finding, Scandura and Graen also found a positive relationship between LMX and overall job satisfaction. Following that, McClane et al. (1991) examined the impact of LMX on employees' job satisfaction in a U.S.A. government facility. Similar to the two studies mentioned earlier, their finding demonstrated a positive relationship between a member's LMX and his/her job satisfaction. Published in the same year as the study of McClane et al., Stepina et al. (1991) explored the relationship between LMX and general job satisfaction in a state government fiscal unit in the U.S.A. Surprisingly, the result did not show a significant correlation between LMX and general job satisfaction. This might be due to the indirect impact LMX had on general job satisfaction. This finding did not correspond to the previous findings of Liden and Graen, Scandura and Graen, and McClane et al.

Next, Borchgrevink and Boster (1994) discussed the relationship between LMX and job satisfaction in an institutional foodservice company in the U.S.A, and found that LMX was positively related to job satisfaction. This result was the same as the findings of Liden and Graen, Scandura and Graen, and McClane et al., although in a different context. In their study, within a different country, Epitropaki and Martin (1999) examined the relationship between LMX and job satisfaction in a UK academic institution. A positive relationship between LMX and job satisfaction was found, which corresponded to most of the studies mentioned above. Next, Janssen and Van Yperen (2004) investigated the correlation between LMX and job satisfaction in a Dutch energy supplier, finding the same positive relationship between the two variables. Finally, Sagas and Cunningham (2004) investigated the relationship between LMX and job satisfaction in the context of U.S.A. basketball teams. Consistent with most findings mentioned above, LMX was found to be positively related to job satisfaction.

In summary, the impact of LMX on job satisfaction appears consistent over time; that is, most studies demonstrated a positive relationship between LMX and job satisfaction. However, it is unclear whether there is a positive relationship between LMX and job satisfaction amongst Taiwanese nurses. A gap therefore exists between LMX and Taiwanese nurses' job satisfaction.

In light of the gap between LMX and Taiwanese nurses' job satisfaction, further discussion on their relationship is needed. When a supervisor develops a high-quality LMX relationship with a subordinate, the supervisor would understand the subordinate's work problems and needs. The supervisor may therefore use his/her available power to help solve the subordinate's work problems. Receiving support from the supervisor would make the subordinate contented because one would not feel disappointed if they receive assistance when needed. Best and Thurston (2004) specified that support from supervisors has been positively related to nurse job satisfaction. Likewise, Bartram, Joiner, and Stanton (2004) found that social support from the nurse's supervisor was associated with higher nurse job satisfaction. Therefore, it appears that LMX can have a significant positive influence on job satisfaction. As a result, a hypothesis is proposed that:

H1: LMX is a positive determinant of job satisfaction.

3.2.2 Leader-Member Exchange and Organisational Commitment

Several studies have investigated the relationship between LMX and organisational commitment. For example, McClane et al. (1991) examined the correlation between LMX and organisational commitment in a U.S.A. government facility and obtained positive correlation between the variables. Green et al. (1996) investigated the relationship with a U.S.A. public library. Contrary to the result of McClane et al., a

non-significant relationship between LMX and organisational commitment was found. Basu and Green (1997) conducted their study in a U.S.A. manufacturing plant, and similar to the finding of McClane et al., found a positive relationship between LMX and organisational commitment. Following that, Epitropaki and Martin (1999) investigated the influence of LMX on organisational commitment, and found a positive correlation between these two variables, corresponding to the findings of McClane et al. and Basu and Green.

In summary, the relationship between LMX and organisational commitment appears to be positive and consistent, except for the case of Green et al (1996). Since there are only four studies discussing the relationship between LMX and organisational commitment, caution needs to be taken in drawing any final conclusions about the relationship. The relationship between LMX and organisational commitment thus requires further investigation.

Following the above argument, more analysis on the relationship between LMX and organisational commitment is required. When a high-quality LMX relationship exists between a supervisor and a subordinate, the pair would share information with each other, and the supervisor would be willing to help the subordinate when he/she really needs it. Thus, the subordinate senses support at the organisational level, in turn leading to a sense of belonging in the organisation. Jalonen, Virtanen, Vahtera,

Elovainio, and Kivimaki (2006) revealed that nursing managers' willingness to support and to share information with their staff was strongly related to organisational commitment of the nurses. In addition, they found perceived organisational support to be a predictor of organisational commitment. From the literature, it appears that LMX can have a significant positive influence on organisational commitment. Consequently, a hypothesis is proposed that:

H2: LMX is a positive determinant of organisational commitment.

3.2.3 Leader-Member Exchange and Autonomy

Studies that have addressed both LMX and autonomy are scarce. Only one published article could be found that discussed LMX and autonomy together (Basu & Green, 1997). Basu and Green investigated the relationship between LMX and autonomy with employees in a Fortune 500 manufacturing plant. The results indicated that the quality of LMX was positively related to employee autonomy.

Although there is only one article focusing on LMX and autonomy, the following three studies can be argued to indicate the relationship between LMX and autonomy.

Graen and Scandura (1987) mentioned one of the resources supervisors possessed was latitude which meant the authority granted to a subordinate by a supervisor.

This description of latitude was similar to the definition of autonomy in Basu and Green (p. 479)—“the extent to which followers are given latitude to carry out their

tasks without excessive supervision.” In addition, Graen and Scandura suggested that at the maturity of a reciprocal relationship, the supervisor may begin to delegate important responsibilities to the subordinate and allow a great deal of latitude to the subordinate for completing the assignment. Their suggestion implied that a subordinate may have gained autonomy from the supervisor at the maturity of a reciprocal relationship. Hence, their proposition indicated the possibility of a positive relationship between LMX and autonomy, supporting Basu and Green’s results. However, this proposition was not empirically tested in Graen and Scandura. The relationship between LMX and autonomy thus requires further investigation.

In another article that suggested the relationship between LMX and autonomy, Bauer and Green (1996) conducted a longitudinal study to examine the relationship between leader delegation and LMX. The result indicated a positive relationship between LMX and leader delegation. Since delegation provided a subordinate with increased autonomy (Bauer & Green), a positive relationship between LMX and delegation could be argued to resemble a positive relationship between LMX and autonomy. In addition, leader delegation was assessed from subordinates’ points of view, indicating that subordinates assessed leader delegation based on the level of latitude they were given by the supervisor to finish their tasks. This operationalisation of leader delegation corresponded to the definition of autonomy

by Basu and Green (1997). The similarity between leader delegation and autonomy once again reinforced the previous argument that a positive relationship between LMX and delegation could resemble a positive relationship between LMX and autonomy.

Autonomy and empowerment may also be related. Liden , Wayne, and Sparrow (2000) examined the relationship between LMX and the four dimensions of empowerment (meaning, impact, competence, and self-determination). The results indicated that LMX was positively related to the impact and self-determination dimensions of empowerment. Although this study was about LMX and empowerment, the self-determination dimension of empowerment was similar to autonomy because self-determination referred to one's experienced responsibility which indicated a certain degree of granted latitude. In addition, the self-determination measurement was constructed using items measuring autonomy from the Job Diagnostic Survey (Liden et al.). Hence, this study could also be argued to indicate a positive relationship between LMX and autonomy.

There are other researchers who have explored areas related to LMX and autonomy. For example, Vecchio and Gobdel (1984) investigated the relationship between subordinate IN-OUT status and the negotiating latitude scale. Their result revealed a positive relationship between subordinate IN-OUT status and the negotiating latitude

scale. Although Vecchio and Gobdel suggested a positive relationship between LMX and autonomy, their study was in fact about construct validation of the negotiating latitude scale. In other words, Vecchio and Gobdel did not examine the relationship between LMX and autonomy, so the relationship between LMX and autonomy remains unclear.

The impacts of LMX and subordinate performance on decision influence were investigated by Scandura, Graen, and Novak (1986). The results indicated that the interaction of LMX (measured from both supervisor and subordinate) and subordinate performance was related to the degree of decision influence. Since decision influence was defined as “the subordinates’ perception of the extent to which the superior involves him or her in nontrivial decisions facing the superior and potentially affecting the subordinate” (Scandura et al., p. 581), it implied a degree of power sharing between the supervisor and the subordinate. Therefore, the concept of decision influence indicated a certain extent of autonomy. However, this study did not reveal the direct relationship between LMX and decision influence. The correlation between LMX and autonomy thus requires further exploration.

Schriesheim, Neider, Scandura, and Tepper (1992) examined the relationship between LMX and autocratic decision-making. Their result indicated a negative correlation between LMX and autocratic decision-making. In addition, Schriesheim

et al. investigated the relationship between LMX and delegation. Their results suggested a positive correlation between LMX and delegation which corresponded to those of Bauer and Green (1996). As a result, Schriesheim et al. suggested a positive relationship between LMX and autonomy. Yet, caution needs to be taken when generalising their result, as Schriesheim et al. actually measured delegation instead of autonomy. The relationship between LMX and autonomy therefore needs further investigation.

Finally, Dienesch and Liden (1986) suggested that leaders who did not have a good relationship with their immediate supervisor tended to have less power/resources to offer subordinates than those who did. Their suggestion indicated a positive relationship between LMX and autonomy, yet it was based on a supervisor and a subordinate both in managerial positions instead of a supervisor and a non-managerial position subordinate, which is the focus of this thesis. In addition, it was a conceptual suggestion rather than an empirical finding. Therefore, the relationship between LMX and autonomy requires further investigation.

In summary, studies that have addressed LMX and autonomy are scarce. Although there are studies that could be argued to resemble LMX and autonomy, those studies did not actually measure autonomy nor did they examine the relationship between LMX and autonomy. Therefore, the relationship between LMX and autonomy

requires further investigation irrespective of the extant literature indicating a positive relationship between LMX and autonomy.

The gap between LMX and autonomy indicates a need for further discussion on their relationship. When a supervisor develops a high-quality LMX relationship with his/her subordinate, the supervisor would understand the subordinate's potential, thus may allow the subordinate to choose the procedure or method to utilise in carrying out his/her work. Basu and Green (1997) found that LMX was positively related to subordinate autonomy. As a result, past research denotes that LMX can have a significant positive impact on autonomy. Accordingly, a hypothesis is proposed that:

H3: LMX is a positive determinant of autonomy.

In summary, this section discussed the literature on leader-member exchange (LMX). The section began with a review of Average Leadership Style (ALS), followed by LMX in general. The difference between ALS and LMX was identified. Next, the section discussed LMX in relation to job satisfaction. Although the relationship between LMX and job satisfaction appears positive and consistent over time, it is unclear whether this positive relationship applies to Taiwanese nurses. A gap therefore exists between LMX and Taiwanese nurses' job satisfaction. The

following section discussed LMX in connection with organisational commitment. The relationship between LMX and organisational commitment also appears positive and consistent; yet, caution needs to be taken when generalising this relationship to Taiwanese nurses, as there is a limited number of studies on LMX relating to organisational commitment. Thus, there is a need to investigate the relationship between LMX and Taiwanese nurses' organisational commitment. Then, the section discussed LMX and autonomy. The extant literature on LMX and autonomy is quite scarce. Although the extant literature suggests a positive relationship between LMX and autonomy, the majority of the studies used constructs such as leader delegation (Bauer & Green, 1996; Schriesheim et al., 1992), self-determination (Liden et al., 2000), and negotiating latitude (Vecchio & Gobdel, 1984) rather than autonomy. Thus, caution is needed when generalising the relationship between LMX and autonomy to Taiwanese nurses. Research gaps on the extant LMX literature have been identified, and hypotheses were proposed for empirical testing. The next section now turns to the topic of autonomy.

3.3 Autonomy

As discussed in Chapter 2, the 'self-expressive function of working' may reflect the desirability of a lot of autonomy at work for Taiwanese nurses. Accordingly, this section reviews the literature on autonomy. The section begins with a review of

autonomy in general, followed by a review of autonomy specific to nursing professionals. The section ends with a summary to identify the research gap in the extant literature.

The importance of autonomy is strongly recognised in the workplace (Brady, Judd, & Javian, 1990). The classic job characteristic model of Hackman and Oldham (1976) indicated that autonomy was one of the main job characteristics. Sims, Szilagyi, and Keller (1976) also suggested that autonomy was one of the major job characteristics. The well-known psychological empowerment of Spreitzer (1995) incorporated autonomy in one of the psychological empowerment dimensions, even though the term “self-determination” was used instead of autonomy. In addition, Westwood and Leung (1996) found that autonomy was one of the important work goals the workers wanted. Overall, the importance of autonomy in the workplace has been stressed in the extant literature.

However, as important as autonomy appears to be, the measurement of this variable for research purposes is in dispute (Brady et al., 1990). One area of dispute revolves around the definition of autonomy. For example, Breugh (1985) and Kiggundu (1983) defined autonomy as the amount of discretion the employee has in carrying out tasks. On the other hand, the autonomy defined by Hackman and Oldham (1976) and Sims et al. (1976) addressed both discretion and independence. Another area of

dispute revolves around the dimensionality of the concept. Traditionally autonomy is treated as unidimensional (Brady et al.), but Breugh and Breugh and Becker (1987) purported autonomy as multidimensional. Hence, more work is needed on further clarification of the measurement of autonomy.

Factors associated with autonomy have been reported in the extant literature. For example, Hackman and Oldham (1975) reported that autonomy was positively related to 'experienced responsibility for the work', 'general satisfaction', 'internal work motivation', 'social satisfaction', 'supervisory satisfaction', and 'growth satisfaction'. A later work of Hackman and Oldham (1976) also revealed similar results that autonomy was positively associated with 'internal motivation', 'general satisfaction', 'growth satisfaction', 'rated work effectiveness', and negatively associated with 'absenteeism'. Likewise, Brady et al. (1990) found positive correlations between autonomy and work satisfaction, supervisor satisfaction, occupation satisfaction. Although autonomy appears to be positively related to job satisfaction, Katz (1978) found that autonomy was negatively correlated with job satisfaction for employees new to an organisation. Pearson and Moomaw (2005) also reported little association between curriculum autonomy and job satisfaction for teachers. These two studies showed opposing results to previous findings. As a result, caution needs to be taken when drawing any final conclusion toward the

relationship between autonomy and job satisfaction. And further empirical study is needed to understand their relationship.

Since the target of this thesis is nursing professionals, it is meaningful to investigate the significance of autonomy to nursing professionals. Professionals are characterised by the belief that they have autonomy (Boyt et al., 2001; Hall, 1968; Shafer et al., 2002). Stolte and Myers (1995) found that autonomy was one of the most frequently reported reasons that would attract nurses to working. Similarly, Hegney et al. (2005) noted that one of the key variables for retaining nurses was for them to gain autonomy. Autonomy is therefore an important factor to nursing professionals.

The work of Mrayyan (2004) revealed that nurses in the United States, Canada, and the United Kingdom had a moderate level of autonomy. These nurses also were more autonomous in making patient care decisions than in unit operation decisions. In addition, nurse managers' actions had a strong relationship with nurses' total autonomy, as well as with nurses' autonomy in deciding patient care and unit operation. This finding suggests that nurse manager may be associated with the level of autonomy nurses have.

In relation to nurses' job satisfaction, Finn (2001) suggested that autonomy was the

most important job component for registered nurses' job satisfaction in Australia, indicating a possible relationship between autonomy and job satisfaction for nurses. Chu et al. (2003) reported a moderate positive correlation between autonomy and Taiwanese nurses' job satisfaction. However, autonomy was not a significant determinant of Taiwanese nurses' job satisfaction. The causal relationship between autonomy and job satisfaction for nursing professionals therefore needs further investigation.

The gap between autonomy and job satisfaction indicates a need for further elaboration on the relationship. When employees are free to choose the method in carrying out their work, they are more likely to find enjoyment in the job because they could determine how to accomplish work tasks based on their knowledge and experiences. Boyt, Lusch and Naylor (2001) found that autonomy was a significant positive determinant of job satisfaction for marketing researchers. Along a similar line, Best and Thurston (2004) indicated autonomy has been positively related to nurse job satisfaction. From the literature, it appears that autonomy can have a significant positive impact on job satisfaction. As a result, a hypothesis is proposed that:

H4: Autonomy is a positive determinant of job satisfaction.

In summary, autonomy is an important factor to nursing professionals. Generally, the relationship between autonomy and job satisfaction appears positive; however, two studies showed conflict findings towards such a relationship. In addition, whether autonomy is a positive determinant of job satisfaction for Taiwanese nurses remains unclear. Hence, it is necessary to further explore the relationship between autonomy and job satisfaction. The next section now turns to the topic of opportunity to learn.

3.4 Opportunity to Learn

As discussed in Chapter 2, the ‘learning and improvement opportunity function of working’ may reflect the desirability of ‘a lot of opportunity to learn new things’ for Taiwanese nurses. Accordingly, this section reviews the literature on opportunity to learn. The section begins with a review of opportunity to learn in general, followed by a review of opportunity to learn specific to the nursing professionals. Finally, the section summarises the research gap in the extant literature.

The extant literature has indicated the significance of organisations offering employees the opportunities to learn. For example, Noe and Wilk (1993) suggested that employees who were motivated to learn and who perceived the need to learn would be looking for opportunities to learn, in turn, indicating the significance of organisations offering the opportunity to learn. Tharenou and Conroy (1994) found

that prevention of training was significantly negatively related to women managers' advancement in organisations, suggesting that opportunity to learn could be an important factor for employees' career. Likewise, Curtin (1995) revealed the important role of constant learning and education for nurses' job security, in turn, suggesting that opportunity to learn in an organisation could be an important factor throughout nurses' employment and career. Additionally, Lin and Liang (2007) stressed the importance of recurrent training for nursing professionals, so that nurses would be clear about job descriptions, patient care policies, as well as updated knowledge. Pan (1993) found that ninety three percent of hospital nurses in Southern Taiwan held a positive attitude toward continuing education; thus, suggesting that opportunity to learn could be a factor that Taiwanese nurses look for from working. In general, the existing literature has highlighted the significance of opportunity to learn in an organisation and also indicated that it is an area worth of exploring.

In this thesis, opportunity to learn refers to employees' perceptions of management's behaviour and willingness to let them attend training courses and learn. That is, in addition to management offering opportunities for employees to learn, an equally important factor is how management facilitates learning. Lin and Liang (2007) indicated that staff development was determined by the employer. This suggests that

the employer holds the power of letting an employee attend a training course or not. The employer also makes the decision regarding subsidising employees for training. Along a similar line, Bartlett (2001) noted that support from supervisors for training influenced employees' decisions to participate in training activities. Yet, it is unclear whether the supervisor-subordinate relationship (LMX) would influence employees' opportunities to learn. This thesis intends to explore the relationship between LMX and opportunity to learn of Taiwanese nurses, as so far no research has empirically investigated this relationship.

Relating to the relationship between LMX and opportunity to learn, when a high-quality relationship exists between a supervisor and a subordinate, the supervisor would understand the subordinate's ability. The supervisor may therefore encourage the subordinate to attend training sessions to gain new knowledge and skills for career and/or personal growth. The supervisor may also facilitate the subordinate's attendance by adjusting her/his roster and/or by subsidising the costs associated with the training. Bartlett (2001) noted that support from supervisors for training was an important indicator of employee training participation. Likewise, managers can reward employees by allowing them the opportunity to develop and grow professionally (Davidhizar & Shearer, 1998). It is likely that an employee having a good relationship with his/her supervisor receives more support from the supervisor

for training, in turn leading to more participation in training and development. Therefore, it appears that LMX can have a significant positive impact on opportunity to learn. Accordingly, a hypothesis is proposed that:

H5: LMX is a positive determinant of opportunity to learn.

Turning to the relationship between opportunity to learn and job satisfaction, Noe and Wilk (1993) noted that congruence between employee and organisational perceptions of development needs influenced employee satisfaction. This indicates that employees may feel less satisfied if management refuses to let them learn. However, Noe and Wilk did not empirically examine the relationship between opportunity to learn and job satisfaction. This thesis intends to build on the work of Noe and Wilk by exploring the relationship between opportunity to learn and job satisfaction of Taiwanese nurses.

An empirical study by Van Gelderen, Van der Sluis, and Jansen (2005) found that learning opportunities were partially related to satisfaction for small business starters in the Netherlands. Although Van Gelderen et al. suggested a relationship between opportunity to learn and job satisfaction, their definition of learning opportunities, “situations that challenge the person and evoke learning behaviour” (Van Gelderen et al., p. 97), was different from that of opportunity to learn in this thesis. In

addition, Van Gelderen et al. measured satisfaction in terms of income, status, personal development and business development rather than the general job satisfaction that is to be used in this thesis. Hence, caution needs to be taken when generalising their finding. This thesis aims to contribute to the extant literature by exploring the relationship between opportunity to learn and job satisfaction of Taiwanese nurses.

Another study that suggested the relationship between opportunity to learn and job satisfaction was by Armstrong-Stassen and Cameron (2005). The authors proposed that training opportunities provided by organisations would influence the career satisfaction of older managerial and professional women. However, the result did not show a significant relationship between the variables. This may be due to a small sample size—a total of 91 managerial women and 90 professional women obtained in the study. This thesis builds on the work of Armstrong-Stassen and Cameron by exploring the relationship between opportunity to learn and job satisfaction of Taiwanese nurses.

Concerning the relationship between opportunity to learn and job satisfaction, when an organisation offers training courses for its employees to learn new skills and expertise, the employees are less likely to feel bored in their job because they can apply the new skills and expertise to carry out the tasks, which brings alternatives

and variety to the job. As a result, their job would be more interesting. In addition, employees would feel less disappointed in their job because they consider the training courses an investment the management has put on them thus makes them feel valued. Armstrong-Stassen and Cameron (2005) suggested that managerial and professional women who participated in a greater number of training and development activities were more satisfied with their career. As a result, it seems likely that opportunity to learn can have a significant positive impact on job satisfaction. Accordingly, a hypothesis is proposed that:

H6: Opportunity to learn is a positive determinant of job satisfaction.

In summary, the extant literature has highlighted the significance of opportunity to learn in an organisation and has suggested a relationship between opportunity to learn and job satisfaction. However, no research so far has used exactly the same definition of opportunity to learn as in this thesis, nor has it investigated the relationship between opportunity to learn and job satisfaction. This thesis aims to contribute to the existing literature by firstly validating the construct of opportunity to learn and secondly exploring the relationship between opportunity to learn and job satisfaction of Taiwanese nurses. The next section now turns to another factor underlying the 'Meaning of Working' theory, the co-worker interaction.

3.5 Co-worker Interaction

As discussed in Chapter 2, Taiwanese people value human interactions (Wang et al., 2006; Yeh et al., 2004), and the emphasis of interpersonal relations are particularly true for Taiwanese nurses (Lu, Lin, Wu, Hsieh, & Chang, 2002; Tzeng, 2002b; Yin & Yang, 2002). The ‘interpersonal contact function of working’ may reflect the desirability of ‘good contacts with colleagues’ for increasing the job satisfaction of Taiwanese nurses. Co-worker interaction, which describes the interactions among colleagues, represents such contacts. Accordingly, this section reviews the literature on co-worker interaction. The section begins with a review of co-worker interaction in general, followed by a review of co-worker interaction specific to nursing professionals. This section ends with a summary identifying the research gap in the extant literature.

Nowadays organisations have been paying attention to the impact of interpersonal interactions on organisation success because the way employees speak and act toward others (e.g. customers, co-workers) can affect important outcomes such as customer satisfaction that in turn influence the profits and performance of the organisation (Diefendorff & Richard, 2003). Co-worker interaction is one of the interpersonal interactions in an organisation, and research has indicated the influences of co-workers on employees’ attitudes to their job and workplace

(Hodson, 1997; Raabe & Beehr, 2003). In addition, Stolte and Myers (1995) found that nurses who worked with supportive, caring, professional colleagues were more likely to stay in their positions. Therefore, it is worthy of exploring the topic of co-worker interaction and its impact on organisational outcomes such as job satisfaction.

Co-worker interaction is a relatively new concept in the existing literature. Only three studies were found that incorporated co-worker interaction. Tschan, Rochat, and Zapf (2005) reported that emotional deviance, that is, an employee reveals his/her felt emotions instead of following the organisation's emotional display rules, was more likely to happen in co-worker interactions rather than in interactions with customers. Using ethnographic observation at three firms in Tokyo, Miller (1995) found that giving instructions and creating rapport were two aspects of Japanese and American co-worker interaction. Based on a review of the literature, Nordstrom, Lorenzi, and Hall (1990) found that increases in co-worker interaction may contribute to the overall positive effects of public posting on employee performance.

While co-worker interaction has been mentioned in these three studies, none have used it as a construct, nor have they operationalised it. Co-worker interaction as a construct therefore has not been developed fully in the extant literature. This thesis aims to develop such a construct and to explore the influence of co-worker interaction on job satisfaction of Taiwanese nurses.

In this thesis, co-worker interaction is defined as an employee's encounter with specified colleagues in terms of task-related professional interaction, and non-task-related interaction at work. Such interactions are assessed from the individual's perception of his or her contacts with specified colleagues. Co-worker interaction in this thesis would be related to, but distinct from other peer-related variables in the literature such as team-member exchange (TMX), work group exchange (WGX), co-worker exchange (CWX), co-worker-member exchange (CMX) and co-worker satisfaction. Both TMX and WGX involve the reciprocity between a member and the peer group as a whole (Dunegan et al., 1992; Seers, 1989), while co-worker interaction involves the interaction between an individual and specified colleagues. CWX and CMX involve exchanges between an individual and one particular co-worker who reports to the same supervisor (Raabe & Beehr, 2003; Sherony & Green, 2002), while co-worker interaction involves contacts with more than one particular colleague. Co-worker satisfaction involves an individual's affective reaction to peers in the workplace (Seers) rather than an individual's contact with specified co-workers. Therefore, this thesis argues that co-worker interaction is a separate construct from TMX, WGX, CWX, CMX, and co-worker satisfaction.

Research on the antecedents of co-worker interaction is very limited. Sherony and Green (2002) found that when two co-workers had a similar type of relationship

with their supervisor, the pair would develop a close relationship. Their finding suggested that LMX may be an antecedent of co-worker interaction. However, Sherony and Green focused on only two co-workers, rather than a number of specified colleagues as defined in co-worker interaction in this thesis. In addition, although part of Sherony and Green's data were collected from employees at a health services facility in eastern Iowa, it is unclear whether nurses in that health services facility participated in their study. Therefore, the relationship between LMX and co-worker interaction for nursing professionals remains vague. This thesis builds on the work of Sherony and Green by not only exploring the relationship between LMX and co-worker interaction, but also extends that explanation within the Taiwanese context.

Relating to the relationship between LMX and co-worker interaction, when a supervisor has a warm personality, that is, the supervisor is loving and friendly, subordinates are likely to find him/her to be caring and approachable, in turn leading to good relationships between the supervisor and subordinates. The supervisor's warm personality would also shape subordinates' behaviours toward each other in that the subordinates care about each other and support each other. In other words, good relationship with the supervisor leads to more interactions among colleagues. This corresponds to what Sherony and Green (2002) indicated in their study that

LMX quality influenced the development of subordinate relationships. Thus, past research suggests that LMX can have a significant positive impact on co-worker interaction. As a result, a hypothesis is proposed that:

H7: LMX is a positive determinant of co-worker interaction.

With regard to the consequences of co-worker interaction, the extant literature suggests that co-worker interaction may be related to job satisfaction. For example, Seers (1989) found that TMX was a positive determinant of job satisfaction with employees of a automotive manufacturer. Raabe and Beehr (2003) found that CMX was a positive determinant of job satisfaction with employees of an energy company and a high-technology company. However, these studies measured TMX/CMX, which are different constructs from co-worker interaction in this thesis. In addition, their research contexts were not related to nurses. Thus, caution needs to be taken when drawing any final conclusion on the relationship between co-worker interaction and job satisfaction.

In relation to the relationship between co-worker interaction and job satisfaction, when employees are able to make friends with colleagues, they are likely to feel happier in their job because they can share personal feelings with their colleagues and acquire emotional support from them. Best and Thurston (2004) indicated that

colleague relationships were strongly related to nurses' overall job satisfaction, suggesting that positive interactions among colleagues may be related to nurses' job satisfaction. Likewise, Bartram et al. (2004) found that collegial social support was related to higher nurse job satisfaction. From the literature, it appears that co-worker interaction can have a significant positive impact on job satisfaction. As a result, a hypothesis is proposed that:

H8: Co-worker interaction is a positive determinant of job satisfaction.

In summary, the extant literature on co-worker interaction is quite scarce. So far there has been no clear definition of co-worker interaction, nor has there been an empirical study examining the antecedents and consequences of co-worker interaction. This thesis aims to extend the extant literature on co-worker interaction firstly by developing such a construct and secondly by exploring the antecedents and consequences of co-worker interaction. Specifically, this thesis builds on the work of Sherony and Green (2002) by investigating the relationship between LMX and co-worker interaction of Taiwanese nurses. In addition, this thesis extends the existing literature on co-worker relations by examining the relationship between co-worker interaction and job satisfaction of Taiwanese nurses. The next section now turns to the topic of job satisfaction.

3.6 Job Satisfaction

This section reviews the literature on job satisfaction. The section begins with a review of job satisfaction in general, followed by a review of job satisfaction specific to nursing professionals. The section ends with a summary to identify the research gap in the extant literature.

Job satisfaction is a topic of wide interest not only to managers in organisations but also to researchers in academia. In fact, job satisfaction is the most frequently studied variable in organisational research (McCue & Gianakis, 1997; Spector, 1997). It is a central variable in both the research and theory of organisational behaviour and related fields ranging from job design to supervision (Spector).

According to Spector (1997, p. 2), job satisfaction was “simply how people feel about their jobs and different aspects of their jobs”; therefore, job satisfaction is the extent people like (being satisfied) or dislike (being dissatisfied) their jobs. In general, job satisfaction is an attitudinal variable. It can be considered as an overall feeling toward the job or as a collection of attitudes toward various aspects of the job. Facets of a job that are frequently assessed include pay, co-workers, supervisors, promotion opportunities, the nature of the work, communication, the organisation’s policies and procedures, and the organisation itself (Spector). This thesis focuses on the general job satisfaction, because at this stage it is more important to identify the

antecedents and consequences of job satisfaction rather than examining the facets of job satisfaction.

Antecedents of job satisfaction can be classified into two main categories, namely the job environmental factors and the personal factors (Spector, 1997). The job environmental factors include job characteristics (skill variety, task identity, task significance, autonomy, and job feedback), organisational constraints, role variables (role ambiguity, role conflict), work-family conflict, pay, job stress, workload, control, and work schedule (flexible work schedule, long shifts, night shifts, part-time work) (Spector). The personal factors include locus of control, negative affectivity, and person-job fit (Spector). Potential consequences of job satisfaction indicated by Spector comprised job performance, organisational citizenship behaviour, withdrawal behaviour (absence, turnover), burnout, physical health and psychological well-being, counterproductive behaviour, and life satisfaction.

In addition to the antecedents suggested by Spector (1997), Brunetto and Farr-Wharton (2003) found that communication (frequency, mode, content, and bi-direction) and ambiguity (with customer, supervisor, promotion, and ethics) were significant determinants of police officers' level of job satisfaction. A later work by Brunetto and Farr-Wharton (2006) also revealed that communication (frequency, and bi-direction) and ambiguity (customer, supervisor, promotion, and ethics) were

significant determinants of public sector employees' level of job satisfaction, while informal communication mode and bi-directional communication were significant determinants of private sector employees' level of job satisfaction.

Similar to the antecedents indicated by Spector (1997), Brunetto and Farr-Wharton (2005) found that fellow workers were a significant positive determinant of nurses' job satisfaction, while pay was a significant negative determinant of nurses' job satisfaction. In addition, they found that fellow workers and supervision were both significant positive determinants of job satisfaction for the administrative employees, while fellow employees and promotion were significant positive determinants of police officers' job satisfaction.

Additional antecedents of job satisfaction were identified by McCue and Gianakis (1997). They found that professionalism, job turbulence, job climate, extrinsic rewards, and organisational output were significant determinants of finance officials' job satisfaction in Ohio State of the United States. Yousef (2000) revealed that leadership behaviour was a significant determinant of job satisfaction for employees in different organisations in the United Arab Emirates. In addition, Yousef indicated a mediating effect of organisational commitment between leadership behaviour and job satisfaction.

Turning to the area of nurses' job satisfaction, Mueller and McCloskey (1990) suggested that job satisfaction was one of the most frequently mentioned constructs in the nursing literature, indicating the importance of nurses' job satisfaction. Since the focus of this thesis is the nursing professionals, it is worthwhile to explore factors that specifically relate to nurses' job satisfaction. To begin with, Blegen (1993) conducted a meta-analysis to explore variables that were most frequently associated with nurses' job satisfaction. The results showed that job satisfaction was most strongly associated with stress (-.609) and organisational commitment (.526). Seven variables had moderate correlations (between .20 and .50): communication with supervisor, autonomy, recognition, routinisation, communication with peers, fairness, and locus of control. Four other variables had low correlations (less than .20): age, education, tenure, and professionalisation.

Similar to Blegen's findings, Lok and Crawford (1999) indicated a positive correlation between job satisfaction and organisational commitment for nurses in large hospitals of Sydney metropolitan region, Australia. However, a later work of Lok and Crawford (2001) revealed that job satisfaction was a positive determinant of organisational commitment based on an Australian nurse sample. Empirical findings about the relationship between job satisfaction and organisational commitment for nurses appear inconsistent, thus indicating a need to further

examine this relationship.

In addition to the factors examined by Blegen (1993), Way and MacNeil (2006) indicated that job demand, such as high patient to nurse ratios and overtime, was significantly associated with high levels of nurses' dissatisfaction. Similarly, Sagie and Krausz (2003) reported that job demands were negatively associated with nurses' job satisfaction in a large hospital in Israel. They also indicated that job demands were a negative determinant of nurses' job satisfaction. Other than job demand, Way and MacNeil further indicated that social support from co-workers and supervisors was associated with nurses' job satisfaction. A similar work by Best and Thurston (2004) also suggested that ward relationships (team work, colleagues) were the greatest predictor of overall job satisfaction when compared with external control, autonomy, and salary. In addition to social support from co-workers and supervisors, Way and MacNeil further suggested that level of control was positively associated with nurses' job satisfaction. Similarly, Sagie and Krausz supported this positive correlation between scheduling control and nurses' job satisfaction. In addition, Sagie and Krausz revealed that scheduling control was a positive determinant of nurses' job satisfaction. Lastly, Way and MacNeil suggested that shift work was a negative determinant of workers' level of satisfaction, but Sagie and Krausz did not support their idea.

Other antecedents of nurses' job satisfaction were indicated by Lok and Crawford (2001). Their findings showed that bureaucratic ward culture was a negative determinant of nurses' job satisfaction. However, the consideration leadership style (defined as non-bureaucratic leadership style) was a positive determinant of nurses' job satisfaction in large hospitals of Sydney, Australia. Using a quasi-experimental study design, Allen and Vitale-Nolen (2005) reported significant improvement in nurses' job satisfaction after a relationship-based primary nursing model was implemented in the U.S.A. The design of the relationship-based primary nursing model centred on the primary nurse and his/her patients; hence, the finding indicated the importance of interpersonal relationships in nurses' job satisfaction.

The work of Kacel, Miller, and Norris (2005) identified factors that licensed nurse practitioners (NPs) in a Midwestern state in the U.S.A. were satisfied/dissatisfied with. The results showed that NPs were most satisfied with intrinsic factors such as sense of accomplishment, challenge in work, level of autonomy, patient mix, and ability to deliver quality care. On the other hand, NPs were least satisfied with extrinsic factors such as time off to serve on professional committees, reward distribution, amount of involvement in research, opportunity to receive compensation for services outside normal duties, and monetary bonuses available in addition to salary. A similar work by Best and Thurston (2004) reported that

Canadian nurses were most satisfied with professional status, followed by interaction, autonomy, task requirements, and lastly, organisational policies.

There are some studies exploring Taiwanese nurses' job satisfaction. For example, Tzeng (2002b) examined the importance of job aspects and satisfaction with these aspects among Taiwanese nurses. The job aspects included indirect environment, direct environment, salary/promotion, self growth, challenging work, interaction with patients, leadership style, and work atmosphere. Results indicated that salary/promotion was the most important job aspect, followed by work atmosphere, direct environment, leadership style, interaction with patients, indirect environment, challenging work, and self growth. Taiwanese nurses were most satisfied with work atmosphere, followed by interaction with patients, direct environment, challenging work, leadership style, self growth, indirect environment, and salary/promotion.

Factors related to Taiwanese nurses' job satisfaction were revealed in Lu, Lin, Wu, Hsieh, and Chang (2002). The authors indicated that job satisfaction was positively associated with professional commitment and negatively associated with turnover intentions. However, Tzeng (2002a) suggested that general job satisfaction was a significant predictor of Taiwanese nurses' intention to quit. Additional correlation for job satisfaction was reported by Chu, Hsu, Price, and Lee (2003). Their findings showed that job involvement, positive affectivity, autonomy, distributive justice,

procedural justice, promotional chances, and social support were positively related to job satisfaction, while negative affectivity, job stress (role ambiguity, workload, resource inadequacy), and routinisation were negatively associated with job satisfaction. In addition, the results demonstrated that job involvement, positive affectivity, and co-worker support were positive determinants of job satisfaction, while negative affectivity, role ambiguity, routinisation, and educational level were negative determinants of job satisfaction. The finding of Chu et al. was similar to that of Blegen (1993) in that autonomy was moderately related to job satisfaction.

Similar to the approach of Allen and Vitale-Nolen (2005), Lee, Yang, and Chen (2000) conducted a quasi-experimental study to examine the impact of a quality circle program on Taiwanese nurses' job satisfaction. The results revealed that nurses of the quality circle program felt more satisfied with their job than those of the non-quality circle program. A quality circle consisted of a small group of employees who voluntarily met at regular times to identify, analyse, and solve problems at work, indicating the importance of co-worker interaction and opportunity to learn for Taiwanese nurses.

In summary, job satisfaction is a variable frequently being studied in organisational research and nursing research (McCue & Gianakis, 1997; Mueller & McCloskey, 1990; Spector, 1997). The extant literature has identified a number of antecedents

and consequences of job satisfaction. Yet, the relationship between job satisfaction and organisational commitment in the existing literature remains vague. This suggests a need to further explore this relationship.

Concerning the relationship between job satisfaction and organisational commitment, when employees are satisfied with their job, they are more likely to find enjoyment in the job. Likewise, they probably would consider their job more pleasant and interesting than other jobs. Subsequently, the chances that employees stay in the job may be higher because they truly like it, suggesting that the employees may remain with the organisation for the rest of their career because their emotional attachment to the job. This is similar to what Jalonen et al. (2006) indicated in their study that job satisfaction predicted intent to stay with the organisation. Therefore, it appears that job satisfaction can have a significant positive impact on employees' organisational commitment. Accordingly, a hypothesis is proposed that:

H9: Job satisfaction is a positive determinant of organisational commitment.

The next section now turns to the topic of organisational commitment.

3.7 Organisational Commitment

This section reviews the literature on organisational commitment. The section begins with a review of organisational commitment in general, followed by a review

of organisational commitment specific to nursing professionals. The section ends with a summary to identify the research gap in the extant literature.

One of the well-known organisational commitment constructs is Allen and Meyer's (1990) organisational commitment. Allen and Meyer conceptualised organisational commitment as attitudinal commitment rather than behavioural commitment. The attitudinal commitment was conceptualised as "a psychological state that reflects employees' relationship to the organisation" (Allen & Meyer, p. 2). The proposed organisational commitment was made up of three components. The first element was the affective component which stood for "employees' emotional attachment to, identification with, and involvement in, the organisation" (Allen & Meyer, p. 1). The second element was the continuance component which referred to "commitment based on the costs that employees associate with leaving the organisation" (Allen & Meyer, p. 1). Finally, the normative component represented "employees' feelings of obligation to remain with the organisation" (Allen & Meyer, p. 1). Allen and Meyer suggested that employees with strong affective commitment stay because they want to, those with strong continuance commitment stay because they need to, and those with strong normative commitment stay because they have to. The affective organisational commitment is the focus of this thesis, because this thesis aims to explore factors associated with Taiwanese nurses' job satisfaction, in turn leading to

their affective commitment to the hospital.

The reason why this thesis includes organisational commitment as an outcome variable is because empirical findings demonstrate that it is a significant predictor of employees' intention to quit (Hartmann & Bambacas, 2000; Mathieu & Zajac, 1990). Research has also found that it is a significant predictor of employees' intent to stay (Kim et al., 1996), and also the actual turnover (Huang et al., 2006). As a result, organisational commitment may be an important indicator of employees' turnover behaviours. The high turnover rate of nurses has been of great concern to hospital administrators worldwide (Blegen, 1993); thus, inclusion of organisational commitment as an outcome variable may have practical implications in terms of nurse retention for hospitals.

An overview of the extant literature on organisational commitment was provided by Mathieu and Zajac (1990). They conducted a meta-analysis of the antecedents, correlates, and consequences of organisational commitment. The results showed 26 antecedents, 14 correlates, and 8 consequences of organisational commitment. The antecedents covered personal characteristics: age, sex, education, marital status, position tenure, organizational tenure, perceived personal competence, ability, salary, protestant work ethic, and job level; role states: role ambiguity, role conflict, and role overload; job characteristics: skill variety, task autonomy, challenge, and job

scope; group/leader relations: group cohesiveness, task interdependence, leader initiating structure, leader consideration, leader communication, participative leadership; and organisational characteristics: organisational size, and organisational centralisation. The correlates included overall motivation, internal motivation, job involvement, stress, occupational commitment, union commitment, overall job satisfaction, intrinsic job satisfaction, extrinsic job satisfaction, satisfaction with supervision, satisfaction with co-workers, satisfaction with promotion, satisfaction with pay, and satisfaction with work itself. The consequences comprised job performance by others' ratings, job performance by output measures, perceived job alternatives, intention to search, intention to leave, attendance, lateness, and turnover.

In a study conducted at a U.S. Air Force hospital, Kim, Price, Mueller, and Watson (1996) explored factors that affected intent to stay among physicians. The results showed that job satisfaction, met expectations, and promotional chances were positive determinants of organisational commitment, while role conflict was a negative determinant. Two demographic variables also predicted organisational commitment: education was a negative determinant, while age was a positive determinant. The findings that age, education, and role conflict were antecedents of organisational commitment are similar to those of Mathieu and Zajac (1990). Yet, the finding that job satisfaction was a predictor of organisational commitment is

different from that of Mathieu and Zajac.

Turning the focus to nursing professionals, Jalonen, Virtanen, Vahtera, Elovainio, and Kivimaki (2006) investigated the predictors of sustained organisational commitment among nurses with temporary job contracts in Finland. The results indicated that age, job control, participative safety, procedural justice, psychological distress, and receiving a permanent job contract were predictors of sustained organisational commitment. The outcome that age was a predictor of sustained organisational commitment is consistent with that of Mathieu and Zajac (1990). The outcome that procedural justice was a predictor of sustained organisational commitment is then consistent with that of Lin (2005).

Another study conducted in the nursing context was completed by Lok, Westwood, and Crawford (2005). They investigated the impact of organisational culture, organisational subculture, and leadership style on organisational commitment with Australian nurses. The organisational culture included three dimensions: bureaucratic, innovative, and supportive. The organisational subculture also comprised of three dimensions: bureaucratic subculture, innovative subculture, and supportive subculture, while leadership style encompassed two dimensions: consideration leadership (defined as non-bureaucratic leadership style) and initiating structure leadership. The results indicated that organisational culture was not a

significant predictor of organisational commitment, but organisational subculture was. The consideration leadership was a significant predictor of organisational commitment, which corresponds to Mathieu and Zajac (1990), but the initiating structure leadership was not a significant predictor of organisational commitment. In addition, consideration leadership was a significant determinant of innovative subculture as well as supportive subculture, while initiating structure leadership was a significant determinant of bureaucratic subculture as well as supportive subculture. The results also indicated a mediating effect of organisational subculture between consideration leadership style and organisational commitment.

In a qualitative study, McNeese-Smith (2001) explored factors that contribute to organisational commitment with nursing staff in a large Los Angeles county hospital. The participants ranked job satisfaction as the third important factor that contributed to their organisational commitment. Since this was a qualitative study, the causal relationship between job satisfaction and organisational commitment requires further investigation. On the other hand, a relatively recent study by Lan, Hsul, Chen, and Chang (2006) showed a significant correlation between nurses' job satisfaction and organisational commitment in two public hospitals of Eastern Taiwan. Their finding corresponds to Mathieu and Zajac (1990) in that there was a relationship between job satisfaction and organisational commitment. However, whether job satisfaction

is a predictor of organisational commitment among nurses still remains unclear. More empirical evidence is needed to confirm the causal relationship between the variables.

In another study conducted in Taiwan, Lin (2005) found that the relationship between LMX and organisational commitment was moderated by career stage; that is, the impact of LMX on organisational commitment was stronger for employees who have been working for a while (the mature stage group) than those who have just started working (the initial stage group). Although LMX had positive impact on organisational commitment, caution needs to be taken in generalising this result to Taiwanese nurses as the participants in this study included not only nurses but also doctors and other staff in the hospitals. In addition, career stage was a moderator between LMX and organisational commitment indicating the relationship between LMX and organisational commitment may not be direct and simple. Hence, the relationship between LMX and organisational commitment in a nursing context requires further exploration.

In summary, the extant literature has identified a number of antecedents and consequences of organisational commitment. However, the causal relationship between job satisfaction and organisational commitment in the existing literature still remains vague. This thesis aims to contribute to the extant literature on

organisational commitment by investigating the relationship between job satisfaction and organisational commitment within the context of Taiwanese nurses.

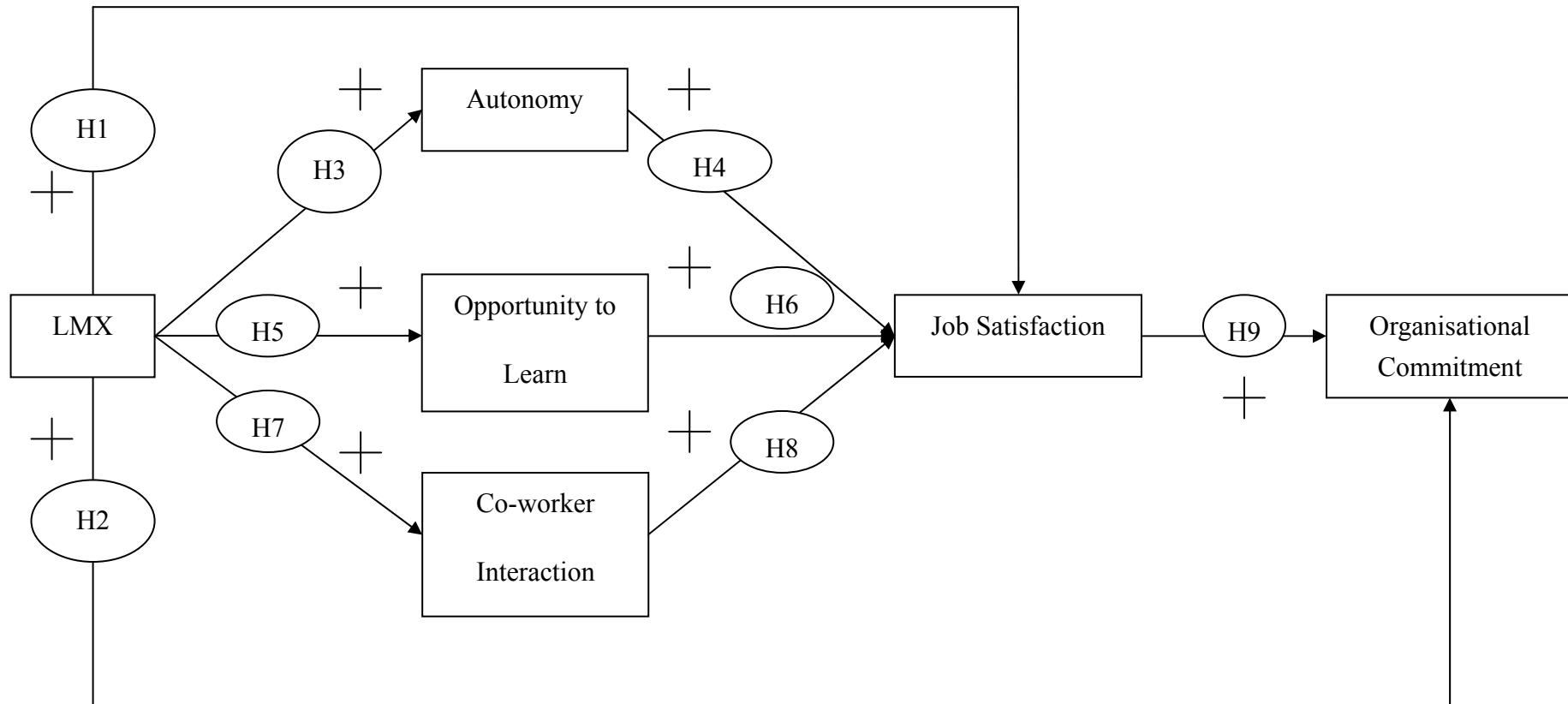
3.8 Chapter Summary

This chapter reviewed the literature on factors underlying the MOW theoretical framework, namely, leader-member exchange (LMX), autonomy, opportunity to learn, and co-worker interaction. Specifically, the literature on these factors was reviewed in relation to job satisfaction and/or organisational commitment, with the aim of providing a foundation for answering the research questions stated in Chapter 1. Based on these reviews, research gaps have been found between LMX and job satisfaction, between LMX and organisational commitment, between LMX and autonomy, between LMX and opportunity to learn, and between LMX and co-worker interaction. Research gaps also exist between autonomy and job satisfaction, between opportunity to learn and job satisfaction, and between co-worker interaction and job satisfaction. Additionally, a research gap was identified between job satisfaction and organisational commitment. Likewise, measures and conceptualisations of co-worker interaction and opportunity to learn need further development. Therefore, new research is needed to fill these gaps.

This thesis intends to fill the gaps in the literature by firstly developing constructs of co-worker interaction and opportunity to learn. This is followed by putting the

concepts and their relationships into a new model that can be tested empirically. The empirical findings in this thesis are expected to provide insights into the relationships between the factors underlying the 'Meaning of Working' theory, job satisfaction, and organisational commitment. Figure 3-1 on the next page, is the model to be tested with the nursing professionals in Taiwan.

Figure 3-1 Proposed Model of this Thesis



Chapter 4 Research Methodology

4.1 Introduction

This chapter discusses and justifies the research methodology of this thesis. In order to gather valid and meaningful data, empirical research requires a carefully planned research method embedded within an appropriate research paradigm. Hence, this chapter begins with a discussion of research paradigms, followed by a justification of the chosen paradigm for this thesis. Then the research methods used are presented. This is followed by a discussion of the preliminary data collection, including the choice of key informants and the in-depth interview procedure. The next section details the principal data collection, covering selection of the sample, implementation of the field survey, and administration of the survey instrument. Then the qualitative data analysis strategy is presented. This is followed by the quantitative data analysis strategy selected, including data cleaning methods to deal with missing data and to test normality, a discussion of reliability, various validity tests, and path analysis using multiple regressions. A summary is then presented to conclude this chapter.

4.2 Research Paradigms

Paradigms are the worldviews or belief systems accompanied with assumptions (Guba & Lincoln, 1994; Mertens, 2003). A research paradigm is important to a piece of research for the following three reasons (Easterby-Smith, Thorpe, & Lowe, 1991).

Firstly, a research paradigm can help to clarify the overall configuration of a piece of research. Secondly, a research paradigm can help the researcher to recognise the appropriateness of a research design. Thirdly, a research paradigm can help the researcher to identify and/or to create designs that can provide reliable answers to the research question. Simply stated, a research paradigm is important to research because it serves as the worldviews that guide researchers in developing an appropriate research design, which in turn provides sound answers to the research question.

In general, there are two major social science paradigms, one is the positivist paradigm, while the other is the interpretive paradigm (Tashakkori & Teddlie, 1998).

Broadly defined, positivism is the approach of the natural sciences (Neuman, 2003).

There are a number of assumptions underlying the positivist paradigm. Firstly, the ontology (nature of reality) of positivism denotes a single reality (Llewellyn, 2007; Neuman, 2003; Tashakkori & Teddlie, 1998), and the reality exists externally (Easterby-Smith et al., 1991). Secondly, the epistemology (the relationship of the knower to the known) of positivism indicates that the observer is independent of what is being observed (Easterby-Smith et al., 1991; Tashakkori & Teddlie, 1998). Thirdly, positivists hold an objective view while conducting research; therefore, positivist research is stated to be free of personal, political, or religious values (Easterby-Smith

et al., 1991; Karami, Rowley, & Analoui, 2006; Neuman, 2003; Nonaka & Peltokorpi, 2006; Tashakkori & Teddlie, 1998). Fourthly, positivism utilises deductive reasoning that places emphasis on arguing from the general to the specific (Easterby-Smith et al., 1991; Tashakkori & Teddlie, 1998). Fifthly, positivists believe that causal relations between objects exist (Nonaka & Peltokorpi, 2006; Tashakkori & Teddlie, 1998), and that the aim of social science is to identify the causal linkages and fundamental laws that explain human behaviour (Easterby-Smith et al., 1991). Sixthly, positivists believe in generalisation; that is, the researcher can use the fundamental laws to predict general systems of human activity (Bowring, 2000; Cavana, Delahaye, & Sekaran, 2001). In addition to generalisation, another assumption of positivism is replicability; that is, other researchers are able to conduct the same research in the same way and acquire similar results (Bowring, 2000; Cavana et al., 2001). Lastly, the methodology (combination of techniques used to enquire into a specific situation) of positivism emphasises the use of inferential statistics, mathematical analysis, experimental and quasi-experimental design to test hypotheses (Bowring, 2000; Nodoushani, 2000).

In contrast to positivism, the interpretive paradigm is interested in understanding people's experiences. The ontology of interpretivism denotes that there are multiple, constructed realities, while the epistemology indicates that the observer and the

observed are inseparable (Neuman, 2003; Tashakkori & Teddlie, 1998). In addition, the interpretivist believes that enquiry is value-bound, and that it is impossible to distinguish causes from effects (Tashakkori & Teddlie, 1998). The interpretivist also believes that time- and context-free generalisations are impossible, and there is an emphasis on using inductive reasoning, which argues from the particular to the general (Neuman, 2003; Tashakkori & Teddlie, 1998). Additionally, interpretive researchers often use participant observation and field research, so that they can become fully involved with individual subjects, thus understand their experiences (Bowring, 2000; Cavana et al., 2001).

As suggested at the start of this section, paradigms are central to research because they assist researchers in research design, which in turn provides sound answers to the research question. Yet, the choice of a research paradigm is dependent on the research question (Clarke & Lehaney, 2000; Karami et al., 2006) and the literature (Punch, 2005). For this thesis, the research question is to find out whether there is a correlation and whether the correlation is positive or negative between particular variables for Taiwanese nurses. From the literature review, previous studies exploring such correlations began with the theoretical framework of the variables and followed by the collection of quantitative data for statistical analysis; that is, previous researchers adopted a positivist approach to investigate these relationships. Therefore,

positivism was chosen for this thesis because it was the most appropriate approach to address the research question and to investigate the hypotheses. The next section now turns to research methods, aiming to discuss the appropriate method for this thesis.

4.3 Research Methods

Methods are the techniques for gathering and analysing data (Giddings & Grant, 2007) in order to answer the research question. There is a quantitative method as well as a qualitative method toward research. The quantitative technique collects data in the form of numbers, whereas the qualitative technique collects data in the form of words. Concerning data analysis, quantitative analysis utilises statistics, while qualitative researchers often use general ideas, themes, or concepts. In recent years, there has been a trend in using mixed methods to undertake research; that is, researchers combine both quantitative and qualitative methods within a single study to answer the research question. Each approach has its strengths and weaknesses, and no approach is superior to another (Currall & Towler, 2003; Punch, 2005). Yet, the choice of methods for a piece of research is determined by the research objectives (Currall & Towler; Punch).

The purpose of this thesis is to find out whether there is a correlation and whether the correlation is significantly positive between particular variables for Taiwanese hospital nurses. From the literature review, previous studies exploring such

correlations began with the theoretical framework of the variables, followed by the collection of quantitative data for statistical analysis; that is, previous researchers adopted a quantitative approach to investigate these relationships. Hence, a quantitative approach appears to be the preferred method to answer the research question of this thesis. Yet, purely quantitative research normally fails to present the richness of the phenomenon being investigated that qualitative research allows (Currall & Towler, 2003). Moreover, management and organisational research nowadays frequently combines both qualitative and quantitative methods within a single study to maximise the knowledge yield of research (Currall & Towler; Field & Morse, 1992). In order to overcome the weakness of purely quantitative research and to maximise the knowledge yield of research, mixed methods, by combining qualitative and quantitative methods, were chosen for this thesis to address the research question and to investigate the hypotheses.

The chosen design of combining qualitative and quantitative methods in this thesis was based on the Priority-Sequence Model by Morgan (1998). The feature of this model is described first before the rationale of using this model is given, so that the reader can grasp the rationale more easily. The focal point of this Priority-Sequence Model is to ensure complementarity by integrating the strengths of qualitative and quantitative methods within a single research project (Morgan). Based on the model,

there are two steps involved in combining qualitative and quantitative methods. The first step concerns the priority of the two methods; that is, a researcher decides either a qualitative or a quantitative approach to be the principle method. Following the first step, a researcher decides the sequence of the complementary method; that is, whether the complementary method serves as a preliminary or a follow-up to the principal method. These two steps in the Priority-Sequence Model yield four designs of combining qualitative and quantitative methods: (1) preliminary qualitative methods in a quantitative study, (2) preliminary quantitative methods in a qualitative study, (3) follow-up qualitative methods in a quantitative study, and (4) follow-up quantitative methods in a qualitative study (Morgan; Teddlie & Tashakkori, 2003).

The Priority-Sequence Model by Morgan (1998) was chosen for this thesis to combine qualitative and quantitative methods for the following reasons. Firstly, mixed methods were chosen because this thesis intends to incorporate the strengths of both qualitative and quantitative methods in order to overcome the lack of depth in purely quantitative research as well as to maximise the knowledge yield of this thesis. This objective fits the focal point of the Priority-Sequence Model in that the model aims to ensure complementarity by integrating the strengths of both qualitative and quantitative methods within a research project (Morgan). Secondly, based on the literature review, a quantitative approach is preferred as the main approach to answer

the research question of this thesis and to investigate the relationship between variables. Hence, the principal method of this thesis is the quantitative approach, while the qualitative approach plays a complementary role in this thesis. This decision is in line with the first step in the Priority-Sequence Model. Based on these rationales, the Priority-Sequence Model by Morgan is deemed appropriate for the design of mixed methods in this thesis.

Once the decision to use the qualitative approach as a complementary method was made, the following step is to determine the sequence of the qualitative method. For this thesis, the decision was made to use the qualitative method prior to the conduct of the principal quantitative method for the following reasons. Firstly, this thesis aims to explore the role of leader-member exchange in relation to job satisfaction and organisational commitment in the Taiwanese (Asian) context. The use of Western theories and measures in an Asian context may pose some limitations. It is therefore appropriate to collect qualitative data first in order to understand the role leader-member exchange plays in Taiwanese nurses' job satisfaction and organisational commitment. This rationale is supported by Creswell (2003) and Punch (2005) who suggested that the preliminary qualitative research facilitates quantitative research by providing information on context and subjects. Secondly, after the preliminary qualitative data collection and analysis, the researcher then may strengthen the

proposed model in Chapter 3 by adding additional variables related to leader-member exchange, job satisfaction, and organisational commitment of Taiwanese hospital nurses. The researcher can also establish relationships among these variables. This is in line with Laurent (2000) and Punch who suggested that preliminary qualitative research can act as a source of hypotheses and assist scale construction. Subsequently, the researcher can proceed to the principal quantitative method by collecting data from a large number of Taiwanese hospital nurses. Likewise, the preliminary qualitative method in a quantitative study is consistent with Laurent who advocated the conduct of qualitative approach prior to that of the quantitative approach. In addition, Morgan (1998) acknowledged that the preliminary qualitative method in a quantitative study is the most frequently used mixed methods design at present. Based on these rationales, the preliminary qualitative method in a quantitative study is considered an appropriate approach to answer the research question and to investigate the hypotheses in this thesis.

As mentioned previously, the research paradigm of this thesis is positivism, and this section has been discussing mixed methods as the chosen research method to answer the research question of this thesis. Although the rationale of combining qualitative and quantitative methods has been given in the aforementioned paragraphs, a concern may arise regarding the use of the qualitative method within the positivist paradigm.

Yet, as stated in the beginning of this section, methods are the techniques for data collection and data analysis (Giddings & Grant, 2007). Methods are not to be confused with methodology which refers to the theoretical assumptions and values that underpin a particular research paradigm (Giddings & Grant). This thesis clearly indicates the use of positivism as the research paradigm and the use of mixed methods as the research tool for data collection and analysis. Researchers (Giddings & Grant; Morgan, 1998; Punch, 2005) have advocated the use of mixed methods within a single paradigm. Therefore, the use of mixed methods within the positivist paradigm is considered appropriate for this thesis.

4.3.1 Research Design of this Thesis

Since the justification of using mixed methods within the positivist paradigm is provided, the focus now turns to the design of each method. Firstly, concerning the preliminary qualitative phase, in-depth interviews are used to collect qualitative data. The choice of in-depth interviews was based on the intent of the preliminary qualitative phase which is to explore the role of leader-member exchange in relation to Taiwanese hospital nurses' job satisfaction and organisational commitment. Researchers (Easterby-Smith et al., 1991; Punch, 2005) have indicated that the in-depth interview is the most fundamental method of qualitative data collection. It is also a very effective way of accessing people's perceptions, meanings, definitions of

situations, and constructions of reality (Punch). Hence, in-depth interviews with Taiwanese hospital nurses are used to collect qualitative data in the preliminary qualitative phase.

Secondly in the principal quantitative phase, a field survey is conducted to collect quantitative data. The choice of a field survey was based on the intent of this thesis which is to measure the relationships between variables, to test hypotheses on a large sample of people, and to generalise the findings. Tharenou, Donohue, and Cooper (2007) denoted that the field survey is one of the most common methods of quantitative data collection in management research. Hence, a field survey with a large sample of Taiwanese hospital nurses is used to collect quantitative data in order to answer the research question and to test hypotheses of this thesis.

In summary, this section discussed the research methods of this thesis. Mixed methods were chosen for this thesis because they can best answer the research question of this thesis and also can maximise the knowledge yield of this thesis. A preliminary qualitative method (in-depth interviews) in a quantitative study (field survey) based on the Priority-Sequence Model by Morgan (1998) was chosen to answer the research question and to test the hypotheses of this thesis. Rationales of using a preliminary qualitative method in a quantitative study were provided, and the justification of using mixed methods within a positivist paradigm was given. The

next section now turns to data collection procedure for the preliminary qualitative phase, the in-depth interviews.

4.4 Data Collection Procedure for the Preliminary Qualitative Phase

This section details the data collection process for the preliminary qualitative phase, the in-depth interviews. The section begins with sampling issues relating to the in-depth interviews, followed by descriptions of the interview procedure.

4.4.1 Choice of Key Informants

Sampling for qualitative data collection is as important as that for quantitative data collection, as researchers cannot study everyone everywhere doing everything (Punch, 2005). As a rule, sampling decisions are made according to the following aspects: the actors (who will be interviewed or which events to observe), the setting (where the research will take place), the events (what the actors will be observed or interviewed doing), and the process (the evolving nature of events undertaken by the actors within the setting) (Creswell, 2003). Purposive sampling, which means sampling with some purpose or focus in mind, is often used for qualitative data collection (Creswell; Punch). Yet, researchers need to bear in mind that the sampling plan and sampling considerations (actors, settings, events, processes) should line up with the purposes and the research questions of the study (Punch).

The purpose of this thesis is to explore the role of leader-member exchange in relation to job satisfaction and organisational commitment of practicing nurses in Taiwan hospitals. In-depth interviews were chosen for the preliminary qualitative phase of this thesis to explore the role leader-member exchange plays in Taiwanese hospital nurses' job satisfaction and organisational commitment. The choice of key informants for the in-depth interviews therefore needs to align with this purpose. Key informants are individuals who are knowledgeable about the issues being researched, and are willing to share their knowledge with others. For this thesis, key informants are practicing nurses in Taiwan hospitals, because they are under the direct supervision of their head nurse and thus will be knowledgeable about leader-member exchange and its relation to their job satisfaction and organisational commitment. Hence, the choice of practicing nurses in Taiwan hospitals as key informants is consistent with the purpose of this thesis.

The key informants were recruited from nursing students undertaking bachelor's courses at night in a college of technology in Taiwan instead of from hospitals. This decision was made based on cost and time constraints. In 2007, there were 450 hospitals listed on Taiwan's Department of Health website (Department of Health, 2007). In order to access nursing employees, the researcher needs to obtain an ethical clearance from the Institutional Review Board (IRB) in each hospital. The cost of

ethical clearance ranges from AUD60 to AUD400, depending on the type of the hospital where the ethical clearance is sought. Additionally, each hospital has its scheme for granting ethical clearance. Some medical centres make attendance in their ethics courses a part of the ethical clearance, while other hospitals hold ethics committee meetings once every two months. As a result, the timeline to have ethical applications cleared varies. With limited time and resources, the researcher had no choice but to consider alternatives in locating key informants.

The nursing students attending night classes in the college of technology are full-time nurses currently working in hospitals; thus, they match the characteristics of key informants in this thesis and are deemed suitable for being interviewed by the researcher. After the researcher gained access to the nursing students, she showed up at the end of a class and explained the research to the students. This was repeated in another two classes, and the information was distributed to approximately 100 students. Upon the student's agreement, an appointment was made with the student for being interviewed.

4.4.2 In-depth Interviews

The first phase of data collection in this thesis was to conduct in-depth interviews with practicing nurses in Taiwan hospitals. As noted earlier, mixed methods, in the form of a preliminary qualitative method in a quantitative study, was chosen for data

collection in this thesis. For the preliminary qualitative phase, in-depth interviews were conducted to collect qualitative data for this thesis. This information is important, as so far there is little evidence in the leader-member exchange literature that focuses on Taiwanese nurses; hence, the topic of leader-member exchange within the Taiwanese nursing context requires further exploration.

The in-depth interviews were conducted one-to-one via telephone, rather than face-to-face, for convenience purposes. The key informants (Taiwanese hospital nurses) work on shift schedules, and most of them have other commitments to make (e.g. family); therefore, it is easier for them being interviewed via telephone, as opposed to travelling to a designated place for the interview. The in-depth telephone interviews were taped-recorded, and a semi-structured interview guide (see Appendix A) with open- and close-ended questions was used in the interviews. An example of the open-ended questions is “What does working as a nurse mean to you?”, which intends to understand nurses’ views on the meaning of working. Another example of the open-ended questions is “What factors make you satisfied with your job?”, which aims to find out factors that affect nurses’ job satisfaction. An open-ended question, “What factors affect your level of commitment to a hospital?”, was asked to explore factors that influence nurses’ organisational commitment. On the other hand, examples of the close-ended questions are “Do you think nursing is a profession?”, “Do you think you

have much autonomy in your everyday work activities?”, and “Would you choose nursing again if you had a chance to start your career all over again?” Additional probing questions were interwoven during each interview to seek clarification and explanation. In general, each interview lasted for 40 minutes.

While planning for the in-depth interviews, the researcher thought about the number of cases required for this phase of data collection. The decision concerning the number of cases needed is left to the researcher (Romano, 1989). Eisenhardt (1989) suggested that cases should be added until reaching theoretical saturation, and Lincoln and Guba (1985) recommended sampling selection to the point of redundancy. Since there are no precise guidelines in terms of the number of cases to be included in a qualitative study, theoretical saturation was adopted. The theme of this technique is to keep adding cases until the researcher keeps hearing repeated information. In total, 14 in-depth interviews were conducted, with saturation occurring at the thirteenth case. Appendix B presents the characteristics of the 14 informants in the in-depth interviews. The next section now turns to data collection procedure for the principal quantitative phase, the field survey.

4.5 Data Collection Procedure for the Principal Quantitative Phase

This section details the data collection process for the principal quantitative phase, the field survey. The section begins with sampling issues associated with the field survey,

followed by descriptions of the survey implementation.

4.5.1 Selection of the Sample

Sampling has been an important topic in quantitative research, as it forms the basis of statistical inference (Punch, 2005). The key concepts of quantitative sampling are the population (the total target group who would, in the ideal world, be the subject of the research, and who the researcher is trying to say something about), and the sample (the actual group that are included in the research, and from whom the data are collected). The logic of quantitative sampling is that the researcher analyses data collected from the sample, but in the end wishes to make reports on the whole target population from which the sample is drawn. This logic behind quantitative sampling denotes the significance of a representative sample in quantitative research, as the representativeness of the sample is related to the generalisability of the research findings.

Sampling to achieve representativeness is usually called probability sampling; that is, each element in a population has an equal chance of being selected. Types of probability sampling include simple random sampling, systematic sampling, stratified sampling, and cluster sampling (Neuman, 2003). Although probability sampling is recommended for quantitative research to achieve representativeness (Creswell, 2003; Neuman), very often the researcher must take whatever sample is available due to the

practical problem of obtaining access to the sample required by sophisticated sampling plans (Punch, 2005). The use of convenience samples (where the researcher takes advantage of an accessible situation which happens to fit the research purposes and context) is therefore increasing in quantitative research these days (Punch).

Whatever sampling strategy is used, a sampling plan should align with the research purposes and questions of the study (Punch, 2005). In general, the first step of a sampling plan is to identify the population in the study. Once the population of interest is identified, the researcher indicates the size of this population if it is available, and then specifies the means of identifying individuals in the population. If a complete list of the population is unavailable, the researcher may wish to search for sampling frames (a specific list that closely approximates all the individuals in the population) instead. Once the list of individuals in the population or sampling frame is available, the researcher then can decide the sampling strategy for the study and provide the rationale of using that particular sampling strategy to draw the sample. The researcher also needs to decide the number of the sample and presents the procedures used to compute this number. Finally, the researcher needs to assess the representativeness of the sample utilised in the study for statistical inference purposes.

In this thesis, the population is nurses currently practicing in Taiwan hospitals. A complete and accurate list of the individuals in the population was not available;

hence, a sampling frame was sought instead. Three options were considered to form the sampling frame. The first option was to collect a list of nursing employees from every Taiwan hospitals listed on the Department of Health website. The second option was to collect a list of registered nurses from every local Bureau of Public Health in Taiwan. The final option was to collect a list of members from every nurse union in Taiwan. The first option appeared to be the most appropriate one among the three to form a sampling frame for this thesis, because the lists of nursing employees collected from every Taiwan hospital listed on the Department of Health website will closely approximate all the individuals in the population of this thesis. However, as mentioned earlier, there were 450 hospitals listed on Taiwan's Department of Health website in 2007 (Department of Health, 2007). It would be difficult to obtain the lists of nursing employees from 450 Taiwan hospitals when there is a time constraint for data collection. In addition, an ethical clearance from the Institutional Review Board (IRB) in each hospital is required to conduct research within the hospital. The cost of ethical clearance ranges from AUD60-400, depending on the type of the hospital where the ethical clearance is sought. Moreover, each hospital has its procedure for ethical clearance, and the duration to obtain an ethical clearance varies. Most importantly, access to nursing employee lists is not possible even after ethical clearance is granted by the hospital. Hence, it was impossible to establish a sampling

frame for this thesis based on the first option.

Since using the first option to form a sampling frame for this thesis was unachievable, the focus turned to the other two options that were based on the local Bureaus of Public Health and nurse unions in Taiwan. Still, after many avenues were explored, it was found impossible to access local Bureaus of Public Health and nurse unions in Taiwan. As a result, it was impossible to establish a sampling frame for this thesis due to access problems. The researcher had no choice but to use convenience sampling for this thesis. However, as stated earlier, the use of convenience samples is increasing in quantitative research these days due to access difficulties to the required sample (Punch, 2005). Additionally, studies using convenience sampling are not uncommon in the literature (Mackinnon, 2008; Ni & Aust, 2008; Pan, Deng, & Tsai, 2008; Tung, Hunter, & Wei, 2008). Thus, using convenience sampling in this thesis appears to be a legitimate approach.

The convenience sample for this thesis was drawn on nurses graduated from a college of technology in Taiwan between the year 2001 and 2007. A list of nursing students' names and contact information was obtained from the college of technology. There were approximately 1,500 students on the list. Each individual was contacted by the researcher via telephone over a period of three months. The researcher first explained the reason for making the phone call, followed by inviting the individual to participate

in the survey, provided that the individual is currently working in a Taiwan hospital. Upon the individual's agreement, a questionnaire, along with a pre-paid return envelope, was mailed to the individual.

Once the sampling strategy is decided, the next step is to determine the sample size. Knowing an estimation of the sample size serves as a guideline for data collection. In addition, the sample size shall not be too big or too small, as statistical tests are sensitive to sample sizes. Moreover, the requirement for sample sizes differs among various statistical tests. Thus, the researcher should have the specific statistical test in mind before an estimation of the sample size. In this thesis, multiple regressions are going to be used for data analysis. The sample size has a direct impact on the appropriateness and the statistical power of multiple regressions. A rule of thumb is to have a sample size greater than $50 + 8m$ (m is the number of independent variables) to test multiple regressions, and a sample size greater than $104 + m$ (m is the number of independent variables) to test individual predictors (Tabachnick & Fidell, 1996). If the researcher is interested in testing both multiple regressions and individual predictors, Tabachnick and Fidell suggested to calculate the sample size both ways and choose the larger sample size. Since there are six independent variables in this thesis, a sample size greater than 98 is required for testing multiple regressions, and a sample size greater than 110 is required for testing individual predictors. In order to

test both multiple regressions and individual predictors, a sample size greater than 110 is required for this thesis. Hair, Anderson, Tatham, and Black (1998) indicated that a sample size of 100 for 5 independent variables at a .05 significance level can detect a R^2 value of 12 percent and greater. In addition, a sample size of 100 for 10 independent variables at a .05 significance level can detect a R^2 value of 15 percent and greater (Hair et al.). It is believed that 110 cases will render statistical tests sufficient power to identify relationships in this thesis. Being conservative and as a safeguard with the typically low response rate of surveys, 600 questionnaires were mailed out.

Finally, the subject turns to the representativeness of the sample in this thesis. As noted earlier, the population of this thesis is nurses currently practicing in Taiwan hospitals. Although a convenience sample was used in this thesis, the sample consisted of nurses currently practicing in Taiwan hospitals, which is consistent with the characteristic of the population in this thesis. In addition, the sample was composed of nurses working in various hospitals across Taiwan, rather than within a particular hospital(s) in Taiwan. The researcher has made efforts to draw a sample that aligned with the research purpose and research question of this thesis. It is believed that useful knowledge can be gained by studying the sample of this thesis.

4.5.2 Quantitative Field Survey

Following the in-depth interviews was the final phase of data collection in this thesis, a quantitative field survey in Taiwan. As noted earlier, this thesis is a quantitative study; thus, this quantitative field survey in Taiwan is the principal data collection of this thesis. The purpose of this phase is to explore the relationships between leader-member exchange and other variables, which were specified in Chapter 3.

There are three major tools to conduct field surveys: telephone, internet, and mail (Neuman, 2003). However, the cost of telephone surveys is relatively high, and there is a limited conversation length for telephone surveys (Neuman). For a relatively big survey like the one in this thesis, it is difficult to cover all the questions in a limited time. With regard to internet surveys, it is hard to obtain internet addresses, and also difficult to assure that respondents to an internet survey will be representative of the population (Neuman). Moreover, the use of internet survey has not been fully proven to be a meaningful survey technique (Neuman). On the other hand, mail surveys are one of the cheapest survey methods, and a single researcher can conduct it (Neuman). In addition, mail surveys are most likely the best technique offered to social researchers who are interested in gathering direct data for illustrating a population too large to observe directly (Babbie, 2004). Moreover, the respondents can complete the questionnaires at their convenience, and mail surveys offer anonymity and reduce

interviewer bias. With all these advantages, a mail survey was chosen to be the survey method of this thesis, as opposed to telephone and internet surveys.

Each respondent was mailed a questionnaire with a questionnaire coversheet attached and a pre-paid return envelope. The questionnaire coversheet included an introduction of the researcher, the description of the study, the voluntary nature of participation, and the assurance of confidentiality (see Appendix C). A copy of the questionnaire is at Appendix D. Data gathered from this phase were used to test all the research hypotheses specified in this thesis.

4.5.3 Administration of Survey Instrument

Managing the response is important in data collection stage. The major concern is to achieve an acceptable response rate. Five factors have been identified as the main attributes of poor response to surveys: (1) the instrument does not reach some respondents, (2) some respondents refuse to respond, (3) respondents are unable to respond, (4) respondents' concern about lack of anonymity of responses, and (5) respondents' lack of motivation to respond and perceive the survey as one of many surveys sent to them (Alreck & Settle, 1995; Fowler, 2002).

In order to maximise the response rate in this thesis, the following six steps by Dillman (1987), Alreck and Settle (1995), and Fowler (2002) were adopted for the

administration of the instrument in this thesis. First, the researcher made an initial contact with each participant via telephone to invite their participation in the survey. Second, the mail survey was personally addressed to the appropriate person. Third, a questionnaire coversheet was included in the mail survey to minimise non-response due to a lack of comprehension of the study. Fourth, it was promised that the results of the study would be sent to respondents to increase their motivation to participate. Fifth, confidentiality was assured to respondents. Finally, the design of the questionnaire was in the simplest form, aiming to reduce the time and effort needed by the respondents to complete it.

Each mail survey contained: (1) a questionnaire coversheet, (2) a copy of the questionnaire, and (3) a postage-paid return envelope in the size of 24cm×16cm. The outgoing survey was air-mailed in 24cm×16cm clasp envelopes to ensure the contents would be delivered in reasonably good condition. In short, every effort was made during this phase to enhance the credibility and importance of the survey and to ensure the highest response. The next section now turns to the qualitative data analysis strategy, followed by the quantitative data analysis strategy selected.

4.6 Qualitative Data Analysis Strategy

For the qualitative in-depth interviews, the method for analysis was in line with the following six analysis strategies in Creswell (2003):

1. Organise and prepare the data for analysis—involving transcribing interviews, optically scanning material and sorting the data into different types of information.
2. Read through all the data—getting a general sense of the information and reflecting on its overall meaning.
3. Begin detailed analysis with a coding process—involving classification of text data into categories and labelling those categories with a term.
4. Develop a theme or themes for analysis—involving the use of codes to generate a small number of themes.
5. Describe the theme(s) in the qualitative narrative—using a narrative passage to convey the findings of the analysis. Researchers can also use visuals or tables as adjuncts to the discussions.
6. Interpret the data—involving the interpretation of the lessons learned from the data.

The findings of qualitative in-depth interviews will be discussed in Chapter 5. The next section now turns to the quantitative data cleaning methods.

4.7 Quantitative Data Cleaning Methods

Before the raw data is analysed with any type of regression, data cleaning needs to be performed to achieve maximum accuracy. Failure to do this may create potential problems that may affect the results of the subsequent analysis. Data cleaning in terms of replacing missing data and tests of normality (Tabachnick & Fidell, 1996) was performed.

4.7.1 Replacement of Missing Data

Missing data is unavoidable in survey research, yet the impact of missing data is detrimental for the following two reasons: (1) missing data may lead to potential bias of the results; and (2) any observations with missing data will be excluded from the analysis, which reduces the sample size (Hair et al., 1998). Hence, it is necessary to remedy missing data.

There are several methods of dealing with missing data, namely pairwise deletion, listwise deletion, mean substitution, cold deck imputation, regression imputation, and multiple imputation (Hair et al., 1998; Tabachnick & Fidell, 1996). There is no single best way to handle missing data (Hair et al.; Tabachnick & Fidell); however, based on the characteristics of the missing values in this thesis, the mean substitution method was chosen for a number of reasons. Firstly, it is simple to apply, compared with multiple imputation and regression imputation. The missing values for a variable are

replaced with the mean value of that variable based on all valid responses. Secondly, it is superior to other deletion methods, as it does not eliminate information. Lastly, mean substitution is considered appropriate when less than 10% of the data are missing (Donner, 1982).

4.7.2 Tests of Normality

The other assessment is to examine the extent to which the distribution of the variable scores approximates normality. This is achieved by using the Kolmogorov-Smirnov test, which decides whether a sample drawn from a population has a specific distribution. The test bases its p-value on the largest discrepancy between the observed distribution and the theoretical distribution. When the p-value is greater than .05, normality is assumed. The next section now turns to quantitative data analysis strategy.

4.8 Quantitative Data Analysis Strategy

Irrespective of the type of design or type of data gathered, the measures applied in a study need to be reliable and valid. Reliability is concerned about the consistency of measurement, while validity is concerned about the extent to which a measuring instrument measures what it is supposed to measure (Hair et al., 1998). The data analysis strategy outlined here is a systematic way of explaining how to establish valid and reliable scales for constructs under investigation. Once a list of items had

been generated following the above data cleaning procedures, five steps were taken to accomplish reliability and validity tests. The final step was path analysis of the whole model using multiple regressions. The overall data analysis strategy was as following:

1. Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy.
2. Cronbach's alpha reliability test.
3. Convergent validity analysis.
4. Discriminant validity analysis.
5. Face validity analysis.
6. Path analysis using multiple regressions.

Each of these six steps is discussed in further detail below, providing an outline of the various tests and analyses in relation to the data collected, which will be presented in Chapter 6.

4.8.1 Test of Sphericity and Measure of Sampling Adequacy

Bartlett's test of sphericity estimates whether a set of items are associated with each other, which indicates uni-dimensionality of the items. Bartlett's test of sphericity tests the null hypothesis that the items are uncorrelated in the population. A high chi-

square value with a low p-value ($p \leq .05$) indicates a significant relationship between the items, suggesting that the data are suitable for further analysis, such as factor analysis (refer to Chapter 6 for the results).

The Kaiser-Meyer-Olkin (KMO) test is based on partial correlation. If two items share a common factor with other items, their partial correlation will be small, indicating the unique variance they share. The KMO index ranges from 0 to 1; however, the overall score should be greater than .50 (De Vaus, 2002). Hair et al. (1998, p. 99) proposed the following guidelines in interpreting the KMO sampling of adequacy score:

- Meritorious: .80 or above
- Middling: .70-.79
- Mediocre: .60-.69
- Miserable: .50-.59
- Unacceptable: below .50

If the Kaiser-Meyer-Olkin (KMO) score is less than .50, it shows a lack of systematic covariation in the data and the variables are essentially independent. The results of KMO test are presented in Chapter 6.

4.8.2 Cronbach's Alpha Test

Cronbach's alpha tests the reliability of the factors obtained from factor analysis. Reliability is an assessment of the degree of consistency between multiple items of a variable. Cronbach's alpha is the most commonly used measure of reliability, and is based on the concept of internal consistency (Hair et al., 1998). The logic behind internal consistency is that the individual items of a scale should be measuring the same construct and thus have reasonably high inter-correlation among themselves (Nunnally & Bernstein, 1994).

The constructs of this thesis were operationalised through multi-item measures, which are preferable to a single-item measure for fully capturing the meaning of a concept. An important advantage of multi-item measures is that each item has a distinctive flavour, which improves reliability of measurements (Churchill, 1979). At the early stage of research, various items with subtle differences in meaning should be used in order to provide a better foundation for the measurement and for the ultimate improvement of the measurement. Another advantage of multi-item measures is that they eliminate measurement errors and thus increase reliability (Peter, 1979).

In the phase of reliability tests, the corrected item-total correlations and exploratory factor analysis are used to purify measures. Reliability is necessary, but insufficient for construct validity (Nunnally & Bernstein, 1994), as the items may be consistent,

but not capturing the right measure. Reliability tests were performed one construct at a time. Since there are eight constructs in the conceptual model, eight reliability tests were executed.

In the reliability test, the corrected item-total correlation for each item was first checked. The corrected item-total correlation is the correlation coefficient between the score on an individual item and the total score on the remaining items. A low item-total correlation could be due to an item being too easy, too difficult, too ambiguous, or even not belonging to the construct (Nunnally & Bernstein, 1994).

Items with higher item-total correlations are preferred, as they demonstrate reliability of the measure. De Vaus (2002) suggested a cut-off point of .30 for the item-total correlations, and proposed to take items with low correlations or those with a sudden drop in the coefficients out of the analysis in order to obtain a consistent scale.

Following the item-total correlation check is the diagnosis of Cronbach's alpha. The general agreement for the acceptable Cronbach's alpha is .70 (Hair et al., 1998). In the case of a low alpha, items with low item-total correlations or with a sudden drop in the correlation were eliminated, and the coefficient alpha was recalculated. This process was repeated until an acceptable alpha was obtained. The initial and revised reliability estimates for the constructs in this thesis are presented one by one in Chapter 6.

4.8.3 Convergent Validity Analysis

Convergent validity assesses whether the construct is what it is meant to be; that is, items explaining a construct must yield similar results irrespective of approaches.

Convergent validity can be tested by examining the factor loadings to see whether the items in a construct converge or load together on a single construct in factor analysis (Fornell & Larcker, 1981). Thus, convergent validity exists when statistically-significant loadings for all items hypothesised to measure a latent variable are found (Dunn, Seaker, & Waller, 1994; Hair et al., 1998). Hair et al. suggested a cut-off of .50 for the factor loadings.

Another way of assessing convergent validity of a measure is through the multitrait-multimethod matrix, which is a matrix of zero order correlations between different traits when each of the traits is measure by different methods (Campbell & Fiske, 1959). Evidence about the convergent validity of a measure is provided when the correlations are significantly different from zero and sufficiently large to encourage further examination of validity (Churchill, 1979). In this thesis, factor analysis and multitrait-multimethod matrix were performed to assess convergent validity of measures, and the results of convergent validity analysis are presented in Chapter 6.

4.8.4 Discriminant Validity Analysis

Discriminant validity shows that the measure is not measuring the wrong construct. It

assesses the extent to which measures of different constructs are unique from each other (Bagozzi, Yi, & Phillips, 1991; Churchill, 1979). Evidence of Discriminant validity emerges when items measuring a certain construct do not correlate strongly with items of other constructs. The test can indicate the uni-dimensionality of the items.

There are two methods to test discriminant validity. One is to measure the average variance extracted (AVE) via exploratory factor analysis with constructs in pairs. Discriminant validity exists when AVE is greater than the squared correlation between pairs of factors (Fornell & Larcker, 1981). The other method to test discriminant validity is to examine the number of components extracted in exploratory factor analysis with all pairwise constructs. Discriminant validity is achieved when two components (per two constructs) are extracted in exploratory factor analysis. In this thesis, both discriminant validity tests were performed using exploratory factor analysis, and the results are presented in Chapter 6.

4.8.5 Face Validity Analysis

Face validity refers to the extent to which an empirical measure adequately reflects the meaning of the construct under investigation. This form of validity subjectively assesses the correspondence between the individual items and the concept through ratings by expert judges, pretests with subpopulations, or other means (Hair et al.,

1998). The object of face validity is to ensure that the selected scale items extends past just empirical issues to also include theoretical and practical considerations (Churchill, 1979).

Before face validity was assessed for constructs in this thesis, proper development of the constructs was essential. The procedure for the development of the constructs in this thesis was mainly drawn from Churchill (1979). The first step in the measurement development was to define the constructs under investigation in this thesis and to specify their domain. This was achieved via a review of the literature, as the extant literature provided insights into the relevant constructs, how these constructs were defined, and their domain. In addition to the literature review, in-depth interviews will be conducted to identify relevant constructs and to specify the domain of the constructs. Constructs used in this thesis will be identified and discussed in detail in Chapter 5. The literature review and in-depth interviews resulted in a clear conceptualisation of the constructs in this thesis and helped to define them more sharply. This then formed the basis for the development of the questionnaire (Appendix D).

The second step in developing measures was to generate a pool of items that reflects the conceptual definition of each construct. These items were generated through both literature review and in-depth interviews. The literature review indicated the items

previously used by researchers to measure constructs of interest. Wherever possible, published scales with known psychometric properties have been used in this thesis. However, as noted earlier, published scales with known reliability estimates and evidence of construct validity do not exist for a number of constructs in this thesis; hence, items have had to be developed or modified in order to render them suitable to the context of this thesis.

Once the measurement items were finalised, the face validity of the survey instrument was tested by asking two academics in management and another two in nursing to review and to determine whether the measurement items covered the content domain for which the instrument was designed. On completion of the review, the academics agreed that the instruments adequately addressed the areas in question. The questionnaire was then developed and back-translation (Brislin, 1970) was performed. The final questionnaire was in Mandarin for the ease of the participants to fill in, yet back-translation was required for measurement validation and use in a cross-cultural study (Cha, Kim, & Erlen, 2007). A bilingual translator blindly translated the questionnaire from English to Mandarin, while a second bilingual translator independently back-translated the questionnaire from Mandarin to English. The original English questionnaire was then compared with the back-translated version for concept equivalence. Since there was a slight difference in the back-translated

version, another translator was asked to retranslate the problem items. This process continued until all translators agreed that the two versions of the questionnaire were identical and had no errors in meaning.

Following the back-translation was a pilot study with Taiwanese nurses to crosscheck and to validate the measurement items. A total of 21 Taiwanese nurses participated in the pilot study. Minor changes were made to selected items to better reflect the construct under investigation based on Taiwanese nurses' feedbacks. For example, one nurse suggested replacing 'supervisor' with 'head nurse' for all English LMX items (items 1 to 10). Another suggested using 'hospital' instead of 'organisation' for all English organisational commitment items (items 67 to 74).

4.8.6 Path Analysis Using Multiple Regressions

Path analysis is a widely used approach to study patterns of causation among a set of measured variables (Polit, 1996). Path analysis using multiple regressions not only reveals the direct relationship but also the indirect relationship between measured variables. By using path analysis, researchers are able to evaluate explicitly hypothesised and often relatively complex causal relationships between the variables represented by their data. The steps taken by researchers in conducting a path analysis are basically as follows (Meyers, Gamst, & Guarino, 2006):

1. Draw out the interrelationships of the variables in the form of a diagram.
2. Indicate the hypothesised relationship (e.g. positive or negative) and direction of each variable's presumed effect on each other on each of the paths.
3. Perform the analyses yielding the path coefficients for each path.
4. Compare the obtained path coefficients with the hypothesised relationships and directions on each path.
5. Evaluate how well the causal model fits the data based on the results of the analysis.

The multiple regression strategy to computing a path analysis employs the ordinary least squares method to calculate the path coefficients. The rationale of using multiple regressions for path analysis in this thesis was based on the following reasons. Firstly, the purpose of multiple regressions is to investigate the relationship of one variable with a set of other variables, which fits in the purpose of this thesis that aims to investigate the relationship of leader-member exchange with a set of other variables (autonomy, co-worker interaction, work atmosphere, opportunity to learn, safety climate, job satisfaction and organisational commitment). Secondly, the goal of multiple regressions is to predict the value of a dependent variable based on the values of independent variables, which suits the purpose of this thesis that aims to predict the

values of job satisfaction and organisational commitment based on the values of leader-member exchange, autonomy, co-worker interaction, work atmosphere, opportunity to learn, and safety climate. Thirdly, multiple regression offers a fuller explanation of the dependent variable, since the best weighted combination of independent variables are identified to optimally predict the dependent variable (Meyers et al., 2006; Pedhazur, 1982). Lastly, the effect of a particular independent variable is made more certain, for the possibility of distorting influences from the other independent variables is removed (Lewis-Beck, 1993).

4.9 Chapter Summary

This chapter discussed and justified the research methodology of this thesis. The chapter began with a discussion of research paradigms, and positivism was chosen because it was the most appropriate approach to answer the research question and to test the hypotheses. Next, the research methods used, mixed methods, were presented with the rationale for their choice. The following section concerned the data collection procedure for the qualitative phase, including the choice of key informants and the in-depth interview process. This was followed by the data collection procedure for the quantitative phase, including selection of the sample, implementation of the field survey in Taiwan, and administration of the survey instrument. After the data collection, qualitative data analysis strategy was first

discussed, followed by quantitative data cleaning methods and quantitative data analysis strategy. An overview of the research design is at Table 4-1 on the following page. The next chapter now turns to results of the qualitative in-depth interviews.

Table 4-1 Research Design of this Thesis

Paradigm	Positivism was chosen to answer the research question.
Method	<p>Mixed methods were chosen to collect data.</p> <p>Preliminary phase: <u>Qualitative in-depth interviews</u></p> <p>Principal phase: <u>Quantitative field survey</u></p>
Data Collection Procedure	<p>Preliminary Qualitative Phase:</p> <p><u>Purposive sampling</u> to recruit general practicing nurses in Taiwan hospitals.</p> <p><u>In-depth interviews</u> to collect qualitative data.</p> <p><u>Sample size</u>: till theoretical saturation</p> <p><u>Analysis</u>: develop categories and themes</p> <p>Principal Quantitative Phase:</p> <p><u>Convenience sampling</u> to recruit general practicing nurses in Taiwan hospitals.</p> <p><u>Pilot study</u> to refine the questionnaire.</p> <p><u>Field survey</u>: written questionnaires mailed to participants at one point in time</p> <p><u>Sample size</u>: greater than 110</p> <p><u>Analysis</u>: use SPSS (Version 14) for data cleaning and analysis</p>

Chapter 5 Qualitative Results and Construct/Model Development

5.1 Introduction

This chapter presents the results of the preliminary qualitative phase and also discusses construct and model development. It begins with a presentation of the results from the preliminary qualitative phase. This is followed by construct development in section 5.3. Definition of each construct is provided in each subsection of section 5.3. Two approaches were used to develop the constructs, namely the literature review and the qualitative in-depth interviews. Following the construct development is the development of the conceptual model (section 5.4). Then, the relationships between the constructs are established with detailed explanations in section 5.5. The hypotheses established for empirical testing are also given in section 5.5. Section 5.6 presents a summary to conclude the chapter.

5.2 Qualitative Results

This section presents findings from the preliminary qualitative phase. As noted in Chapter 4, the preliminary qualitative phase facilitates the principal quantitative phase by providing rich information on the role the supervisor-subordinate relationship plays in Taiwanese nurses' job satisfaction. It can also act as a source of hypotheses and assist scale construction. Consequently, the researcher may strengthen the

proposed model in Chapter 3 by adding additional variables associated with Taiwanese nurses' job satisfaction and by establishing relationships among them. The researcher may also develop items based on the qualitative results to improve the existing scales and/or to create new scales.

Based on the 'Meaning of Working' theory and the literature review in Chapter 3, the researcher created an interview guide (Appendix A) with open- and closed-ended questions to standardise the interviews across different informants, yet additional probing questions were interwoven during each interview to allow greater depth in the interviews. In total, 14 in-depth interviews were conducted with Taiwanese nurses, with saturation occurring at the thirteenth case. The characteristics of these Taiwanese nurses are demonstrated in Appendix B.

The strategy used for data analysis was based on Creswell (2003), involving transcribing the interviews, organising the data, coding the data, and developing themes. Analysis of the interviews resulted in the emergence of six categories, which were (section 5.2.1) supervisor-subordinate relationship, (section 5.2.2) autonomy, (section 5.2.3) co-worker interaction, (section 5.2.4) work atmosphere, (section 5.2.5) opportunity to learn, and (section 5.2.6) work safety. Findings from the interviews also indicated relationships between categories, which helped strengthen the conceptual model proposed in Chapter 3. In addition, the interview findings offered

specific ideas to develop measurement items. The following subsections now discuss each of the six categories in detail.

5.2.1 Supervisor-Subordinate Relationship

Supervisor-subordinate relationship is revealed by the closeness between the supervisor and the subordinate, and the degree of closeness varies among each dyad.

This is in line with the concept of leader-member exchange in the extant literature (Graen & Uhl-Bien, 1995; Mueller & Lee, 2002). When the researcher asked ‘could you describe the sorts of interactions with your head nurse’, all interviewees indicated that various degrees of closeness exist between the supervisor and the subordinate, making this the strongest emerging theme. For example, two interviewees stated that:

“The head nurse is close to some of the nurses in my ward” (participants 1 and 5).

Two other interviewees revealed that: “I am close to my head nurse. I talk about personal issues with her. We are like friends” (participants 6 and 10). However, most interviewees are not close to their head nurses and just maintain work relationships with their head nurses: “I am not close to my head nurse. I just maintain work relationship with her. We won’t become friends” (participant 2). These descriptions presented diverse relationships developed between the supervisor and the subordinate.

When the researcher asked ‘what factors make you satisfied with your job’, most interviewees revealed that the supervisor-subordinate relationship affects their job

satisfaction, making this the second emerging theme: “Relationship with my head nurse affects my job satisfaction. If I could establish a closer relationship with my head nurse, I’d be more satisfied with my job” (participants 3, 4 and 5). This illustration suggests a positive relationship between the supervisor-subordinate relationship and job satisfaction. The supervisor-subordinate relationship also affects the interviewees’ commitment to their hospitals: “I have been working with my head nurse for a while and have developed a close relationship with her. This is why I keep working here” (participants 6 and 10). This expression indicates a positive relationship between the supervisor-subordinate relationship and organisational commitment, which corresponds to what the literature suggests.

In addition to the relationship between supervisor-subordinate relationship and job satisfaction/organisational commitment, a few interviewees suggested that the supervisor-subordinate relationship can be reflected in the way the subordinate describes her/his supervisor: “I am closer to the type of head nurse who is warm and caring” (participant 11). Another interviewee expressed that “I am not close to my head nurse. She shows no consideration when she schedules shifts. She doesn’t care about my needs” (participant 12). A different interviewee stated that: “My head nurse is caring and thoughtful. She listens to our needs when she schedules shifts” (participant 13). Based on the interviewees’ comments, three measurement items (i.e.

I am close to my head nurse; my head nurse is caring; and my head nurse has a warm personality) were developed to strengthen the existing scale. In particular, the last two items were established to capture the supervisor-subordinate relationship based on the personality of the supervisor.

5.2.2 Autonomy

Autonomy is reflected in the level of control employees have toward work methods, work scheduling, and work criteria. This is in line with the concept of work autonomy in the extant literature (Brady et al., 1990). When the researcher asked ‘do you think you have much autonomy in your everyday work activities’, all interviewees indicated that they have a high level of control over work methods, making this the first strongest emerging theme. Two interviewees illustrated on the level of control they possess over work methods: “We are not allowed to give patients treatment or medication, but we can decide how to care for patients. For example, I can give the baby (patient) massage or a bath if I think it is necessary. I can turn on the music for the babies. I can also change the body position of the babies” (participants 1 and 3). With regard to work scheduling, all interviewees revealed that patients are arranged by the head nurse, making this the second strongest emerging theme. In addition, three interviewees specified that: “The head nurse is in charge of work shifts” (participants 4, 10 and 12), while two other interviewees stated that: “I

can schedule my own shift, but the head nurse has the power to change our shifts” (participants 1 and 3). In terms of work criteria, most interviewees indicated that: “Work tasks are allocated by the head nurse” (participants 1, 2, 4, 5, 6, 7, 9, 10, 11, 13 and 14). In addition, a few interviewees revealed that: “There are specific work procedures to follow in each ward” (participants 1, 6, 8 and 9). Two interviewees specified that: “Nurses follow doctor’s order to treat patients. We can’t treat patients based on our judgements or experiences” (participants 4 and 10). These explanations showed that nurses’ work autonomy consists of work methods, work scheduling, and work criteria.

When the researcher asked ‘could you tell me how your work is arranged’, a number of interviewees suggested a relationship between the supervisor-subordinate relationship and autonomy: “My head nurse and I are familiar with each other. She understands my potential and ability. She lets me control the sequence of my work activities” (participants 1, 4, 5, 13 and 14). This illustration suggests a positive relationship between the supervisor-subordinate relationship and autonomy. In addition, the interviewees also suggested a relationship between autonomy and job satisfaction: “The degree of autonomy definitely affects my job satisfaction” (participant 11). Another interviewee further expressed that: “I have much control in my work shifts, so I am very satisfied with my job” (participant 3), while a different

interviewee revealed that: “I have more autonomy working in this ward, which makes me more satisfied with my job” (participant 4). These expressions suggest a positive relationship between autonomy and job satisfaction, which is in line with the literature review findings.

5.2.3 Co-work Interaction

Co-worker interaction is reflected in an individual’s encounter with specific colleagues in terms of task-related professional interaction and non-work-related private interaction. When the researcher asked ‘could you tell me the interaction with your colleagues’, twelve interviewees mentioned that they become close to some of their colleagues after working in a ward for a while (participants 1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 13 and 14). The interviewees revealed their task-related professional interaction with those colleagues by articulating that: “I discuss patient care methods with colleagues that are close to me” (participants 1, 6 and 14). They further illustrated that: “Some colleagues and I help each other by sharing our work load” (participants 1, 5, 10 and 12). The interviewees also stated that: “Some colleagues and I give each other support at work” (participants 1, 4, 7 and 10). Moreover, they expressed that: “I switch shifts with close colleagues” (participants 11 and 13). With regard to non-work-related private interaction, the majority of the interviewees stated that they hang out with certain colleagues after work. They further indicated that: “I

talk about personal issues with some of my colleagues” (participants 1, 3, 10 and 12).

In addition, the interviewees revealed that: “Some colleagues and I give each other support on personal issues” (participants 1, 2 and 3). These descriptions revealed that Taiwanese nurses interact with certain colleagues on task-related professional issues and also non-work-related personal issues.

In addition to describing the interactions among colleagues, the interviewees suggested a relationship between co-worker interaction and job satisfaction: “Relationship with my colleagues certainly plays an important role in my job satisfaction” (participants 3, 4, 5, 6, 7, 11 and 13). Two interviewees further illustrated that: “When colleagues and I support each other and share our work load, I feel more satisfied with my job” (participants 1 and 10). This expression suggests a positive relationship between co-worker interaction and job satisfaction. The interviewees also suggested a relationship between the supervisor-subordinate relationship and co-worker interaction: “My relationship with the head nurse affects my relationship with the colleagues” (participants 4 and 12). Another interviewee illustrated that: “I am not close to my head nurse. I do not develop close relationships with colleagues that are close to my head nurse” (participant 9). These illustrations indicate a positive relationship between the supervisor-subordinate relationship and co-worker interaction, which corresponds to what the literature suggests.

5.2.4 Work Atmosphere

Work atmosphere is reflected in the partnership within and the character of the unit employees work in. The interviewees illustrated the partnership within the work unit as: “We usually work on our own tasks, but after I finish my own tasks, I help others with their tasks. We work as a team when it is necessary. We support each other” (participants 1, 2, 3, 4, 6 and 12). On the other hand, the character of the unit can be described as whether the atmosphere of the unit is pleasant or not for the employees to work in. For example, two interviewees stated that: “We have a pleasant work atmosphere” (participants 2 and 5), while one interviewee expressed that: “We don’t have a pleasant work atmosphere” (participant 9). Two interviewees described work atmosphere in terms of team work: “We have a team work atmosphere” (participants 1 and 5), while another interviewee used positive to describe the work atmosphere: “We have a positive work atmosphere” (participant 14). These expressions demonstrated the collaboration among the nurses and also the character of the ward.

In addition to describing work atmosphere, the interviewees indicated a relationship between work atmosphere and job satisfaction. A number of interviewees explicitly expressed that: “Work atmosphere affects my job satisfaction” (participants 1, 3, 5, 6, 8, 12 and 14). One of them further explained that: “Our work atmosphere has been pretty good, so I am quite satisfied with my job” (participant 14). This explanation

suggests a positive relationship between work atmosphere and job satisfaction.

Other than the relationships between work atmosphere and job satisfaction, the interviewees suggested a positive relationship between the supervisor-subordinate relationship and work atmosphere. One interviewee stated that: “My head nurse develops good relationships with her members, which leads to a good work atmosphere in our ward” (participant 10). On the other hand, another interviewee revealed that: “My head nurse likes to keep us under control, so we don’t like her very much. This distant relationship makes our work atmosphere unpleasant” (participant 9). Work atmosphere can also be affected by co-worker interaction, as two interviewees explicitly pointed out that: “Interactions with colleagues have an effect on the work atmosphere” (participants 12 and 14). One interviewee further illustrated the relationship between co-worker interaction and work atmosphere: “My colleagues like to attach each other at work, so our work atmosphere has been unpleasant” (participant 9). This illustration suggests a positive relationship between co-worker interaction and work atmosphere.

5.2.5 Opportunity to Learn

Opportunity to learn is reflected in employees’ perceptions of management’s behaviour and willingness to let them attend training courses and learn. When the researcher asked ‘could you describe the training courses offered by this hospital’,

most interviewees pointed out that: “Our hospital provides external as well as internal training courses” (participants 1, 2, 3, 4, 5, 8, 10 and 11). Two of them further illustrated that: “The hospital announces information on the training courses via staff e-mail or via placing posters in each ward” (participants 2 and 10). The interviewees also mentioned that: “The purposes of the training courses are for us to update current skills and/or to learn new skills/knowledge” (participants 2, 5, 9, 10, 12, 13 and 14). In addition, a number of interviewees revealed that: “Our hospital encourages us (nurses) to participate in training courses” (participants 1, 2, 5, 6, 11 and 14). For instance, “If the training course is relevant to my job, the hospital will pay for my study leave” (participants 2, 3, 5, 6, 9, 10, 12, 13 and 14). These illustrations demonstrated management’s actions and support towards nurses’ professional development.

In addition to describing management’s behaviour and willingness to let nurses attend training courses and learn, the interviewees suggested a relationship between supervisor-subordinate relationship and opportunity to learn. First of all, three interviewees mentioned that: “There are a limited number of nurses who are allowed to attend training courses. Who can attend the training course is based on the shifts; that is, whoever is not scheduled to work at that particular time can attend the training course” (participants 1, 3 and 5). One of them further revealed that: “Although we

can plan our shifts, the head nurse has the power to change our shifts” (participant 1). In addition, three other interviewees stated that: “Shifts are scheduled by the head nurse” (participants 4, 10 and 12). These expressions suggest that the head nurse can decide which nurse is to attend the training course. Two interviewees further revealed that: “My head nurse tries to be fair with everyone in terms of who can attend training courses, but somehow I sense that she lets her favourite members go to training courses first” (participants 1 and 12). This expression indicates a positive relationship between the supervisor-subordinate relationship and opportunity to learn.

In addition to the relationship between the supervisor-subordinate relationship and opportunity to learn, the interviewees also indicated a relationship between opportunity to learn and job satisfaction. For example, when the researcher asked ‘what factors would make you satisfied with your job’, one interviewee stated that: “If I can keep learning new skills and/or knowledge and have more opportunities to attend training courses, I’ll be more satisfied with my job” (participant 5). Another interviewee also revealed a similar thought on opportunity to learn and job satisfaction: “Nursing covers a broad range of knowledge, so we have to continue learning. If there are more opportunities to learn at work, I certainly will be more satisfied with my job” (participant 14). These expressions suggest a positive relationship between opportunity to learn and job satisfaction.

5.2.6 Work Safety

Work safety is reflected in employees' perceptions of management's commitment to work safety and employee involvement in work safety. This is in line with the concept of safety climate in the extant literature (Brown & Holmes, 1986; Dedobbeleer & Beland, 1991; Zohar, 1980). This category was brought up by the interviewees when the researcher asked 'what factors make you satisfied with your job'. Regarding employees' perceptions of management's commitment to work safety, two interviewees stated that: "Our hospital does a good job in work safety issues" (participants 2 and 14). Another two interviewees further illustrated that: "Our hospital advises us safety practices to carry out our job" (participants 1 and 9). With regard to employee involvement in work safety, one interviewee first revealed her thought on work safety: "Nursing isn't an easy job. We face many uncertainties. For example, I don't know when I'll get needle injury. I don't know if my patient carries infectious diseases. I don't know if things will go smoothly when my patient (pregnant woman) delivers her baby. Taking risks is part of my job" (participant 3). Another interviewee revealed a similar thought on work safety: "We nurses have a high chance of getting infected by patients" (participant 12). This is followed by a different thought from another interviewee: "Sometimes we are asked to support other wards. Because I am not familiar with the routines in that ward, I am often worried

about making mistakes. This makes my job less safe” (participant 9). Then, a different interviewee explained her involvement in work safety: “Before I decide which type of ward to work in, I’ll do my best to understand the nature of the ward, so that I know what actions to take to ensure work safety” (participant 5). One interviewee further suggested the importance of employee involvement in work safety: “To be honest, work safety relies on whether one performs the job carefully or not. If a nurse is sloppy, the best safety practices and/or safety equipment can’t protect her” (participant 14). These expressions showed that work safety requires inputs from both management and employees.

In addition to describing work safety, the interviewees suggested a relationship between the supervisor-subordinate relationship and work safety: “The head nurse assigns patients to us. We can’t choose which patient we want. However, it seems some members, especially those close to the head nurse, usually get ‘nice’ patients. They don’t need to worry about getting infected by the patient or getting hit by the patient” (participants 3, 4, 5 and 9). This expression indicates a positive relationship between the supervisor-subordinate relationship and work safety.

In addition to the relationship between the supervisor-subordinate relationship and work safety, the interviewees also indicated a relationship between work safety and job satisfaction. Two interviewees revealed that: “The hospital’s safety practices

affect my job satisfaction” (participants 3 and 5). Then, another two interviewees expressed that: “Having a higher level of work safety, such as having better safety practices or equipments, will certainly increase the level of my job satisfaction” (participants 7 and 13). This illustration suggests a positive relationship between work safety and job satisfaction.

5.2.7 Summary of Qualitative Results

In summary, this section presented findings from the preliminary qualitative phase. As noted in Chapter 4, 14 in-depth interviews were conducted with Taiwanese nurses. Analysis of the interviews resulted in the emergence of six categories, and each category was discussed in a subsection with details: (section 5.2.1) supervisor-subordinate relationship, (section 5.2.2) autonomy, (section 5.2.3) co-worker interaction, (section 5.2.4) work atmosphere, (section 5.2.5) opportunity to learn, and (section 5.2.6) work safety. Four categories, namely the supervisor-subordinate relationship, autonomy, co-worker interaction, and opportunity to learn, are in line with the proposed variables in Chapter 3. In contrast, work atmosphere and work safety are two additional variables emerged from the interviews. The interview findings also indicated relationships between categories. The relationships among the four categories and job satisfaction/organisational commitment correspond to what the literature suggests. On the other hand, the relationships revealed between work

atmosphere/work safety and the supervisor-subordinate relationship/co-worker interaction/job satisfaction acted as a source of hypotheses. The two additional variables, along with the suggested relationships among categories, helped strengthen the proposed conceptual model in Chapter 3. Likewise, the interview findings yielded specific ideas to assist scale construction. For example, three items (i.e. I am close to my head nurse; my head nurse is caring; and my head nurse has a warm personality) were developed for leader-member exchange. A total of seven items were established for co-worker interaction (listed in section 5.3.3). An additional item was developed for opportunity to learn (i.e. If the course is relevant, my hospital will pay for study leave). There were five items created for work atmosphere (detailed in section 5.3.5). Extra three items were added to the existing safety climate scale (details in section 5.3.6). The next section now turns to construct development.

5.3 Construct Development

The purpose of this section is to conceptually and operationally define the constructs under investigation in this thesis. Conceptually defining constructs involves specifying the domain of the construct, while operationally defining constructs refers to the “rules for assigning numbers to objects in such a way as to represent quantities of attributes” (Nunnally & Bernstein, 1994, p.3). The procedure of construct development in this thesis was mainly drawn from Churchill (1979). The first step of

construct development was to define the domain of the construct based on the extant literature, while the second step was to create a list of items from the literature and/or the in-depth interviews conducted in the preliminary qualitative phase. Each of the constructs is defined in the following eight subsections: (section 5.3.1) leader-member exchange, (section 5.3.2) autonomy, (section 5.3.3) co-worker interaction, (section 5.3.4) opportunity to learn, (section 5.3.5) work atmosphere, (section 5.3.6) safety climate, (section 5.3.7) job satisfaction, and (section 5.3.8) organisational commitment.

5.3.1 Leader-Member Exchange

Leader-member exchange (LMX) is defined as employees' perceptions of their relationships with the immediate supervisor. The 7-item LMX instrument (LMX-7) in Mueller and Lee (2002) was chosen for this thesis, because it has been widely used by researchers (Epitropaki & Martin, 1999; Gerstner & Day, 1997; Liden & Maslyn, 1998; Liden et al., 1993; Mueller & Lee, 2002; Sherony & Green, 2002; Varma & Stroh, 2001). Graen and Uhl-Bien (1995) recommended that LMX-7 be adopted as the standard instrument of LMX, because LMX-7 has the highest reliability with Cronbach's alpha consistently in the .80-.90 range. Gerstner and Day (1997) agreed with Graen and Uhl-Bien regarding LMX-7 and expected LMX-7 to demonstrate the highest reliability, as compared with other LMX instruments. The LMX-7 was

slightly modified to allow the use of only one set of anchors as well as to suit the context of this thesis. Three items, number 8, 9 and 10, were created based on the qualitative interviews. Respondents will indicate the extent to which they agree with each item on a 7-point Likert scale ranging from 1=strongly disagree to 7=strongly agree.

1. I know how satisfied or dissatisfied my head nurse is with what I do.
2. My head nurse understands my work problems and needs.
3. My head nurse recognises my potential.
4. My head nurse would use her/his available power to help me solve work problems.
5. My head nurse would “bail me out” at her/his expense when I really need it.
6. I would defend and justify my head nurse’s decisions when she/he is not present to do so.
7. I have an effective working relationship with my head nurse.
8. I am close to my head nurse.
9. My head nurse is caring.

10. My head nurse has a warm personality.

5.3.2 Autonomy

The autonomy instrument in Brady et al. (1990) was chosen for this thesis based on the findings of the qualitative interviews conducted in the first phase of data collection.

The instrument consists of nine items and covers autonomy over work method, work scheduling, and work criteria. Although this instrument is multidimensional, only one

factor was extracted from exploratory factor analysis (EFA) in Brady et al.

Additionally, a high coefficient alpha of .94 was found for the nine items, indicating a strong unidimensional scale. These results may be due to the fact that the instrument

was distributed to a single occupation (dental hygienists) in Brady et al., rather than to varied occupations in the previous studies (Breugh, 1985; Breugh & Becker, 1987).

In addition, professionals, such as dental hygienists, may experience higher overall autonomy (Brady et al.) than the workers in Breugh and Breugh and Becker. Since

the sample of this thesis is also a single occupation (nurses) and nurses are professionals (Brunetto, 2002), it is likely that the EFA and reliability results of this

thesis will also indicate a unidimensionality of the scale.

In this thesis, autonomy is assessed from the respondents' perceptions and is defined as the amount of discretion the employee exercises in carrying out tasks. Respondents

will indicate the extent to which they agree with each item on a 7-point Likert scale

ranging from 1=strongly disagree to 7=strongly agree.

Work Method Autonomy

1. I am allowed to decide what services are to be rendered.
2. I am able to choose the procedure to utilise.
3. I am free to choose the method to use in carrying out my work.

Work Scheduling Autonomy

4. I have control over the scheduling of my work.
5. I have some control over the sequencing of my work activities (when I do what).
6. My job is such that I can decide when to do particular work activities.

Work Criteria Autonomy

7. My job allows me to emphasise some aspects of my job and paly down others.
8. I am able to modify what I am supposed to accomplish.
9. I have some control over what I am supposed to accomplish.

5.3.3 Co-worker Interaction

Co-worker interaction will be measured with items developed from the qualitative

interviews because no existing instrument is suitable for this construct. There are seven items in total. Co-worker interaction is defined as an individual's encounter with specified colleagues in terms of task-related professional interaction and non-work-related private interaction. Respondents will indicate the extent to which they agree with each item on a 7-point Likert scale ranging from 1=strongly disagree to 7=strongly agree.

1. Certain colleagues and I give support to each other for personal issues.
2. Some colleagues and I help each other by sharing our work load.
3. I discuss patient care methods with some colleagues.
4. Some colleagues and I give support to each other at work.
5. I switch shifts with certain colleagues.
6. I keep distance with colleagues who are negative in viewing things.
7. I ask certain colleagues for help when I encounter problems at work.

5.3.4 Opportunity to Learn

Opportunity to learn will be measured with seven items—two items (number 1 and 2) adopted from training opportunities instrument in Armstrong-Stassen and Cameron (2005), two items (number 3 and 4) created based on training and development

instrument in Tharenou and Conroy (1994), two items (number 5 and 6) created based on prevention of training instrument in Tharenou and Conroy, and one item (number 7) developed from the qualitative interviews. The two items (number 1 and 2) from Armstrong-Stassen and Cameron were slightly modified to suit the context of this thesis. Opportunity to learn is defined as employees' perceptions of management's behaviour and willingness to let them attend training courses and learn. Respondents will indicate the extent to which they agree with each item on a 7-point Likert scale ranging from 1=strongly disagree to 7=strongly agree.

1. My hospital is targeting nursing employees for training to update current job skills.
2. My hospital is targeting nursing employees for training so we can learn new skills and expertise.
3. My hospital is offering external training courses.
4. My hospital is offering internal training courses.
5. Participation in training courses is prevented from my hospital.
6. My hospital refuses to pay for study leave.
7. If the course is relevant, my hospital will pay for study leave.

5.3.5 Work Atmosphere

Work atmosphere was a construct derived from the qualitative interviews. Work atmosphere will be measured with nine items—five items (number 1, 2, 3, 8 and 9) developed from the qualitative interviews, two items (number 4 and 5) established based on Chow and Crawford (2004), and two items (number 6 and 7) created based on Moorkamp (2005). Work atmosphere is defined as employees' perceptions of the spirit and the partnership within the unit they act. Respondents will indicate the extent to which they agree with each item on a 7-point Likert scale ranging from 1=strongly disagree to 7=strongly agree.

1. We have a positive work atmosphere.
2. Staff in our ward are like family to me.
3. We usually work individually on our tasks, but we will work as a team when it is necessary.
4. The atmosphere in our ward is intolerable.
5. Staff are friendly to each other.
6. Colleagues are supportive and approachable.
7. The atmosphere in our ward seems much pleasanter than that in other wards.

8. We have an unpleasant work atmosphere because colleagues attack each other.
9. We have a team work atmosphere.

5.3.6 Safety Climate

Safety climate was a construct derived from the qualitative interviews. Safety climate will be measured with 12 items—three items (number 1, 2 and 3) developed from the qualitative interviews and nine items (number 4, 5, 6, 7, 8, 9, 10, 11 and 12) adopted from Dedobbeleer and Beland (1991). The nine items from Dedobbeleer and Beland were slightly modified to allow the use of only one set of anchors and to suit the context of this thesis. Safety climate is assessed from the respondents' perspectives and is defined as management's commitment to safety and employees' involvement in safety. Respondents will indicate the extent to which they agree with each item on a 7-point Likert scale ranging from 1=strongly disagree to 7=strongly agree.

1. My hospital does a good job in work safety issues.
2. Work safety relies on whether one performs job tasks carefully or not.
3. Being asked to support a ward that I am unfamiliar with makes work unsafe.
4. Workers' safety practices are very important to the management of my hospital.
5. Supervisors and other top management seem to care about my safety very much.

6. My head nurse places much emphasis on safety practices on the job.
7. Giving instructions on safety policy/safety requirements of the hospital is one of management's safety practices.
8. Having regular job safety meeting is one of management's safety practices.
9. Having proper equipment for my tasks is one of management's safety practices.
10. I have much control over what happens to my safety on the job.
11. Taking risks is part of the job.
12. It is very likely that I might be injured on the job in the next 12-month period.

5.3.7 Job Satisfaction

The job satisfaction instrument in Brady et al. (1990) was chosen for this thesis for the following two reasons. Firstly, this instrument is a global measure of job satisfaction, which suits the conceptual and operational purposes of job satisfaction in this thesis. Secondly, this instrument was applied to healthcare employees (dental hygienists) and obtained a high Cronbach's alpha of .91 (Brady et al.), demonstrating a high reliability of the instrument. The instrument consists of eight items, and job satisfaction is defined as the extent to which employees are satisfied with their job. Respondents will indicate the extent to which they agree with each item on a 7-point Likert scale

ranging from 1=strongly disagree to 7=strongly agree.

1. I am satisfied in my job.
2. I find my job more interesting than I would in another job.
3. I am not bored in my job.
4. I consider my job pleasant.
5. I am not disappointed in my job.
6. I am happier in my job than most other people.
7. I find enjoyment in my job.
8. I definitely like my job.

5.3.8 Organisational Commitment

The organisational commitment instrument in Allen and Meyer (1990) was chosen for this thesis, as this instrument demonstrated a high Cronbach's alpha of .87 (Allen & Meyer). Organisational commitment is defined as employees' affection to and identification with their organisation. There are eight items in the instrument, and 'hospital' is used to replace 'organisation' to suit the context of this thesis. Respondents will indicate the extent to which they agree with each item on a 7-point

Likert scale ranging from 1=strongly disagree to 7=strongly agree.

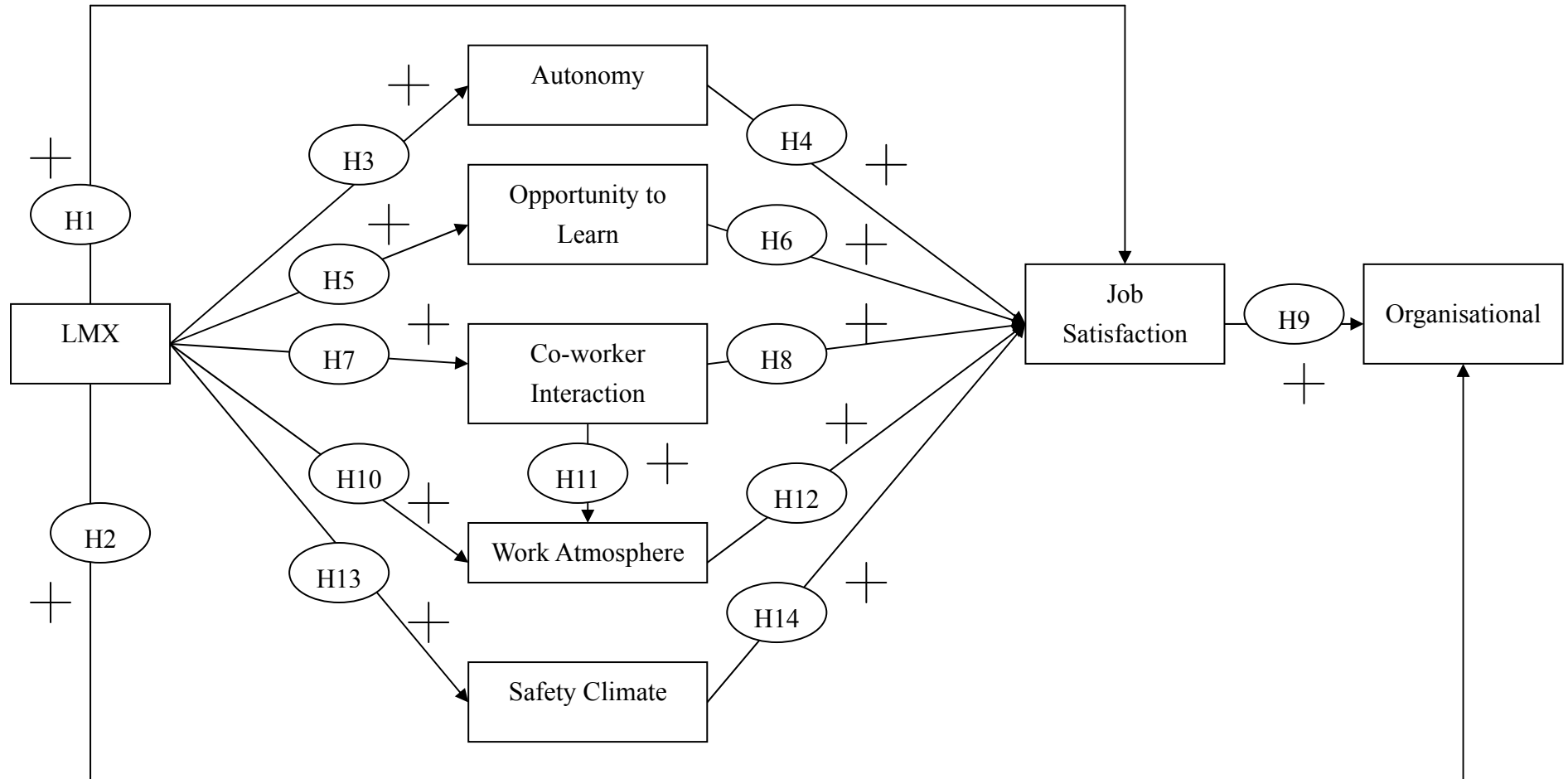
1. I would be very happy to spend the rest of my career with this hospital.
2. I enjoy discussing my hospital with people outside it.
3. I really feel as if this hospital's problems are my own.
4. I think that I could easily become as attached to another hospital as I am to this one.
5. I do not feel like 'part of the family' at my hospital.
6. I do not feel 'emotionally attached' to this hospital.
7. This hospital has a great deal of personal meaning for me.
8. I do not feel a strong sense of belonging to my hospital.

5.4 Model Development

In Chapter 3, several research gaps have been identified in the extant literature concerning Taiwanese nurses' job satisfaction and organisational commitment. These research gaps are the relationships between leader-member exchange (LMX) and co-worker interaction/autonomy/opportunity to learn, the relationships between LMX/co-worker interaction/autonomy/opportunity to learn and job satisfaction, and the

relationship between LMX and organisational commitment. In addition to the literature review, qualitative interviews have been conducted to strengthen the research model. Two additional constructs, work atmosphere and safety climate, were brought up in the interviews, thus were included in the research model. Relationships between work atmosphere/safety climate and job satisfaction have also been indicated in the interviews. Hence, the purpose of this thesis is to investigate the influence of LMX on autonomy, co-worker interaction, opportunity to learn, work atmosphere, safety climate, job satisfaction and organisational commitment for Taiwanese nurses. The 'Meaning of Working' theory, as discussed in Chapter 2, serves as the theoretical framework for this research model and explains what the value of LMX is to Taiwanese nurses. Figure 5-1 on the next page illustrates the proposed model of this thesis.

Figure 5-1 Proposed Model of this Thesis



5.5 Hypothesis Development

The purpose of this section is to discuss the relationships among the emerged constructs (work atmosphere and safety climate) and the existing ones. The proposed conceptual model shows that leader-member exchange (LMX) not only has a direct impact on job satisfaction and organisational commitment, but also has indirect effects on job satisfaction through autonomy, co-worker interaction, work atmosphere, opportunity to learn, and safety climate. The relationships between LMX, autonomy, co-worker interaction, opportunity to learn, job satisfaction, and organisational commitment have been discussed in Chapter 3. The following subsections therefore describe the relationships among work atmosphere, safety climate and the aforementioned variables.

5.5.1 Relationship between Leader-Member Exchange and Work Atmosphere

When a supervisor establishes a close relationship with a subordinate, the supervisor may be friendly to the subordinate and show his/her concern toward the subordinate. The supervisor may also use his/her power to help the subordinate when necessary. The supervisor's caring and supportive actions are likely to cultivate a positive and supportive work environment, which Sundin, Bildt, Lisspers, Hochwalder and Setterlind (2006) described as supportive work atmosphere. Likewise, the mutual understanding and caring between the supervisor and the subordinate may shape a family-like atmosphere, thus staff in the work unit may consider each other as a family member. As a result, it is likely that leader-member exchange (LMX) can have a significant positive impact on work atmosphere. Accordingly, a hypothesis is proposed that:

H10: LMX is a positive determinant of work atmosphere.

5.5.2 Relationship between Co-Worker Interaction and Work Atmosphere

After working in a unit for a while, an employee is likely to become friends with some colleagues. The employee and those colleagues may have lunch together and may share personal feelings with each other during lunch time. When they support each other on personal issues, it leads to a supportive atmosphere. In addition, the employee and colleagues may also discuss work methods and problems at work. They may brainstorm to find out solutions for work problems and also may realise more effective work methods based on their discussion, which in turn leading to a positive work atmosphere. Likewise, the colleagues may share their work load so that they can complete their tasks more efficiently, which creates a team work atmosphere. The friendship and support among colleagues creates a pleasant and friendly work environment which Chow and Crawford (2004) described as work atmosphere. Therefore, it appears that co-worker interaction can have a significant positive impact on work atmosphere. Accordingly, a hypothesis is proposed that:

H11: Co-worker interaction is a positive determinant of work atmosphere.

5.5.3 Relationship between Work Atmosphere and Job Satisfaction

When employees sense a positive and supporting atmosphere at work, they are more likely to find their job enjoyable because they work in a pleasant environment and they could acquire needed assistance when they face problems. Likewise, when employees feel like a part of the work unit, they are more likely to be happy at work because they may consider other staff as family members, which creates a sense of closeness among them. These lines of reasoning are consistent with Moorkamp's (2005, p. 482) finding that one of her participants stated "it is just more fun being in a more caring atmosphere". Therefore, it is likely that work atmosphere can have a

significant positive impact on job satisfaction. Accordingly, a hypothesis is proposed that:

H12: Work atmosphere is a positive determinant of job satisfaction.

5.5.4 Relationship between Leader-Member Exchange and Safety Climate

When a supervisor is close to a subordinate, the supervisor may discuss work safety issues with the subordinate more frequently, in turn influencing the subordinate's work safety perceptions. The discussion may also give the subordinate an impression that the supervisor places much emphasis on safety practices on the job. Likewise, the employee may think that workers' safety practices are very important to the management of the organisation. Smith (2002) indicated that leadership is essential in shaping employees' safety perceptions about the work environment as well as in guiding employees' actions and behaviours. Similarly, Purcell and Hutchinson (2007) noted that supervisors play important roles in the transmission of values and climate from the organisation to the employees. Thus, it appears that leader-member exchange (LMX) can have a significant positive impact on safety climate. Accordingly, a hypothesis is proposed that:

H13: LMX is a positive determinant of safety climate.

5.5.5 Relationship between Safety Climate and Job Satisfaction

An organisation may give instructions on safety policy and/or safety requirements to employees, and also hold regular job safety meeting with employees. Likewise, the organisation may have proper equipments for employees to carry out their tasks, which in turn may make employees feel protected at work. These safety practices may affect employees' level of job satisfaction because employees are likely to be happier with the job if they sense the organisation's concern on their wellbeing.

McLain (1995) found that employees' perceived risk was a negative determinant of overall job satisfaction. In addition, he also indicated that job danger was negatively related to pay satisfaction among police and nuclear power plant employees. If an organisation cares about employees' work safety and has proper safety practices in place, employees are more likely to feel satisfied with their job because they perceive a sense of physical security in the job. Therefore, it appears that safety climate can have a significant positive impact on job satisfaction. Accordingly, a hypothesis is proposed that:

H14: Safety climate is a positive determinant of job satisfaction.

5.6 Chapter Summary

This chapter began with a presentation of the results from the preliminary qualitative phase. A total of 14 in-depth interviews were conducted with Taiwanese nurses. Analysis of the interviews resulted in the emergence of six categories, which were supervisor-subordinate relationship, autonomy, co-worker interaction, work atmosphere, opportunity to learn, and work safety. The interview findings also indicated relationships between categories, which helped strengthen the proposed conceptual model in Chapter 3. In addition, a few measurement items were developed based on the interview findings.

Following the results from the preliminary qualitative phase was a discussion of construct development. The procedure for construct development in this thesis was mainly drawn from Churchill (1979). The first step of construct development was to define the domain of the constructs based on the extant literature, while the second step was to create a list of items from the literature and/or the in-depth interviews. Then, the formation of the conceptual model was discussed.

The proposed conceptual model attempts to explain the impact of leader-member exchange (LMX) on job satisfaction and organisational commitment of Taiwanese nurses. That is, LMX not only has direct impact on job satisfaction and organisational commitment, but also has indirect effect on job satisfaction through autonomy, co-worker interaction, work atmosphere, opportunity to learn, and safety climate. Finally, the causal relationships amongst the eight constructs were hypothesised with the assistance of the literature and the in-depth interviews. Altogether, 14 hypotheses were set to test the strength of these relationships.

Chapter 6 Quantitative Results

6.1 Introduction

This chapter presents the results of a quantitative survey, including sample statistics and descriptive information, data cleaning, test of sphericity and measure of sampling adequacy, reliability tests, validity tests, and hypothesis testing. The objective of data analysis in this chapter is to establish reliable and valid empirical results that explain the impact of leader-member exchange (LMX) on job satisfaction and organisational commitment of Taiwanese nurses.

The chapter begins with sample statistics and descriptive information, followed by the results of data cleaning, including replacement of missing data and test of normality.

Then the chapter presents the results of test of sphericity and measure of sampling adequacy. This is followed by the results of reliability and validity tests. Then the chapter presents the results of hypothesis and model testing. A summary is presented to conclude the chapter.

6.2 Quantitative Survey: Sample Statistics and Descriptive Information

This section provides information regarding the sample of this thesis. Firstly, the results of the survey response are presented. This is followed by the respondent information. Information regarding the respondents is used to examine the representativeness of the sample.

6.2.1 Survey Response

As stated in Section 4.5.1, a sample size of greater than 110 is required for this thesis.

Being conservative and as a safeguard with the typically low response rate of surveys,

600 questionnaires were mailed out to ensure that the sample size was adequate. In

the end, a total of 416 usable questionnaires were received, giving a response rate of

69.3%. The sample size was greater than the minimum target of 110.

6.2.2 Respondent Information

Respondents were asked to indicate their gender, age, education, years in nursing

practice, the type of hospital they are working in, and the location of the hospital they

are working in. Summary statistics of respondent information are listed in Tables 6-1

to 6-6. First of all, Table 6-1 below summarises the gender of the respondents.

Female nurses accounted for 99.3% of the respondents, while 0.7% of them were

male. This result shows that the majority of the respondents were female.

Table 6-1 Respondents' Gender

Gender	N	%
Male	3	0.7
Female	413	99.3
Total	416	100.0

Table 6-2 below summarises the age of the respondents. There were 44.7% of the respondents whose age were between 26 to 30 years old, while 28.4% of them were between 31 to 35 years old. In addition, 21.9% of the respondents were between 21 to 25 years old, whereas 3.6% were between 36-40 years old. Nurses who were over 41 years old accounted for 1.2% of the respondents, while 0.2% of them were below 20 years old. Overall, the majority of the respondents were between 26 to 30 years old.

Table 6-2 Respondents' Age

Age	N	%
< 20	1	0.2
21-25	91	21.9
26-30	186	44.7
31-35	118	28.4
36-40	15	3.6
> 41	5	1.2
Total	416	100.0

Table 6-3 below summarises the education of the respondents. Nurses who held a bachelors' degree accounted for 50.5% of the respondents, while 47.8% of them held a junior college degree. In addition, 1.2% of the respondents held a masters' degree, whereas 0.5% held a high school degree. Overall, the majority of the respondents held a bachelors' degree.

Table 6-3 Respondents' Education

Education	N	%
High School	2	0.5
Junior College	199	47.8
Bachelors	210	50.5
Masters	5	1.2
Total	416	100.0

Table 6-4 on the next page summarises the duration the respondents have spent in nursing practice. Nurses who have been in nursing practice between 5 to 10 years represented 37.3% of the respondents, whereas 37.0% of them had nursing training between 1 to 5 years. In addition, 20.9% of the respondents had nursing experiences between 10 to 15 years, whereas 2.9% of them have been in nursing for less than 1 year. Nurses who have practiced for more than 15 years comprised 1.9% of the respondents. Overall, the majority of the respondents have been in nursing practice between 1 to 10 years.

Table 6-4 Respondents' Years in Nursing Practice

Years in Nursing Practice	N	%
< 1	12	2.9
1-5	154	37.0
5-10	155	37.3
10-15	87	20.9
> 15	8	1.9
Total	416	100.0

Table 6-5 below summarises the type of hospital the respondents were working in.

Nurses who were working in local hospitals constituted 45.4% of the respondents, while 35.3% of them were working in regional hospitals. In addition, 19.2% of the respondents were working in medical centres. Overall, the majority of the respondents were working in local hospitals.

Table 6-5 The Type of Hospital the Respondents were Working in

Type of Hospital	N	%
Medical Centre	80	19.2
Regional Hospital	147	35.3
Local Hospital	189	45.4
Total	416	100.0

Table 6-6 below summarises the location of the hospital the respondents were working in. Nurses working in hospitals located north of Taiwan accounted for 31.0% of the respondents, while 29.1% of them were working in hospitals south of Taiwan. In addition, 23.1% of the respondents were working in hospitals located west of Taiwan, whereas 16.8% of them were working in hospitals east of Taiwan. Overall, the majority of the respondents were working in hospitals located north of Taiwan.

Table 6-6 Location of the Hospital the Respondents were Working in

Location of the Hospital	N	%
North of Taiwan	129	31.0
West of Taiwan	96	23.1
South of Taiwan	121	29.1
East of Taiwan	70	16.8
Total	416	100.0

In summary, this section presented information about the sample of this thesis. Firstly, the survey response was presented. Then, the respondent information was provided. The respondents were working in hospitals all over Taiwan; hence, the respondents appear to represent the targeted sample of this thesis—hospital nurses in Taiwan. The following section now turns to data cleaning.

6.3 Data Cleaning

This section presents the results of data cleaning. The section begins with replacement of missing data, and followed with tests of normality.

6.3.1 Replacement of Missing Data

Data were inspected with SPSS to ascertain obvious patterns for missing data. The number of missing responses for all scales was low, as only 2 missing values were found. One missing value was found for the eighth item of safety climate scale, while the other was found for the second item of job satisfaction scale. Altogether, there were 29,120 possible responses (i.e., 70 questions × 416 surveys). Two missing values out of 29,120 possible responses represented a 0.0069% missing data. Using the mean substitution method, the variable containing an empty cell was replaced by the mean value of that same variable. This method was used to fill in both missing values.

6.3.2 Tests of Normality

Normality tests were performed with Kolmogorov-Smirnov statistics; yet, no single variable was normally distributed. Attempts were then made to reduce non-normality by using the transformation methods suggested by Tabachnick and Fidell (1996, p. 83), namely the “reflect and square root” and “reflect and logarithm” methods. However, the data still remained skewed after the transformation methods were applied.

Although non-normality is not desirable, it is not a major problem for data analysis, as large sample size tends to diminish the detrimental effects of non-normality (Hair et al., 1998), which is the case of this thesis. The next section now turns to test of sphericity, measure of sampling adequacy, reliability, and validity tests.

6.4 Test of Sphericity, Measure of Sampling Adequacy, Reliability and Validity Tests

This section firstly presents the results of Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. This is followed by Cronbach's alpha reliability tests for all eight constructs in the conceptual model. Then the section presents the results of convergent and discriminant validity tests.

6.4.1 Test of Sphericity and Measure of Sampling Adequacy

Table 6-7 on the next page presents the results of Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. All constructs achieved a significant p-value, less than .001. The results of Bartlett's test of sphericity suggest that the items of the construct are sufficiently correlated, indicating that the data are suitable for factor analysis.

The scores of KMO measure of sampling adequacy for all constructs were higher than the cut-off .50. All scores ranged from .80 to .93, which are "meritorious" based on the suggestion of Hair et al. (1998, p. 99). The results suggest that there is adequate

and high variability in the collected data. The satisfactory results of Bartlett's test of sphericity and KMO measure of sampling adequacy suggest that further analysis based on these items is appropriate.

Table 6-7 Test of Sphericity and Measure of Sampling Adequacy

Constructs	Bartlett's Test of Sphericity	KMO Measure of Sampling Adequacy
Leader-Member Exchange	Approx. Chi-Square = 3019.9 df = 45 Sig.<.001	.92
Autonomy	Approx. Chi-Square = 2215.2 df = 36 Sig.<.001	.89
Co-worker Interaction	Approx. Chi-Square = 1431.77 df = 15 Sig.<.001	.87
Work Atmosphere	Approx. Chi-Square = 2447.6 df = 36 Sig.<.001	.90
Opportunity to Learn	Approx. Chi-Square = 1480.2 df = 21 Sig.<.001	.80
Safety Climate	Approx. Chi-Square = 2147.4 df = 66 Sig.<.001	.88
Job Satisfaction	Approx. Chi-Square = 3158.2 df = 28 Sig.<.001	.93
Organisational Commitment	Approx. Chi-Square = 1248.5 df = 28 Sig.<.001	.85

6.4.2 Reliability Test

The initial and revised reliability scores for each construct are presented in Tables 6-8 to 6-15, and are discussed consecutively in the following paragraphs.

Table 6-8 below presents the reliability test results for leader-member exchange (LMX). The initial Cronbach's alpha for LMX was above the cut-off point, so were the corrected item-total correlations. Therefore, all 10 items were retained for exploratory factor analysis (EFA). However, LMX1 "I know how satisfied or dissatisfied my head nurse is with what I do" and LMX6 "I would defend and justify my head nurse's decisions when he/she is not present to do so" were deleted after EFA, because they failed to exceed the cut-off points for EFA. Overall, the final Cronbach's alpha for LMX demonstrated a high value of .93, and all remaining corrected item-total correlations were above the cut-off point.

Table 6-8 Leader-Member Exchange Reliability Test Results

Item	Initial Reliability	Final Reliability
Cronbach's Alpha	.93	.93
	Corrected Item-Total	Corrected Item-Total
LMX1 how satisfied	.53	N/A (deleted after EFA)
LMX2 work problems	.75	.73
LMX3 my potential	.69	.65
LMX4 available power	.77	.79
LMX5 bail me out	.78	.80
LMX6 defend/justify	.61	N/A (deleted after EFA)
LMX7 effective working	.77	.75
LMX8 close to	.80	.81
LMX9 cares about me	.80	.82
LMX10 warm personality	.79	.81

The reliability test results for autonomy are presented below in Table 6-9. As noted in Chapter 5, the autonomy measurement is multidimensional. However, the initial Cronbach's alpha for the nine items was .91, suggesting the unidimensionality of the measurement. In addition, exploratory factor analysis (EFA) extracted only one factor based on the nine items. Accordingly, autonomy was assumed as a unidimensional scale for the remainder of the analysis.

Since the initial coefficient alpha and the corrected item-total correlations were above the cut-off points, all nine items were retained for EFA. However, AUT5 "I have some control over the sequencing of my work activities (when I do what)" and AUT9 "I have some control over what I am supposed to accomplish" were deleted after EFA, because they failed to exceed the cut-off points for EFA. Overall, the final Cronbach's alpha for autonomy demonstrated a high value of .90, and all the remaining corrected item-total correlations were above the cut-off point.

Table 6-9 Autonomy Reliability Test Results

Item	Initial Reliability	Final Reliability
Cronbach's Alpha	.91	.90
	Corrected Item-Total	Corrected Item-Total
AUT1 what services	.64	.66
AUT2 the procedure	.72	.74
AUT3 the method	.75	.76
AUT4 the scheduling	.68	.68
AUT5 the sequencing	.63	N/A (deleted after EFA)
AUT6 particular work	.76	.76
AUT7 allows me to	.71	.70
AUT8 able to modify	.72	.68
AUT9 have some control	.59	N/A (deleted after EFA)

Table 6-10 below presents the reliability test results for co-worker interaction. The initial Cronbach’s alpha for co-worker interaction was above the cut-off point, so were most of the corrected item-total correlations. The corrected item-total correlation of CI6 “I distance myself from colleagues who hold negative attitudes” was below the cut-off point, so it was deleted from further analysis. The remaining six items proceeded for exploratory factor analysis (EFA). However, CI5 “I swap shifts with certain colleagues when necessary” was deleted after EFA, because it failed to exceed the cut-off points for EFA. Overall, the final Cronbach’s alpha for co-worker interaction demonstrated a high value of .90, and all remaining corrected item-total correlations were above the cut-off point.

Table 6-10 Co-worker Interaction Reliability Test Results

Item	Initial Reliability	Final Reliability
Cronbach’s Alpha	.84	.90
	Corrected Item-Total Correlation	Corrected Item-Total Correlation
CI1 support each other for personal issues	.70	.74
CI2 help each other	.74	.79
CI3 discuss patient care	.71	.74
CI4 support each other at work	.76	.83
CI5 swap shifts	.51	N/A (deleted after EFA)
CI6 distance myself	.25	N/A (deleted after initial reliability)
CI7 ask close colleagues for help	.66	.62

The reliability test results for work atmosphere are presented in Table 6-11 below. The initial Cronbach's alpha for work atmosphere was above the cut-off point, so were the corrected item-total correlations. Therefore, all nine items were retained for exploratory factor analysis (EFA). However, WA3 "We usually work individually on our tasks, but we work as a team as necessary", WA4 "The atmosphere in our department is intolerable", and WA8 "We have an unpleasant work atmosphere because colleagues attack each other" were deleted after EFA, because they failed to exceed the cut-off points for EFA. Overall, the final Cronbach's alpha for work atmosphere demonstrated a high value of .92, and all remaining corrected item-total correlations were above the cut-off point.

Table 6-11 Work Atmosphere Reliability Test Results

Item	Initial Reliability	Final Reliability
Cronbach's Alpha	.91	.92
	Corrected Item-Total Correlation	Corrected Item-Total Correlation
WA1 positive work atmosphere	.77	.75
WA2 like family	.72	.74
WA3 work individually	.47	N/A (deleted after EFA)
WA4 intolerable	.65	N/A (deleted after EFA)
WA5 friendly to each other	.75	.77
WA6 supportive and approachable	.80	.83
WA7 much pleasanter	.77	.78
WA8 unpleasant work atmosphere	.54	N/A (deleted after EFA)
WA9 atmosphere for team work	.77	.79

Table 6-12 below presents the reliability test results for opportunity to learn. The initial Cronbach’s alpha for opportunity to learn was above the cut-off point, so were the corrected item-total correlations. Therefore, all seven items were retained for exploratory factor analysis (EFA). However, OTL5 “Participation in training courses is prevented by my hospital”, OTL6 “My hospital refuses to pay for study leave”, and OTL7 “My hospital will pay for study leave, if my course of study is relevant” were deleted after EFA, because they failed to exceed the cut-off points for EFA. Overall, the final Cronbach’s alpha for opportunity to learn demonstrated a high value of .91, and all remaining corrected item-total correlations were above the cut-off point.

Table 6-12 Opportunity to Learn Reliability Test Results

Item	Initial Reliability	Final Reliability
Cronbach’s Alpha	.80	.91
	Corrected Item-Total Correlation	Corrected Item-Total Correlation
OTL1 update current job skills	.67	.80
OTL2 learn new skills	.70	.84
OTL3 external training	.65	.76
OTL4 internal training	.68	.77
OTL5 participation in training prevented	.52	N/A (deleted after EFA)
OTL6 refuse to pay for study leave	.35	N/A (deleted after EFA)
OTL7 pay for study leave	.38	N/A (deleted after EFA)

The reliability test results for safety climate are presented in Table 6-13 on the next page. The initial Cronbach's alpha for safety climate was above the cut-off point, so were most of the corrected item-total correlations. The corrected item-total correlations of SC3 "Work is made less safe when working in unfamiliar wards" and SC12 "It is very likely that I might be injured on the job in the next 12-month period" were below the cut-off point, so they were deleted from further analysis. The corrected item-total correlation of SC11 "Taking risks is part of the job" dropped below the cut-off point after SC12 was deleted; therefore, SC11 was also removed from further analysis. The remaining nine items proceeded for exploratory factor analysis (EFA). However, SC2 "Work safety relies on whether I perform my job tasks carefully or not" and SC10 "I have much control over what happens to my safety on the job" were deleted after EFA, because they failed to exceed the cut-off points for EFA. Overall, the final Cronbach's alpha for safety climate demonstrated a high value of .90, and the remaining corrected item-total correlations were above the cut-off point.

Table 6-13 Safety Climate Reliability Test Results

Item	Initial Reliability	Final Reliability
Cronbach's Alpha	.83	.90
	Corrected Item-Total Correlation	Corrected Item-Total Correlation
SC1 managed well	.64	.70
SC2 perform my job tasks carefully or not	.47	N/A (deleted after EFA)
SC3 unfamiliar wards	.28	N/A (deleted after initial reliability)
SC4 very important to the management	.70	.76
SC5 head nurses and other top management	.70	.80
SC6 my head nurse places much emphasis	.65	.68
SC7 giving instructions	.72	.76
SC8 having regular job safety meetings	.60	.61
SC9 proper equipment	.64	.69
SC10 have much control	.50	N/A (deleted after EFA)
SC11 taking risks	.31	N/A (deleted after initial reliability)
SC12 might be injured	.001	N/A (deleted after initial reliability)

Table 6-14 below presents the reliability test results for job satisfaction. The initial Cronbach's alpha for job satisfaction was above the cut-off point, so were the corrected item-total correlations. Therefore, all eight items were retained for exploratory factor analysis (EFA). These eight items all exceeded the cut-off points for EFA, so they were retained for further analysis. Overall, the final Cronbach's alpha for job satisfaction demonstrated a high value of .95, and all corrected item-total correlations were above the cut-off point.

Table 6-14 Job Satisfaction Reliability Test Results

Item	Initial Reliability	Final Reliability
Cronbach's Alpha	.95	.95
	Corrected Item-Total Correlation	Corrected Item-Total Correlation
JS1 satisfied in my job	.76	.76
JS2 more interesting	.82	.82
JS3 not bored	.79	.79
JS4 pleasant	.85	.85
JS5 not disappointed	.79	.79
JS6 happier in my job	.84	.84
JS7 find enjoyment	.86	.86
JS8 definitely like	.86	.86

The reliability test results for organisational commitment are presented in Table 6-15 below. The initial Cronbach's alpha for the scale was above the cut-off point, so were most of the corrected item-total correlations. The corrected item-total correlation of OC4 "I think that I could easily become as attached to another hospital as I am to this one" was below the cut-off point, so it was deleted from further analysis. The remaining seven items proceeded for exploratory factor analysis (EFA). However, OC7 "This hospital has a great deal of personal meaning for me" and OC8 "I do not feel a strong sense of belonging to my hospital" were deleted after EFA, because they failed to exceed the cut-off points for EFA. Overall, the final Cronbach's alpha for organisational commitment demonstrated a high value of .84, and all remaining corrected item-total correlations were above the cut-off point.

Table 6-15 Organisational Commitment Reliability Test Results

Item	Initial Reliability	Final Reliability
Cronbach's Alpha	.83	.84
	Corrected Item-Total Correlation	Corrected Item-Total Correlation
OC1 spend the rest of my	.68	.68
OC2 enjoy discussing	.64	.66
OC3 really feel as if	.69	.67
OC4 easily become as	.23	N/A (deleted after initial
OC5 do not feel like	.63	.61
OC6 do not feel	.66	.63
OC7 personal meaning	.54	N/A (deleted after EFA)
OC8 not feel a strong sense	.45	N/A (deleted after EFA)

6.4.3 Convergent Validity

Convergent validity is a test undertaken to assess whether the construct is what it is meant to be. Exploratory factor analysis (EFA) and multitrait-multimethod matrix were performed to assess convergent validity of the items within each construct.

Convergent validity exists when the items in a construct load together on a single factor in EFA. The results of EFA for each construct are presented in Tables 6-16 to 6-23. Overall, the EFA results showed that convergent validity was supported for all constructs.

Table 6-16 Leader-Member Exchange Exploratory Factor Analysis Results

Eigenvalue	5.45
% of Variance	68.17
Cumulative %	68.17
Item	Factor Loading
LMX2 work problems	.80
LMX3 my potential	.73
LMX4 available power	.84
LMX5 bail me out	.85
LMX7 effective working relationship	.81
LMX8 close to	.86
LMX9 cares about me	.86
LMX10 warm personality	.86

Table 6-17 Autonomy Exploratory Factor Analysis Results

Eigenvalue	4.43
% of Variance	63.28
Cumulative %	63.28
Item	Factor Loading
AUT1 what services	.75
AUT2 the procedure	.82
AUT3 the method	.83
AUT4 the scheduling	.77
AUT6 particular work	.84
AUT7 allows me to emphasise	.78
AUT8 able to modify	.77

Table 6-18 Co-worker Interaction Exploratory Factor Analysis Results

Eigenvalue	3.56
% of Variance	71.13
Cumulative %	71.13
Item	Factor Loading
CI1 support each other for personal issues	.84
CI2 help each other	.88
CI3 discuss patient care	.84
CI4 support each other at work	.91
CI7 ask close colleagues for help	.74

Table 6-19 Work Atmosphere Exploratory Factor Analysis Results

Eigenvalue	4.32
% of Variance	71.92
Cumulative %	71.92
Item	Factor Loading
WA1 positive work atmosphere	.83
WA2 like family	.82
WA5 friendly to each other	.84
WA6 supportive and approachable	.89
WA7 much pleasanter	.85
WA9 atmosphere for team work	.86

Table 6-20 Opportunity to Learn Exploratory Factor Analysis Results

Eigenvalue	3.14
% of Variance	78.41
Cumulative %	78.41
Item	Factor Loading
OTL1 update current job skills	.89
OTL2 learn new skills	.91
OTL3 external training	.87
OTL4 internal training	.87

Table 6-21 Safety Climate Exploratory Factor Analysis Results

Eigenvalue	4.47
% of Variance	63.80
Cumulative %	63.80
Item	Factor Loading
SC1 managed well	.79
SC4 very important to the management	.84
SC5 head nurses and other top management	.86
SC6 my head nurse places much emphasis	.77
SC7 giving instructions	.84
SC8 having regular job safety meetings	.71
SC9 proper equipment	.78

Table 6-22 Job Satisfaction Exploratory Factor Analysis Results

Eigenvalue	6.01
% of Variance	75.10
Cumulative %	75.10
Item	Factor Loading
JS1 satisfied in my job	.82
JS2 more interesting	.86
JS3 not bored	.84
JS4 pleasant	.89
JS5 not disappointed	.84
JS6 happier in my job	.88
JS7 find enjoyment	.90
JS8 definitely like	.90

Table 6-23 Organisational Commitment Exploratory Factor Analysis Results

Eigenvalue	3.09
% of Variance	61.74
Cumulative %	61.74
Item	Factor Loading
OC1 spend the rest of my career	.81
OC2 enjoy discussing	.79
OC3 really feel as if	.80
OC5 do not feel like	.76
OC6 do not feel 'emotionally attached' to	.77

The second method to assess convergent validity was through the multitrait-multimethod matrix, and the results are shown in Table 6-24 on the following two pages. All items loaded significantly on their designated constructs, and the correlations were sufficiently large. Therefore, convergent validity was supported for all constructs.

Table 6-24 Convergent Validity Test by Multitrait-Multimethod Matrix

Item	LMX	AUT	CI	WA
LMX2	.80**			
LMX3	.72**			
LMX4	.84**			
LMX5	.85**			
LMX7	.80**			
LMX8	.86**			
LMX9	.87**			
LMX10	.86**			
AUT1		.75**		
AUT2		.82**		
AUT3		.83**		
AUT4		.77**		
AUT6		.83**		
AUT7		.78**		
AUT8		.77**		
CI1			.85**	
CI2			.87**	
CI3			.83**	
CI4			.90**	
CI7			.76**	
WA1				.83**
WA2				.82**
WA5				.84**
WA6				.88**
WA7				.86**
WA9				.85**

Item	OTL	SC	JS	OC
OTL1	.90 ^{**}			
OTL2	.91 ^{**}			
OTL3	.87 ^{**}			
OTL4	.86 ^{**}			
SC1		.79 ^{**}		
SC4		.84 ^{**}		
SC5		.86 ^{**}		
SC6		.77 ^{**}		
SC7		.82 ^{**}		
SC8		.72 ^{**}		
SC9		.77 ^{**}		
JS1			.82 ^{**}	
JS2			.86 ^{**}	
JS3			.84 ^{**}	
JS4			.89 ^{**}	
JS5			.84 ^{**}	
JS6			.88 ^{**}	
JS7			.89 ^{**}	
JS8			.90 ^{**}	
OC1				.82 ^{**}
OC2				.79 ^{**}
OC3				.80 ^{**}
OC5				.75 ^{**}
OC6				.77 ^{**}

** . Correlation is significant at 0.01 level (2-tailed).

Abbreviations used in Table 6-24:

LMX= Leader-Member Exchange

AUT= Autonomy

CI= Co-worker Interaction

WA= Work Atmosphere

OTL= Opportunity to Learn

SC= Safety Climate

JS= Job Satisfaction

OC= Organisational Commitment

6.4.4 Discriminant Validity

Discriminant validity is a test undertaken to identify whether the measure is measuring the right construct. This thesis used two methods to test discriminant validity. The first method was to measure the average variance extracted (AVE) via exploratory factor analysis with constructs in pairs. The results of AVE are presented in the upper diagonal of Table 6-25 (on the next page). The lower diagonal of Table 6-25 shows the correlations between the paired constructs. Discriminant validity is achieved when the AVE value is higher than the squared correlation of the paired constructs. Overall, the AVE results suggested that discriminant validity was supported for all constructs.

Table 6-25 Discriminant Validity Test by AVE and Correlation

Construct	LMX	AUT	CI	WA	OTL	SC	JS	OC
LMX	---	66%	70%	70%	72%	67%	72%	66%
AUT	.25	---	67%	67%	69%	64%	70%	63%
CI	.21	.37	---	72%	75%	67%	74%	67%
WA	.41	.37	.43	---	75%	68%	74%	67%
OTL	.24	.27	.36	.28	---	69%	76%	69%
SC	.33	.36	.33	.40	.62	---	70%	63%
JS	.37	.32	.26	.40	.37	.43	---	70%
OC	.36	.30	.21	.39	.41	.47	.69	---

Abbreviations used in Table 6-25:

LMX= Leader-Member Exchange

AUT= Autonomy

CI= Co-worker Interaction

WA= Work Atmosphere

OTL= Opportunity to Learn

SC= Safety Climate

JS= Job Satisfaction

OC= Organisational Commitment

The second method to test discriminant validity was by examining the number of components extracted in exploratory factor analysis with all pairwise constructs. Exploratory factor analysis using principal components with varimax rotation was performed to examine the number of components extracted for each paired constructs. Pairing up eight constructs in this thesis resulted in twenty-eight sets for this test. The results of exploratory factor analysis showed that there were always two components extracted for each pair of constructs. Hence, discriminant validity was supported for all constructs. Table 6-26 below presents the means, standard deviations, and correlations of the variables.

Table 6-26 Means (M), Standard Deviations (SD), and Correlations

	M	SD	LMX	AUT	OTL	CI	WA	SC	JS	OC
LMX	4.72	1.07	1							
AUT	5.58	0.78	0.25**	1						
OTL	5.44	0.99	0.24**	0.27**	1					
CI	5.96	0.74	0.21**	0.37**	0.36**	1				
WA	5.35	0.95	0.41**	0.37**	0.28**	0.43**	1			
SC	5.10	0.90	0.33**	0.36**	0.62**	0.33**	0.40**	1		
JS	4.67	1.12	0.37**	0.32**	0.37**	0.26**	0.40**	0.43**	1	
OC	4.48	1.07	0.36**	0.30**	0.41**	0.21**	0.39**	0.47**	0.69**	1

** . Correlation is significant at 0.01 level (2-tailed).

Abbreviations used in Table 6-26:

LMX= Leader-Member Exchange

AUT= Autonomy

CI= Co-worker Interaction

WA= Work Atmosphere

OTL= Opportunity to Learn

SC= Safety Climate

JS= Job Satisfaction

OC= Organisational Commitment

6.4.5 Summary of Test of Sphericity, Measure of Sampling Adequacy, Reliability and

Validity Test

In summary, this section firstly presented the results of Bartlett's test of sphericity and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. The results of Bartlett's test of sphericity for all eight constructs were significant ($p < .001$), thus suggested that the data were suitable for factor analysis. The scores of KMO measure of sampling adequacy for all constructs were higher than the cut-off .50. All scores ranged from .80 to .93, which were "meritorious" based on the suggestion of Hair et al. (1998, p. 99). The satisfactory results of Bartlett's test of sphericity and KMO measure of sampling adequacy suggested that further analysis based on these items was appropriate.

Next, the section presented the results of Cronbach's alpha reliability tests for all eight constructs. The final coefficient alpha for all constructs ranged from .90 to .95, and all remaining item-total correlations were above the cut-off point. The results of reliability tests were satisfactory and demonstrated high reliability of the constructs. Then the section presented the results of convergent validity tests. Exploratory factor analysis (EFA) and multitrait-multimethod matrix were performed to assess convergent validity of the items within each construct. The results of EFA and multitrait-multimethod matrix showed that convergent validity was supported for all constructs.

Following the results of convergent validity tests were the results of discriminant validity tests. The average variance extracted (AVE) and the number of components extracted from exploratory factor analysis (EFA) with paired constructs were used to test discriminant validity of the constructs. The results of AVE and the number of components extracted from EFA showed that discriminant validity was supported for all constructs. The next section now turns to the results of path analysis using regressions.

6.5 Path Analysis

This section presents the results of hypothesis and model testing via path analysis using regressions. The section firstly presents the results of hypothesis testing. This

is followed by the results of model testing.

6.5.1 Path Hypothesis Testing

The proposed model of this thesis is presented in Figure 5-1 of Chapter 5. In the conceptual model, leader-member exchange is pivotal to explaining job satisfaction and organisational commitment of Taiwanese nurses. Leader-member exchange not only has a direct impact on job satisfaction, but also has indirect impacts on job satisfaction through opportunity to learn, safety climate, autonomy, work atmosphere, and co-worker interaction. Leader-member exchange also has a direct impact on organisational commitment. In addition to leader-member exchange, job satisfaction also has a direct impact on organisational commitment. Furthermore, co-worker interaction has a direct impact on work atmosphere. In total, there are 14 hypotheses. Path analysis using regressions was performed to determine whether the hypothesised relationships are statistically significant. The results of hypothesis testing in terms of standardised coefficients, t-statistics, and significant level (p-value) for the relationships between the constructs are summarised in Table 6-27 on the next page.

Table 6-27 Path Hypothesis Testing Results

Model Hypotheses		Results
H1: LMX is a positive determinant of job satisfaction.	Coefficient	0.18 ^{***}
	t-statistic	3.86
H2: LMX is a positive determinant of organisational commitment.	Coefficient	0.12 ^{***}
	t-statistic	3.20
H3: LMX is a positive determinant of autonomy.	Coefficient	0.25 ^{***}
	t-statistic	5.19
H4: Autonomy is a positive determinant of job satisfaction.	Coefficient	0.10 [*]
	t-statistic	2.18
H5: LMX is a positive determinant of opportunity to learn.	Coefficient	0.24 ^{***}
	t-statistic	4.95
H6: Opportunity to learn is a positive determinant of job satisfaction.	Coefficient	0.14 [*]
	t-statistic	2.50
H7: LMX is a positive determinant of co-worker interaction.	Coefficient	0.21 ^{***}
	t-statistic	4.36
H8: Co-worker interaction is a positive determinant of job satisfaction.	Coefficient	0.003
	t-statistic	0.065
H9: Job satisfaction is a positive determinant of organisational commitment.	Coefficient	0.65 ^{***}
	t-statistic	17.24
H10: LMX is a positive determinant of work atmosphere.	Coefficient	0.33 ^{***}
	t-statistic	7.78
H11: Co-worker interaction is a positive determinant of work atmosphere.	Coefficient	0.36 ^{***}
	t-statistic	8.42
H12: Work atmosphere is a positive determinant of job satisfaction.	Coefficient	0.18 ^{***}
	t-statistic	3.53
H13: LMX is a positive determinant of safety climate.	Coefficient	0.33 ^{***}
	t-statistic	7.15
H14: Safety climate is a positive determinant of job satisfaction.	Coefficient	0.18 ^{***}
	t-statistic	3.24

^{***}. Standardised coefficient is significant at .001 level.

^{*}. Standardised coefficient is significant at .05 level.

The results of hypothesis testing revealed that H1 was supported, indicating that LMX is a positive determinant of job satisfaction. H2 was also supported, suggesting that LMX is a positive determinant of organisational commitment. H3, LMX is a positive determinant of autonomy, was found to be significant. H4 was supported as well, indicating that autonomy is a positive determinant of job satisfaction. H5, LMX is a positive determinant of opportunity to learn, was also found to be significant. H6 was supported, indicating that opportunity to learn is a positive determinant of job satisfaction. H7, LMX is a positive determinant of co-worker interaction, was also found to be significant. However, H8, co-worker interaction is a positive determinant of job satisfaction, was not supported. H9, job satisfaction is a positive determinant of organisational commitment, was found to be significant. H10, LMX is a positive determinant of work atmosphere, was also found to be significant. H11 was also supported, indicating that co-worker interaction is a positive determinant of work atmosphere. H12 was supported as well, suggesting that work atmosphere is a positive determinant of job satisfaction. H13, LMX is a positive determinant of safety climate, was also supported. The last hypothesis H14 was found to be significant, indicating that safety climate is a positive determinant of job satisfaction.

Overall, 13 hypotheses achieved statistically significant results, and their p-values associated with the standardised coefficients were less than .05. The paths

demonstrated positive relationships between the constructs, meaning that when a specified construct moves positively or negatively, the other specified construct also moves in that order. The standardised coefficients of the 13 paths range from 0.10 to 0.65, with H9 demonstrating the largest standardised coefficient 0.65. This result suggests that job satisfaction is an important determinant of organisational commitment, for one standardised point increase in job satisfaction can lead to a 0.65 standardised point increase in organisational commitment.

6.5.2 Model Testing

The results of model testing in terms of adjusted R squares, F-statistics, and significant level (p-value) for each regression model are summarised in Table 6-28 below.

Table 6-28 Model Testing Results

Regression Model		Results
Regression Model 1 IV: LMX DV: Opportunity to learn	Adjusted R ² F-statistic	5.4% 24.52 (p<.001)
Regression Model 2 IV: LMX DV: Safety climate	Adjusted R ² F-statistic	10.8% 51.14 (p<.001)
Regression Model 3 IV: LMX DV: Autonomy	Adjusted R ² F-statistic	5.9% 26.98 (p<.001)

Regression Model		Results
Regression Model 4 IV: LMX, Co-worker interaction DV: Work atmosphere	Adjusted R ² F-statistic	28.3% 83.09 (p<.001)
Regression Model 5 IV: LMX DV: Co-worker interaction	Adjusted R ² F-statistic	4.2% 19.04 (p<.001)
Regression Model 6 IV: LMX, Opportunity to learn, Safety climate, Autonomy, Work atmosphere, Co-worker interaction DV: Job satisfaction	Adjusted R ² F-statistic	29.0% 29.29 (p<.001)
Regression Model 7 IV: LMX, Job satisfaction DV: Organisational commitment	Adjusted R ² F-statistic	49.2% 201.89 (p<.001)

Abbreviations used in Table 6-27:

IV=Independent Variable

DV=Dependent Variable

Overall, all regression models achieved statistically significant results, with p-values less than .001. The adjusted R squares of the 7 regression models range from 4.2% to 49.2%, with model 7 demonstrating the largest adjusted R square 49.2%. This result indicates that 49.2% of the variance in organisational commitment is explained by LMX and job satisfaction.

In summary, this section presented the results of hypothesis and model testing via path analysis using regressions. The section firstly presented the results of hypothesis testing. This was followed by the results of model testing. The next section now

turns to the summary of this chapter.

6.6 Chapter Summary

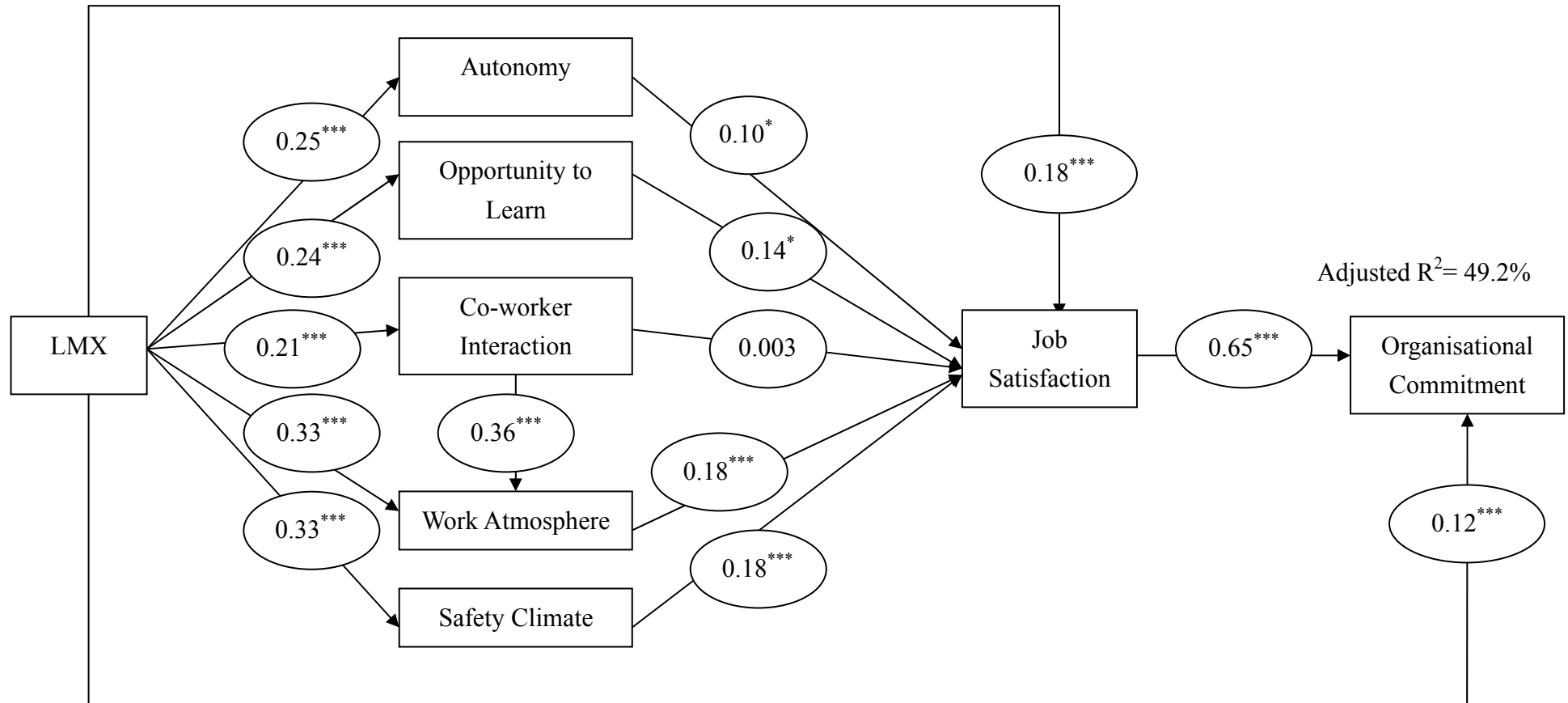
This chapter presented the results of quantitative survey. The chapter started with the results of sample statistics and descriptive information. Sample statistics showed that 416 useable questionnaires were returned from 600 mailouts, yielding a response rate of 69.3%. The descriptive information revealed that 99.3% of the respondents were female; the majority of the respondents (44.7%) were between 26 to 30 years old; most of the respondents (50.5%) held a bachelor's degree; the majority (74.3%) has been in nursing practice for 1-10 years; most of them (45.4%) were working in local hospitals; and the majority (31%) was working in hospitals located north of Taiwan.

Missing data were less than 1% and were substituted by mean score. Bartlett's test of sphericity and KMO measure of sampling adequacy showed adequate results for the items measuring their designated constructs. Cronbach's alpha reliability test was conducted for each construct. The results of reliability tests were satisfactory, with all Cronbach's alpha coefficients greater than the cut-off .70. The results of convergent validity tests were also satisfactory, with the items loaded on a single factor in exploratory factor analysis and also in the multitrait-multimethod matrix. The two tests used to examine discriminant validity of all constructs were satisfactory, confirming the existence of discriminant validity.

Path analysis using regressions was performed for hypothesis testing. The results of hypothesis testing were demonstrated in terms of standardised coefficients, t-statistics, and significant level (p-value) for the relationships between the constructs. In total, 13 hypotheses achieved statistically significant results, and their p-values associated with the standardised coefficients were less than .05. However, one hypothesis (H13) was not supported. The strongest path was job satisfaction being a positive determinant of organisational commitment. Figure 6-1 on the following page presents the conceptual model with standardised coefficients and significant level on each path.

Path analysis using regressions was also used to test the conceptual model. The results of model testing were demonstrated in terms of adjusted R squares, F-statistics, and significant level (p-value) for each regression model. All regression models achieved statistically significant results, with p-values less than .001. The largest adjusted R square was 49.2%, indicating 49.2% of the variance in organisational commitment was explained by LMX and job satisfaction. The next chapter now turns to discussion and conclusion.

Figure 6-1 Conceptual Model with Standardised Coefficients



***. Standardised coefficient is significant at .001 level.

*. Standardised coefficient is significant at .05 level.

Chapter 7 Discussion and Conclusion

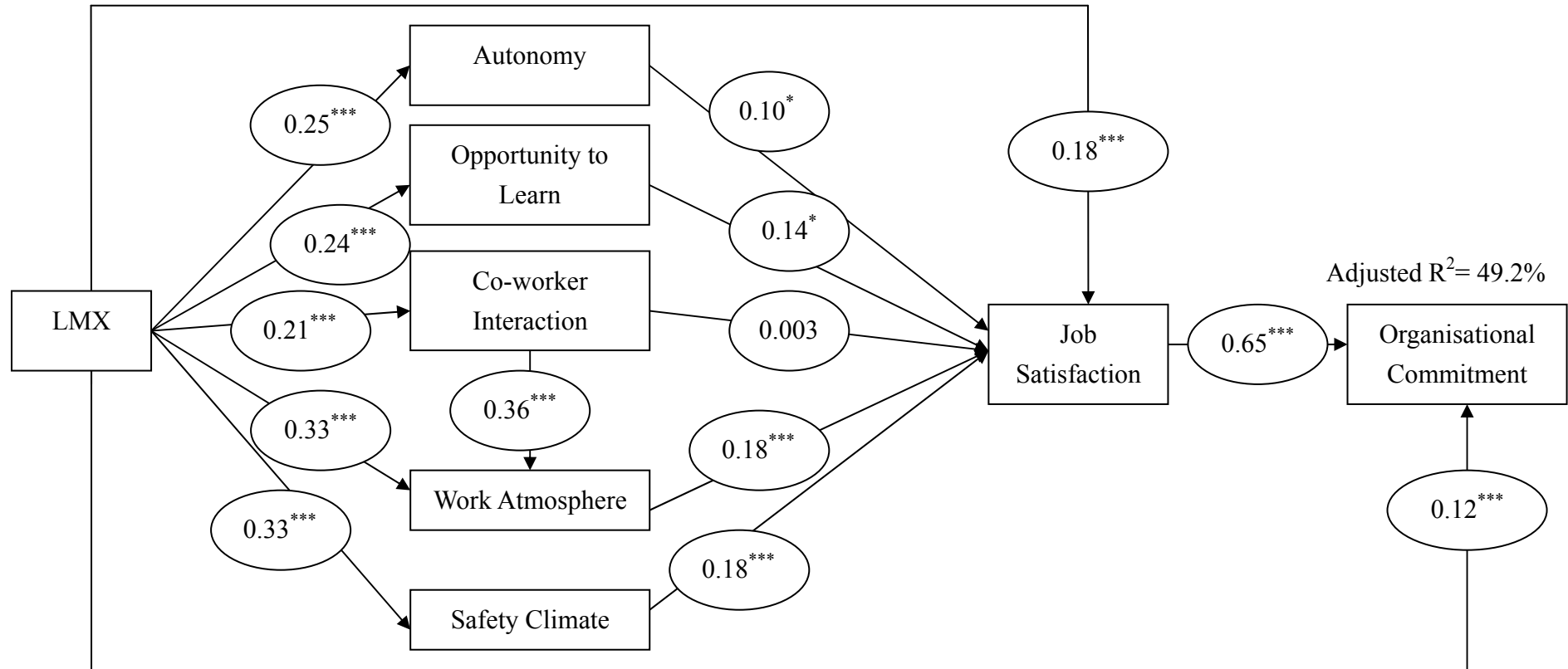
7.1 Introduction

This chapter represents the closing element of this thesis. The chapter begins with a summary of findings on key concepts. This is followed by the implications of key concepts to nursing in Taiwan. Then the chapter discusses the contributions this thesis has made to theory, methodology, and practice. Next, the chapter presents the limitations of this thesis. This is followed by recommendations for future research. The chapter then ends with concluding comments.

7.2 Summary of Findings on Key Concepts

This thesis has tested a model of Taiwanese nurses' job satisfaction, and investigated the value of leader-member exchange (LMX) to nursing in Taiwan. The conceptual model suggests that LMX not only has a direct influence on Taiwanese nurses' job satisfaction, but also has indirect influences on their job satisfaction by impacting upon autonomy, co-worker interaction, opportunity to learn, work atmosphere, and safety climate. In addition, the model suggests that both LMX and job satisfaction have a direct influence on the level of commitment Taiwanese nurses hold toward their hospitals. The overall model (next page) is found to be statistically valid and reliable.

Figure 7-1 Conceptual Model with Standardised Coefficients



***. Standardised coefficient is significant at .001 level.

*. Standardised coefficient is significant at .05 level.

Results of path analysis using regressions demonstrate that the largest standardised coefficient is 0.65, suggesting that job satisfaction is an important determinant of organisational commitment, for one standardised point increase in job satisfaction can lead to a 0.65 standardised point increase in organisational commitment. The results also show that the largest adjusted R square is 49.2%, indicating that 49.2% of the variance in organisational commitment is explained by LMX and job satisfaction.

This thesis highlights the complexity of Taiwanese nurses' job satisfaction because there are six factors (LMX, autonomy, co-worker interaction, work atmosphere, opportunity to learn, and safety climate) rather than one single factor that affect Taiwanese nurses' job satisfaction. In particular, LMX stands out amongst the factors because it not only influences Taiwanese nurses' job satisfaction and organisational commitment directly, but also affects factors that concern Taiwanese nurses' job satisfaction. This finding corresponds to the extant literature that suggests interpersonal relations are highly valued by Taiwanese people and particularly Taiwanese nurses (Tzeng, 2002a, 2002b; Wang et al., 2003; Wang et al., 2006; Yeh et al., 2004; Yin & Yang, 2002). In light of the limited job satisfaction amongst Taiwanese nurses (Smith & Shiao, 2001), this thesis may contribute to the improvement of Taiwanese nurses' job satisfaction by confirming the significance of the six factors that affect their job satisfaction. Additionally, irrespective the fact that

there is an oversupply of nurses in Taiwan (Lin, 2006; Smith & Shiao, 2001), hospitals in Taiwan are suffering from high turnover of their nursing employees (Lai et al., 2008). By confirming the value of LMX and job satisfaction to Taiwanese nurses' organisational commitment, this thesis may contribute to nurse retention in Taiwan and in turn eases the imbalance between nurse demand and supply. Overall, this thesis may draw Taiwanese health service administrators' attention to the selection of first-line managers in their organisations. The next section now turns to discuss the implications of key concepts to nursing in Taiwan.

7.3 Implications of Key Concepts to Nursing in Taiwan

The results of path analysis confirm the importance of LMX to nursing in Taiwan, because LMX has a positive and significant direct effect on autonomy, co-worker interaction, opportunity to learn, work atmosphere, safety climate, job satisfaction, and organisational commitment of Taiwanese nurses. When comparing the coefficients of LMX on these variables, it is found that LMX has a greater direct impact on work atmosphere ($\beta=0.33$) and safety climate ($\beta=0.33$) than on the rest five variables ($\beta=0.25$ for autonomy, $\beta=0.21$ for co-worker interaction, $\beta=0.24$ for opportunity to learn, $\beta=0.18$ for job satisfaction, and $\beta=0.12$ for organisational commitment). Consequently, one standardised point increase in LMX can lead to a 0.33 standardised point increase in both work atmosphere and safety climate.

Additionally, the adjusted R square is 10.8% when safety climate is regressed on LMX, indicating that 10.8% variance in employees' perceptions of safety is explained by the quality of supervisor-subordinate relationship. Likewise, the adjusted R square is 28.3% when work atmosphere is regressed on LMX, suggesting that 28.3% variance in work atmosphere is explained by the quality of supervisor-subordinate relationship. These results suggest that the supervisor-subordinate relationship plays a more significant role in shaping the spirit of a work unit, as well as in influencing employees' perceptions of safety, as compared with its impact upon autonomy, co-worker interaction, opportunity to learn, job satisfaction, and organisational commitment.

In relation to employees' attitudes toward their job and their level of commitment to the organisation, LMX has a positive and significant direct effect on both the job satisfaction and organisational commitment of Taiwanese nurses. When comparing the coefficients of LMX on job satisfaction and organisational commitment, the results reveal that LMX has a greater direct impact on job satisfaction ($\beta=0.18$) than on organisational commitment ($\beta=0.12$). Additionally, job satisfaction has a significant direct impact on organisational commitment ($\beta=0.65$), indicating an indirect effect occurs because LMX influences job satisfaction and in turn influences organisational commitment. Thus, the total impact of LMX on organisational

commitment needs to combine both direct and indirect effects, and path analysis results show that 49.2% of the variance in organisational commitment is explained by LMX and job satisfaction. These results denote the necessity of a high-quality supervisor-subordinate relationship and a high level of job satisfaction in order to achieve a high level of organisational commitment for Taiwanese nurses. In addition, important in determining levels of satisfaction toward the job are the support and guidance that a Taiwanese nurse receives from the relationship formed with the immediate supervisor. As a result, quality supervisor-subordinate relationships are salient with respect to employees' attitudes toward the job and also their identification with the organisation.

As mentioned earlier, LMX has a positive and significant direct effect on autonomy ($\beta=0.25$) and job satisfaction ($\beta=0.18$). Likewise, autonomy has a positive and significant direct effect on Taiwanese nurses' job satisfaction ($\beta=0.10$), which in turn indicates an indirect effect because LMX influences autonomy which then influences job satisfaction. Thus, the total impact of LMX on job satisfaction needs to combine both direct and indirect effects. This result indicates a key finding that a more complete understanding of attitudes toward the job requires recognition of both task and interpersonal domains. Focusing only on the degree of autonomy provides an incomplete picture of attitudes, just as focusing on interpersonal relationships to the

exclusion of autonomy misses vital pieces of work attitudes.

In addition to a direct effect on autonomy, LMX also has a positive and significant direct effect on opportunity to learn ($\beta=0.24$). Additionally, opportunity to learn demonstrates a positive and significant direct effect on Taiwanese nurses' job satisfaction ($\beta=0.14$). Thus, an indirect effect occurs because LMX influences opportunity to learn and in turn influences job satisfaction. This indirect effect, together with the direct effect LMX has on job satisfaction, suggests that the total impact of LMX on job satisfaction needs to be viewed in totality encompassing both direct and indirect effects. These results denote that interpersonal relations and personal growth are two prominent factors in achieving a high level of satisfaction toward the job. In addition, interpersonal relations are salient with respect to self development, because LMX explains 5.4% of the variance in opportunity to learn. The findings suggest that quality supervisor-subordinate relationships are important in determining employees' levels of satisfaction toward the job and their opportunities to attend training for personal and/or professional development.

As noted earlier, LMX has relatively great direct effects on work atmosphere ($\beta=0.33$) and safety climate ($\beta=0.33$). In addition, both work atmosphere and safety climate demonstrate a positive and significant direct effect on Taiwanese nurses' job satisfaction ($\beta=0.18$ for both factors). Therefore, an indirect effect occurs because

LMX influences work atmosphere/safety climate and in turn influences job satisfaction. This indirect effect, in conjunction with the direct effect LMX has on job satisfaction, indicates that the total impact of LMX on job satisfaction needs to be viewed in totality encompassing both direct and indirect effects. These results suggest that LMX, work atmosphere, and safety climate are three key factors in determining a high level of job satisfaction. Additionally, interpersonal relationships are salient with respect to work atmosphere and safety climate, because LMX explains 28.3% and 10.8% respectively, of the variance in work atmosphere and safety climate. The findings suggest that quality supervisor-subordinate relationships are important in determining levels of satisfaction toward the job, in shaping the spirit of the work unit, and in influencing employees' perceptions of safety. Overall, the findings of this thesis suggest that LMX, autonomy, work atmosphere, opportunity to learn, and safety climate are significant predictors of job satisfaction, and they account for 29.0% of the variance in Taiwanese nurses' job satisfaction.

Lastly, as noted earlier, results of this thesis demonstrate that LMX has a positive and significant direct effect on co-worker interaction ($\beta=0.21$). Additionally, both LMX and co-worker interaction show a direct association with work atmosphere ($\beta=0.33$, and $\beta=0.36$ respectively). Accordingly, an indirect effect occurs because LMX influences co-worker interaction and then influences work atmosphere. This indirect

effect, along with the direct effect LMX has on work atmosphere, suggests that the total effect of LMX on work atmosphere needs to be viewed in conjunction with both direct and indirect effects. In addition, LMX and co-worker interaction account for 28.3% of the variance in work atmosphere. The findings denote that relationships formed with the immediate supervisor and colleagues are prominent factors in determining the spirit of the work unit.

In summary, this section discussed the implications of key concepts to nursing in Taiwan. The section began with the results of path analysis confirming the significance of LMX with respect to autonomy, co-worker interaction, opportunity to learn, work atmosphere, and safety climate, demonstrating LMX has greater impacts upon work atmosphere and safety climate. This was followed by discussing the implications of LMX in relation to job satisfaction and organisational commitment, which showed quality supervisor-subordinate relationships are prominent to employees' attitudes toward the job and their level of commitment to the organisation. One of the more important implications follows from the direct relationships between LMX and the dependent variables (job satisfaction and organisational commitment). That is, LMX not only is directly related to job satisfaction and organisational commitment, but also is indirectly related to these two variables. These results indicate that a more complete understanding of attitudes toward the job requires

recognition of task, wellbeing, personal-growth, and interpersonal domains. Focusing only on one of the aspects provides an incomplete picture of attitudes, just as focusing on interpersonal relationships to the exclusion of the rest is inadequate. The findings also suggest that quality supervisor-subordinate relationships and employees' attitudes toward the job are salient in determining the level of employees' commitment to the organisation. The next section now turns to discuss the theoretical contributions this thesis has made.

7.4 Contributions to Theory

Three theoretical contributions may be derived from this thesis. The first is contribution to the Meaning of Working (MOW) theory; the second is in relation to the leader-member exchange (LMX) theory, while the third concerns accumulation of the knowledge of job satisfaction. Each is discussed in the following subsection.

7.4.1 Contributions to Meaning of Working Theory

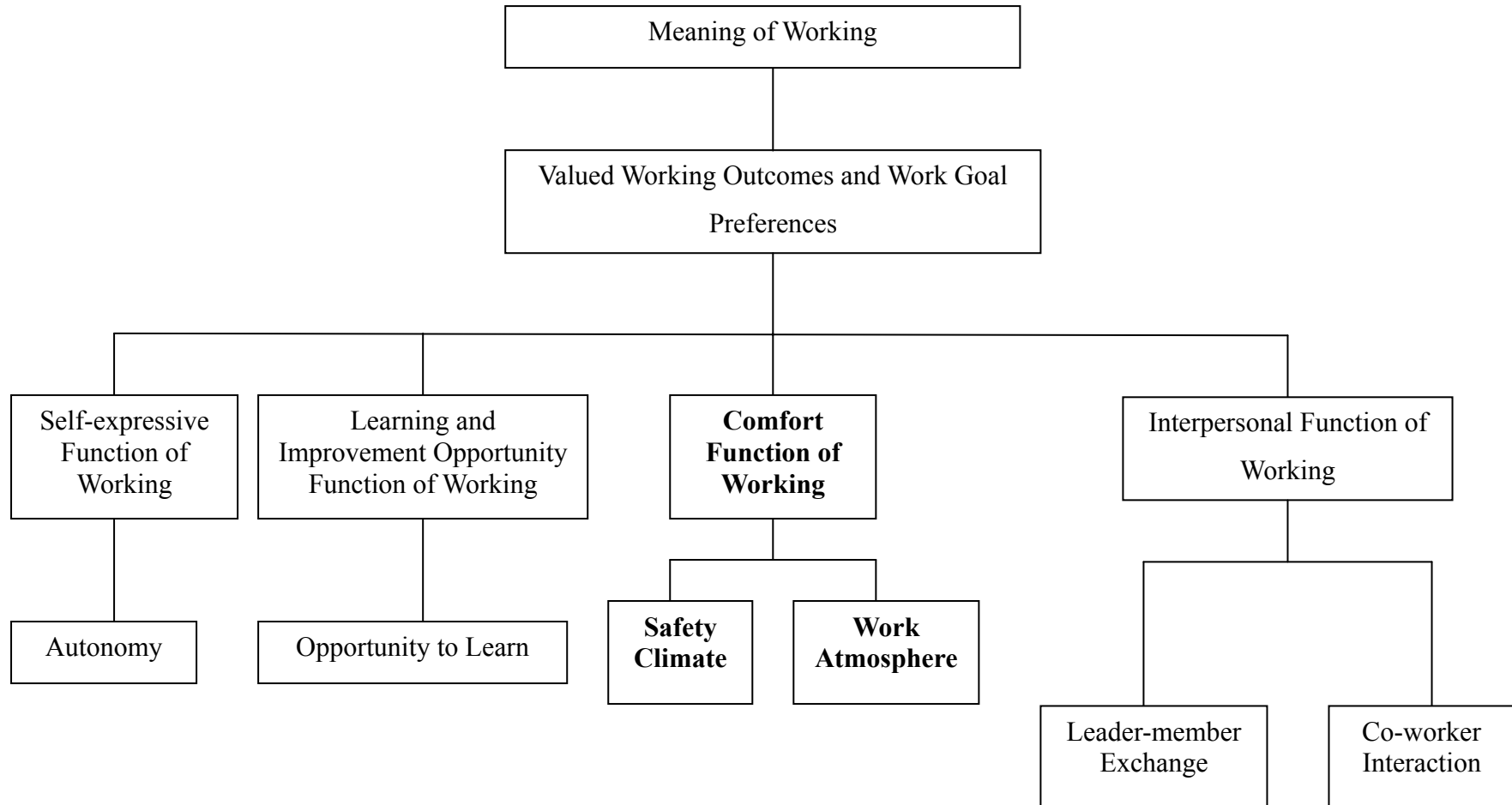
As stated in Chapter 2, the MOW theory denotes the impact that LMX, autonomy, co-worker interaction, and opportunity to learn may have on Taiwanese nurses' job satisfaction. Results of this thesis indeed demonstrate the significant impact that these four variables have on Taiwanese nurses' job satisfaction. Yet, two additional variables, work atmosphere and safety climate, emerged from the in-depth interviews, and were found to influence Taiwanese nurses' job satisfaction as well. These two

variables may fit in the 'comfort function of working' under the 'valued working outcomes and work goal preferences' domain, as the 'comfort function of working' centres on aspects of work context, such as good physical working conditions, convenient working hours, or good job security (MOW International Research Team, 1987).

Research has shown that nursing workers face numerous hazards, such as excessive manual lifting, psychological stress, chemical hazards, infectious agents, violent patients, and the handling and disposal of sharps (Jacobson, 2007; Myers, Kriebel, Karasek, Punnett, & Wegman, 2007; Waters, Collins, Galinsky, & Caruso, 2006). As a result, the 'comfort function of working' to nurses may reflect the necessity of a secure physical and emotional workplace as a means of enhancing a sense of safety at work. In addition, since nursing workers face a great deal of stress at work, the 'comfort function of working' to nurses may also reflect the necessity of a pleasant work atmosphere as a means of reducing their work stress. Accordingly, 'safety climate' and 'work atmosphere' may represent such factors underlying the 'comfort function of working', and the findings of this thesis have confirmed the importance of these two factors in determining Taiwanese nurses' job satisfaction. As a result, this thesis contributes to the MOW theory by uncovering the underlying factors under the 'comfort function of working' of the 'valued working outcomes and work goal

preferences' domain. Figure 7-2 (next page) highlights the contributing factors in bold.

Figure 7-2 Extension to the Meaning of Working Theory



7.4.2 Contributions to Leader-Member Exchange Theory

The second contribution this thesis has made is in relation to the leader-member exchange (LMX) theory. As discussed in Chapter 3, LMX suggests the differentiated relationship developed between a supervisor and a member, and this unique relationship influences various organisational outcomes, such as job satisfaction (Borchgrevink & Boster, 1994; Epitropaki & Martin, 1999; Green et al., 1996; Janssen & Van Yperen, 2004; Liden & Graen, 1980; McClane et al., 1991; Sagas & Cunningham, 2004; Scandura & Graen, 1984; Varma & Stroh, 2001), and organisational commitment (Basu & Green, 1997; Borchgrevink & Boster, 1994; Epitropaki & Martin, 1999; McClane et al., 1991). Results of this thesis confirm the direct and positive relationship between LMX and job satisfaction, thus reinforcing the extant literature on the relation between LMX and job satisfaction. Results of this thesis also confirm the direct and positive relationship between LMX and organisational commitment, in turn strengthening the extant literature on the relation between LMX and organisational commitment.

In addition to reinforcing the extant LMX literature, findings from this thesis contribute to the extant LMX literature by building on the relationship between LMX and autonomy. As stated in Chapter 3, few empirical investigations on the relationship between LMX and autonomy have been conducted, and the existing

literature has tended to use concepts similar to autonomy but actually measure leader delegation (Bauer & Green, 1996; Schriesheim et al., 1992), self-determination (Liden et al., 2000), and negotiating latitude (Vecchio & Gobdel, 1984). Results of this thesis demonstrate a positive and significant direct relationship between LMX and autonomy, thus strengthening the existing literature on the relationship between LMX and autonomy.

Other than reinforcing and extending the extant LMX literature, this thesis makes innovative contributions to the theory of LMX, because the results of this thesis demonstrate a positive and significant direct effect of LMX on co-worker interaction, opportunity to learn, work atmosphere, and safety climate. As noted in Chapter 3, Sherony and Green (2002) suggested a possible relationship between LMX and co-worker interaction, but they did not empirically examine this relationship. This thesis first developed the construct of co-worker interaction, then followed by empirically testing the relationship between LMX and co-worker interaction. The findings reveal that LMX has a positive and significant direct effect on co-worker interaction. This thesis not only extends the work of Sherony and Green but also adds new knowledge to the existing LMX literature by confirming the relation between LMX and co-worker interaction.

Turning to the relationship between LMX and opportunity to learn, the extant

literature suggests that management holds the power in allowing and subsidising employee training (Bartlett, 2001; Lin & Liang, 2007), yet the relationship between LMX and opportunity to learn remains unclear. This thesis not only developed the construct of opportunity to learn but also empirically tested the relationship between LMX and opportunity to learn. In addition, results of this thesis reveal that LMX has a positive and significant direct effect on opportunity to learn. Hence, this thesis adds new knowledge to the existing LMX literature by confirming the relation between LMX and opportunity to learn.

Referring to the relationship between LMX and work atmosphere, Dunegan, Tierney, and Duchon (1992) suggested a relationship between LMX and work atmosphere, yet they did not empirically investigate this relationship. This thesis developed the construct of work atmosphere based on the qualitative in-depth interviews, and also empirically tested the relationship between LMX and work atmosphere. The findings demonstrate that LMX has a positive and significant direct effect on work atmosphere. Hence, this thesis adds new knowledge to the existing LMX literature by confirming the relation between LMX and work atmosphere.

Turning to the relationship between LMX and safety climate, Wallace, Popp, and Mondore (2006) found that management-employee relations were positively related to safety climate, yet they did not measure the management-employee relations with

LMX, thus caution needs to be taken when generalising their result. This thesis builds on the work of Wallace et al. by exploring the relationship between LMX and safety climate. Results of this thesis demonstrate that LMX has a positive and significant direct effect on safety climate. Thus, this thesis adds new knowledge to the existing LMX literature by confirming the relation between LMX and safety climate.

7.4.3 Contributions to Job Satisfaction

In addition to the aforementioned contributions, the third contribution of this thesis is in relation to the theory of job satisfaction. First of all, findings from this thesis demonstrate a positive and significant direct relationship between autonomy and job satisfaction, thus reinforcing the positive association between autonomy and job satisfaction in the extant literature (Brady et al., 1990; Hackman & Oldham, 1975, 1976). Secondly, results of this thesis demonstrate a positive and significant direct relationship between work atmosphere and job satisfaction. The extant literature suggests an association between work atmosphere and job satisfaction (Lok & Crawford, 1999, 2001; Sikorska-Simmons, 2006), yet no empirical research has been found regarding the relationship. This thesis not only developed and validated the construct of work atmosphere, but also empirically tested the relationship between work atmosphere and job satisfaction, thus adding new knowledge to the existing job satisfaction literature.

Thirdly, results of this thesis demonstrate a positive and significant direct effect of opportunity to learn on job satisfaction. The extant literature denotes an association between opportunity to learn and job satisfaction (Armstrong-Stassen & Cameron, 2005; Noe & Wilk, 1993; Van Gelderen et al., 2005), yet no empirical research has been found with respect to this relation. This thesis not only developed and validated the construct of opportunity to learn, but also revealed the positive and significant relationship between opportunity to learn and job satisfaction. Hence, this thesis contributes to the extant job satisfaction literature by confirming the relationship between opportunity to learn and job satisfaction.

The next relationship examined is between safety climate and job satisfaction. The results of this thesis demonstrate a positive and significant direct effect of safety climate on job satisfaction. Hofmann and Mark (2006) found that safety climate was positively related to nurse job satisfaction, however their definition of safety climate was “shared perceptions regarding the events, practices, and procedures, as well as the kind of behaviours that get rewarded, supported, and expected in a particular organisational setting” (p.848), which is different from that of this thesis. Because of the different definition Hofmann and Mark used, their operationalisation of safety climate was thus different from that in this thesis. In addition, studies that have investigated the relationship between safety climate and job satisfaction are quite

limited. This thesis builds on the work of Hofmann and Mark by confirming the relationship between safety climate and job satisfaction.

In addition to reinforcing and extending the extant job satisfaction literature, this thesis reveals a finding that challenges the extant literature. Studies have found that relationships with colleagues have a direct and positive impact on job satisfaction (Raabe & Beehr, 2003; Seers, 1989). However, the findings from this thesis demonstrate that co-worker interaction does not have a direct and significant impact on job satisfaction. On the other hand, co-worker interaction has an indirect effect on job satisfaction through work atmosphere. This finding suggests that the relationship between co-worker interaction and job satisfaction may not be simple and direct. In addition, this non-significant result is based only on the current investigation, thus caution is needed in generalising the result. A fuller understanding of the relationship between co-worker interaction and job satisfaction would require a separate investigation.

Lastly, with respect to the relationship between job satisfaction and organisational commitment, the extant literature denotes mixed findings on this relationship. Some studies suggest that job satisfaction is a correlate of organisational commitment (Blegen, 1993; Lok & Crawford, 1999; Mathieu & Zajac, 1990), while others indicate that job satisfaction is a positive determinant of organisational commitment (Kim et

al., 1996; Lan et al., 2006; Lok & Crawford, 2001). Corresponding to the later finding, results of this thesis demonstrate a positive and significant direct effect of job satisfaction on organisational commitment, thus reinforcing the causal relationship between job satisfaction and organisational commitment in the extant literature.

In summary, this section discussed the theoretical contributions this thesis has made. The first contribution directs to the MOW theory. Two variables, work atmosphere and safety climate, emerged from the in-depth interviews and may fit in the ‘comfort function of working’ under the ‘valued working outcomes and work goal preferences’ domain. The second contribution directs to the LMX theory. Findings from this thesis not only reinforce but also build on the extant LMX literature. Results of this thesis also contribute to the LMX literature by adding new knowledge to it. Lastly, the third contribution directs to the theory of job satisfaction. Findings from this thesis not only reinforce but also add new knowledge to the extant job satisfaction literature. The next section now turns to the contributions this thesis has made to methodology.

7.5 Contributions to Methodology

In addition to making theoretical contributions, this thesis also makes methodological contributions. Firstly, this thesis combines both qualitative and quantitative methods within the positivist paradigm. Specifically, this thesis employs one of the research

designs in Morgan's (1998) Priority-Sequence Model, which utilises a qualitative study to complement the principal quantitative research. The research design initiates the research with qualitative methods to improve the effectiveness of the quantitative research that follows. The advantage of this research design is to use the strengths of qualitative methods to help strengthen the conceptual model proposed in Chapter 3 and also to develop the content of the questionnaire. Because of the qualitative study in the first phase of data collection, this thesis uncovered two additional variables (work atmosphere and safety climate) that were important to test in relation to Taiwanese nurses. The qualitative study also assists the development of survey instruments. Combining both qualitative and quantitative methods within the positivist paradigm in this thesis is an advancement of the research design in comparison to past research on LMX, which used only quantitative methods (Basu & Green, 1997; Ferris, 1985; Graen, Novak et al., 1982; Green et al., 1996).

Secondly, this thesis makes a pioneering effort in developing two scales, co-worker interaction and work atmosphere, that measured constructs influencing Taiwanese nurses' job satisfaction. The concepts of co-worker interaction and work atmosphere are relatively new in the extant literature, and so far there have not been any validated scales for these two constructs. The significance of co-worker interaction is that it denotes the professional and personal exchanges amongst certain colleagues, rather

than just indicating the reciprocity between an employee and the peer group as a whole (e.g. team-member exchange or work group exchange) (Dunegan et al., 1992; Seers, 1989). Co-worker interaction also differs from co-worker exchange and co-worker-member exchange, which involves exchanges between an individual and one particular co-worker who reports to the same supervisor (Raabe & Beehr, 2003; Sherony & Green, 2002). On the other hand, the significance of work atmosphere is that it indicates the spirit and partnership of the work unit, which is different from organisational culture and organisational subculture that are shaped by an organisation (Lok & Crawford, 1999, 2001; Lok et al., 2005). By creating and validating these two scales, this thesis contributes to the methodology of the extant literature.

Thirdly, this thesis contributed to methods relating to discriminant validity test. All eight constructs in this thesis passed through strict statistical analysis to test their discriminant validity. Specifically, this thesis employed two tests to examine the discriminant validity of the constructs. One of the discriminant validity tests is a comparison between the Average Variance Extracted (AVE) and the squared correlation for paired constructs, while the other is using exploratory factor analysis to explore the number of components extracted for paired constructs. These two tests were performed with SPSS via a correlation matrix and exploratory factor analysis, which could assist researchers who do not have access to confirmatory factor analysis

and structural equation modelling software.

Lastly, this thesis employed path analysis to test hypotheses, thus enabling the examination of both direct and indirect effects of variables. This highlights the advantage of using path analysis because it is not a substitute of regression analysis; rather, it is a complementary method to regression analysis (Ahn, 2002). Using path analysis in this thesis is an advancement of the method in comparison to past research on LMX, which has only used regression analysis (Bauer & Green, 1996; Epitropaki & Martin, 1999; Janssen & Van Yperen, 2004; McClane et al., 1991).

In summary, this section discussed the methodological contributions this thesis has made. The first contribution is the use of mixed methods within the positivist paradigm, which serves as an advancement of the research design in comparison to the extant LMX literature. The second contribution is the development of two scales, co-worker interaction and work atmosphere, that measured constructs influencing Taiwanese nurses' job satisfaction. The third contribution is the use of SPSS to perform two discriminant validity tests of all constructs in this thesis, which could assist researchers who do not have access to confirmatory factor analysis and structural equation modelling software. The last contribution is the use of path analysis for hypothesis testing in this thesis, which enables the examination of both direct and indirect effects of variables. The next section now turns to the

contributions this thesis has made to practice.

7.6 Contributions to Practice

Results of this thesis have significant implications for nursing management in Taiwan.

Firstly, the apparent success of the present dyadic model suggests that supervisors may be more effective if they focus on relationships at the dyadic level rather than at the group level. This is a different way of thinking about leadership, one which focuses on the supervisor in a one-to-one relationship with individual nurses rather than a one-to-many relationship with nurses in the whole unit. The dyadic relationship may be applied in terms of task allocation. Because each nurse has her/his own strengths, the head nurse may assign work tasks that will bring out the talent of the individual, which in turn may lead to a sense of achievement for the individual. On the other hand, the dyadic model may be applied to staff development. The head nurse may assist the individual to overcome her/his weaknesses by providing more training on the individual.

Secondly, autonomy may be a central concept in explaining positive individual outcomes. Nurses who are allowed to decide what caring is to be rendered to their patients may perceive themselves possessing autonomy, which in turn may lead to higher levels of job satisfaction. In addition, autonomy appears to complement relationships with the immediate supervisor in the determination of job satisfaction.

That is, the head nurse may allow her/his nursing staff more freedom in terms of the method used to accomplish their tasks based on her/his understanding of the staff's ability, which in turn may make the job more interesting to the staff. Because employees benefit from immediate supervisors as well as from autonomy, organisations are urged to take caution before reducing or eliminating the managerial ranks (Liden et al., 2000).

Thirdly, opportunity to learn may be a significant factor in determining positive individual outcomes. Taiwanese nurses generally hold positive attitudes toward attending educational programs offered by hospitals, nursing institutions, and other related organisations to maintain their professional competence (Pan, 1993).

Accordingly, Taiwanese nurses who work in hospitals that support their attendance of educational programs may have higher levels of job satisfaction. In addition, opportunity to learn appears to complement relationships with the immediate supervisor in the determination of job satisfaction. That is, when the head nurse realises a nurse's need to attend training, she/he may facilitate the nurse's attendance by changing the nurse's shift. This then may make the nurse happy with the job because her/his needs for professional development are fulfilled. Because nurses benefit from learning (Curtin, 1995; Lin & Liang, 2007), hospital administrators are encouraged to develop policies, such as financial support, paid leave, to facilitate

nurses' professional development.

Fourthly, work atmosphere may be another significant factor in explaining positive individual outcomes. Research has shown that improvement in work environment can lead to increased satisfaction among nurses (Lin & Liang, 2007), which suggests that nurses who work in a unit of pleasant atmosphere may have higher levels of job satisfaction. In addition, relationships with the supervisor and co-workers appear to complement work atmosphere in the determination of job satisfaction. That is, when the head nurse is caring and considerate to her/his staff, she/he then may cultivate a family like work atmosphere that makes the staff feel they are part of it. Likewise, when colleagues share their work load, they then sense a supportive work atmosphere in the ward. The family like work atmosphere and/or the supportive work atmosphere may then make the nurses happy about their job. The implication of the findings is that organisations should consider adopting a holistic perspective, where the active involvement of the managerial level and colleagues becomes an embedded prerequisite in creating positive changes in the working conditions.

Lastly, safety climate may be a significant factor in determining positive individual outcomes. Research has shown that safety climate predicts nurse satisfaction (Hofmann & Mark, 2006); thus, nurses who share the consensus that they are working in a safe environment may have higher levels of job satisfaction. In addition,

relationships with the supervisor appear to complement safety climate in the determination of job satisfaction. That is, the head nurse can place much emphasis on safety practices on the job, which may leave her/his staff an impression that the hospital cares about their work safety. The nursing staff then may feel happy because they are being valued by the hospital. The findings of this thesis suggest that the immediate supervisor plays a critical role in the transmission of values and climate on behalf of the organisation (Purcell & Hutchinson, 2007).

In summary, this section discussed the contributions this thesis has made to practice.

The first contribution is the significance of LMX, which suggests supervisors may be more effective if they focus on dyadic relationships instead of group relationships.

The second contribution concerns the significance of autonomy and its complementary role with supervisor-subordinate relationships toward job satisfaction, which suggests organisations take caution before reducing or eliminating managerial

ranks. The third contribution relates to the significance of opportunity to learn and its complementary role with supervisor-subordinate relationships toward job satisfaction,

which suggests hospital administrators develop policies, such as financial support and paid leave, to facilitate nurses' professional development. The fourth contribution

involves the significance of work atmosphere and its complementary role with LMX and co-worker interaction to job satisfaction, which suggests the active involvement

of supervisors and colleagues may be required in creating positive changes in the work setting. Finally, the last contribution relates to the significance of safety climate and its complementary role with the supervisor-subordinate relationship toward job satisfaction, which suggests supervisors' leadership styles may play an important role in enhancing workplace safety. The next section now turns to limitations of this thesis.

7.7 Limitations of this Thesis

Although this thesis makes a number of significant contributions, its limitations should also be noted. First, the cross-sectional design of this thesis does not allow the research findings to determine the direction of causality among the variables. However, Spector, Chen and O'Connell (2000) suggested that cross-sectional surveys in general may have been unnecessarily criticised. They further indicated that the limitation of cross-sectional design could be neutralised by evidence that supports a priori theory-based inferences, which is the case of this thesis.

The second limitation of this thesis concerns possible common method variance in the relationships among the self-reported measures of LMX, autonomy, opportunity to learn, co-worker interaction, work atmosphere, safety climate, and the outcome variables of job satisfaction and organisational commitment. However, it is hard to imagine that the respondents in this thesis would have artifactually caused the differing patterns of relationships between the variables. In addition, Spector et al.

(2000) suggested that common method variance was less of a problem than previously predicted. As a result, common method variance may not be a major concern for this thesis.

Thirdly, even though an adequate sample size was obtained for testing the hypothesised model in this thesis, the sample was drawn by convenience sampling. As a result, the representativeness of the sample may be questioned. However, while recruiting the respondents for the mail survey, the researcher kept the selection criteria in mind and paid attention to the characteristics of the person being contacted. This resulted in the collection of survey data from hospital nurses across Taiwan, thus may slightly enhance the representativeness of the sample.

Finally, the non-normality of data in this thesis also presents some limitation. The Kolmogorove-Smirnov test discussed in Chapter 4 reveals that the constructs in this thesis are not normally distributed. However, visual inspection of the histograms and residual plots indicates that data of this thesis do not appear to depart substantially from a normal distribution. The robustness of regression analysis to modest departures from normality, along with a relatively large sample size, may suggest that non-normality may not be a major concern in this thesis (Berenson, Levine, & Krehbiel, 2004).

In summary, this section discussed the limitations of this thesis. The first limitation is the cross-sectional design of this thesis, which hinders the determination of causality among the variables. The second limitation concerns possible common method variance in the relationships among the self-reported measures. The third limitation concerns the representativeness of the sample in this thesis. The last limitation concerns the non-normality of data in this thesis. The next section now turns to recommendations for future research.

7.8 Future Research

To extend the findings of this thesis, a number of recommendations are provided for future investigations. First, longitudinal research is needed to assess issues of causality. Research using longitudinal data would provide further confirmation regarding the effectiveness of LMX to nursing in Taiwan. Hospital administrators may survey nursing employees two or more times over a two year period to determine whether their job satisfaction is sustained. Alternatively, experimental studies could be conducted to provide evidence of causation.

Second, research that replicates this thesis in the context of another country is needed, as generalisability of the results cannot be made until this is achieved. While the model and constructs of this thesis are designed to be generalisable, their generalisability to other countries has yet to be proven. The significance of LMX may

be attributed to the unique cultural context of Taiwan which denotes the emphasis on interpersonal relations (Chu et al., 2003; Hofstede & Hofstede, 2005; Wang et al., 2006). Future investigation is called for to examine the effectiveness of LMX to nursing in a context other than Taiwan. A comparison study can also be conducted to validate the model and constructs.

Third, it would be interesting to examine in further detail regarding the impact of interpersonal relationships on individual outcomes. Qualitative studies, such as case study, may be conducted as a starting point for researchers to gain further insights into this particular area. In addition, future research may include outcome variables not included in this thesis, such as turnover, to provide a fuller picture on the implication of interpersonal relationships.

Last, other applications of the LMX theory would suggest that much can be done to increase the awareness of supervisors and members alike as to how the supervisor-subordinate relationship is accorded. Training has been proposed (Scandura & Graen, 1984) to increase supervisors and subordinates' awareness of their respective parts in the relationship. It would also be desirable for future studies to explore antecedents that influence the supervisor-subordinate relationship.

In summary, this section discussed recommendations for future research. The first

recommendation suggests the need for longitudinal and experimental studies to provide evidence of causation. The second recommendation indicates the need for replication studies in a context other than Taiwan in order to enhance the generalisability of the model and constructs in this thesis. The third recommendation suggests future enquiries using the qualitative paradigm to gain further insights into the topic. Further exploration on the outcome variables is also recommended for future research. The last recommendation suggests that further investigation on the antecedents of LMX would be desirable. The next section now turns to the overall summary of this thesis.

7.9 Concluding Comments

This chapter represents the closing element of this thesis. The chapter began with summing up the findings of key concepts. This was followed by discussing the implications of key concepts to nursing in Taiwan. Specifically, the results of path analysis confirm the significance of LMX with respect to the variables examined in this thesis. In addition, one of the more important implications follows from the direct relationships between LMX and the dependent variables (job satisfaction and organisational commitment). That is, LMX not only is directly related to job satisfaction and organisational commitment, but also is indirectly related to these two variables. These results indicate that a more complete understanding of attitudes

toward the job requires recognition of task, wellbeing, personal-growth, and interpersonal domains. Focusing only on one of the aspects provides an incomplete picture of attitudes, just as focusing on interpersonal relationships to the exclusion of the rest is inadequate.

The chapter then discussed the theoretical contributions this thesis has made. The first contribution directs to the Meaning of Working (MOW) theory. Two variables, work atmosphere and safety climate, emerged from the in-depth interviews and may fit in the 'comfort function of working' under the 'valued working outcomes and work goal preferences' domain. The second contribution directs to the LMX theory. Findings from this thesis not only reinforce but also build on the extant LMX literature. Results of this thesis also contribute to the LMX literature by adding new knowledge to it. Lastly, the third contribution directs to the knowledge of job satisfaction. Findings from this thesis not only reinforce but also add new knowledge to the extant job satisfaction literature.

Following the theoretical contributions is the methodological contributions this thesis has made. The first contribution is the use of mixed methods within the positivist paradigm, which serves as an advancement of the research design in comparison to the extant LMX literature. The second contribution is the development of two scales, co-worker interaction and work atmosphere, that measured constructs influencing

Taiwanese nurses' job satisfaction. The third contribution is the use of SPSS to perform two discriminant validity tests of all constructs in this thesis, which could assist researchers who do not have access to confirmatory factor analysis and structural equation modelling software. The last contribution is the use of path analysis for hypothesis testing in this thesis, which enables the examination of both direct and indirect effects of variables.

The chapter then discussed the contributions this thesis has made to practice. The first contribution is the significance of LMX, which suggests supervisors may be more effective if they focus on dyadic relationships instead of group relationships. The second contribution is the significance of autonomy and its complement to supervisor-subordinate relationships, which suggests organisations take caution before reducing or eliminating managerial ranks. The third contribution is the significance of opportunity to learn and its complement to relationships with the supervisor, which suggests hospital administrators develop policies, such as financial support and paid leave, to facilitate nurses' professional development. The fourth contribution is the significance of work atmosphere and its complement to relationships with the supervisor and co-workers, that suggests the active involvement of supervisors and colleagues may be required in creating positive changes in the work setting. Finally, the last contribution is the significance of safety climate and its complement to the

supervisor-subordinate relationship, which suggests supervisors' leadership styles may play an important role in enhancing workplace safety.

Following the contributions to practice is the limitations of this thesis. The first limitation is the cross-sectional design of this thesis, which hinders the determination of causality among the variables. The second limitation concerns possible common method variance in the relationships among the self-reported measures. The third limitation concerns the representativeness of the sample in this thesis. The last limitation concerns the non-normality of data in this thesis.

The chapter then turned to recommendations for future research. The first recommendation suggests the need for longitudinal and experimental studies to provide evidence of causation. The second recommendation indicates the need for replication studies in a context other than Taiwan in order to enhance the generalisability of the model and constructs in this thesis. The third recommendation suggests future enquiries using qualitative paradigm to gain further insights into the topic. Further exploration on the outcome variables is also recommended for future research. The last recommendation suggests that further investigation on the antecedents of LMX would be desirable.

In summary, the driving force for conducting this thesis is the desire to apply rigorous

research methodology to investigate the impact of supervisor-subordinate relationships on attitudes toward the job. It is hoped that results of this thesis will stimulate the interests of other academics to expand and strengthen the knowledge of LMX and job satisfaction.

Appendix A: The Interview Guide Used in the In-depth Interviews

I am doing research with nurses about their work, and I'd like any overview comments you have about your work, in general, to start with.

Question	Variable
<ul style="list-style-type: none"> • Why did you choose nursing as a career? (Probe: because it is easy to find a job after graduation; because I didn't have other choices; because the college/university offers scholarship; because of job security; because of the salary/benefits; because of job career; because I always wanted to be a nurse or similar; etc.) 	<p>This question serves as an opening question. It intends to initiate the interview.</p>
<ul style="list-style-type: none"> • Do you think nursing is a profession? (Probe: yes->why? No->why not? If it is not a "profession", what do you think it is?) 	<p>This question intends to understand professionalism from nurses' perspectives. Professionalism is the context of this thesis.</p>

Question	Variable
<ul style="list-style-type: none"> • What does working as a nurse mean to you? (Probe: to earn money, to serve the patients, to apply what I've learned at school, etc.) • If working as a nurse is important to you, why is it important to you? (Probe: to earn money, to serve the patients, to apply what I've learned at school, because I like nursing, etc.) 	<p>This question intends to understand nurses' views on the meaning of working.</p> <p>Meaning of working is the theoretical framework of this thesis. The probes are from the meaning of working variables.</p>
<ul style="list-style-type: none"> • What factors make you satisfied with your job? (Probe: pay, benefits, co-workers, head nurse, work atmosphere, opportunity to learn, work safety, autonomy, etc.) • Does this mean now? Or what factors WOULD make you satisfied with nursing? 	<p>This question intends to find out factors that affect nurses' job satisfaction.</p> <p>Job satisfaction is one of the dependent variables of this thesis.</p>

Question	Variable
<ul style="list-style-type: none"> • What factors affect your level of commitment to a hospital? (Probe 1: pay, benefits, co-workers, head nurse, work atmosphere, opportunity to learn, work safety, autonomy, etc.) (Probe 2: because I am emotionally attached to this hospital<because I feel like part of the family here; because I feel that I belong here; because I am very happy here>; because I can't afford to lose this job; because I feel obligated to stay; etc.) 	<p>This question intends to find out factors that affect nurses' organisational commitment, and types of commitment (affective, continuance, or normative).</p> <p>Organisational commitment is the other dependent variable of this thesis. Probe 2 is from Allen and Meyer's (1990) definition of organisational commitment.</p>
<ul style="list-style-type: none"> • Tell me how your work is arranged? e.g. how much say do you have in how it is arranged? How much responsibility do you have? (Probe: I carry out work tasks myself or under supervision or with colleagues; I follow head nurse's arrangement; I can decide whatever I want to do; I can control the pace of my work; I can have my own thought and action to treat my patients; etc.) 	<p>This question serves as an opening question for the following autonomy, co-worker interaction, and leader-member exchange questions. It intends to understand the level of autonomy a nurse has. It also intends to understand the level of interaction between a nurse and her/his colleague or head nurse.</p> <p>Co-worker interaction, leader-member exchange, autonomy are three of the independent variables of this thesis.</p>

Question	Variable
<ul style="list-style-type: none"> Do you think you have much autonomy in your everyday work activities? (Probe: very little autonomy->I have little say about how to treat a patient; I can't choose which patient to treat or how many patients to treat; I can't choose my shift; I have to finish patient treatment, treatment diary, and care plan within 8 hours; I can't change what I am supposed to finish; etc.) 	<p>This question intends to find out the level of autonomy a nurse has. The probes are based on the autonomy scale of this thesis.</p>
<ul style="list-style-type: none"> Tell me about the interaction with your colleagues. (Probe: we hang out after work, we talk about personal problems, we have lunch together, we discuss patient treatment, we give each other support, we help each other, etc.) 	<p>This question intends to find out types of interaction among co-workers in both personal and work aspects. Co-worker interaction is an independent variable of this thesis. The probes are from the co-worker interaction scale of this thesis.</p>
<ul style="list-style-type: none"> Describe the sorts of interactions with your head nurse. (Probe: do you know how satisfied or dissatisfied she is with what you do? do you discuss personal issues? Does she understand your work problems and needs? Does she recognise your potential? Does she use her power to help you out when you need it? Do you support the decision made by your head nurse? etc.) 	<p>This question intends to find out levels of closeness between a nurse and her/his head nurse. Leader-member exchange is an independent variable of this thesis. The probes are from the leader-member exchange scale of this thesis.</p>

Question	Variable
<ul style="list-style-type: none"> • Could you describe the training courses offered by this hospital? (Probe: are those training courses inside the hospital or outside the hospital? When are those training courses offered? Are those training courses used to update current skills or to learn new skills/knowledge? Does the hospital encourage you to participate in the training courses? Does the hospital encourage you to further your education degree? Does the hospital pay for study leave? etc.) 	<p>This question intends to find out the efforts a hospital puts into training and further educating its nursing employees.</p> <p>Opportunity to learn is an independent variable of this thesis. The probes are from the opportunity to learn scale of this thesis.</p>
<ul style="list-style-type: none"> • Would you choose nursing again if you had a chance to start your career all over again? (Probe: yes->why? No->why not?) 	<p>This question intends to find out the level of satisfaction a nurse has toward her/his occupation.</p> <p>This question is from Q50A, occupational satisfaction, of the Meaning of Working questionnaire (MOW International Research Team, 1987).</p>
<ul style="list-style-type: none"> • Finally, is there anything else you think might be relevant to this research that you would like to add or mention? 	

Appendix B: Characteristics of the 14 Participants in the In-depth Interviews

Participant Number	Sex	Age Group	Title	Years in Nursing
1	Female	25-29	Nurse	5
2	Female	35-39	Professional Nurse	15
3	Female	30-34	Nurse	12
4	Female	25-29	Nurse	9
5	Female	30-34	Nurse	6
6	Female	30-34	Nurse	9
7	Female	25-29	Nurse	8
8	Female	30-34	Professional Nurse	13
9	Female	25-29	Nurse	7
10	Female	35-39	Professional Nurse	18
11	Female	25-29	Nurse	8
12	Female	30-34	Nurse	13
13	Female	30-34	Nurse	14
14	Female	35-39	Professional Nurse	15

Appendix C: Questionnaire Coversheet



The Impact of Work Relationship on Job Satisfaction and Commitment of Taiwanese Nurses

Questionnaire Coversheet

Dear Sir or Madam:

You are invited to complete the attached questionnaire regarding your opinions, attitudes, and behaviours towards your work. This survey is conducted by Griffith University researchers, Miss Jia-Yi Hung and Dr. Yvonne Brunetto, in an attempt to better understand the organisational behaviour of hospital nurses in Taiwan. This is a study for Miss Jia-Yi Hung's Ph.D. thesis. We are attempting to understand the impact of work relationship on the level of job satisfaction and commitment of nurses in Taiwan. The information gained from this study will add new knowledge about nurse practices within a Taiwanese context that may in turn, broaden the scope of contemporary organisational behaviour theory.

The focus of this study is on hospital nurse's perspectives; therefore, all the practicing nurses in hospitals are the target participants. It will take approximately 15 minutes to complete this questionnaire. A pre-paid return envelope is enclosed for you to post the completed questionnaire. No identifiable data or personal details will be collected on this questionnaire, and participation is completely voluntary. Hence, there is no risk to participate in this study. You are free to withdraw from the study at any time. However, by completing and returning this questionnaire, you are indicating your consent to participate in this study. Please detach this sheet and retain it for your later reference.

A brief summary of the research results will be available upon request when this study is completed. Please indicate your request for the summary on the returned questionnaire. Once again, confidentiality is strongly emphasised. Participants will not be identifiable in any publication or reporting resulting from this study. However, if you have any concerns or complaints about the ethical conduct of this study, please contact the Manager, Research Ethics of Griffith University, on +61 (0)7 3875 5585 or research-ethics@griffith.edu.au. It is assured that if any concerns or complaints about the ethical conduct of this research are raised, the Manager, Research Ethics of Griffith University, will take prompt actions to handle them. Any query regarding this study, please feel free to contact the researchers indicated below.

Thank you very much for your time and attention.

Sincerely,

Jia-Yi Hung

Ph.D. Candidate

Business School

Ph: +61 (0)7 5552 8195

j.hung@griffith.edu.au

Dr. Yvonne Brunetto

Senior Lecturer

Business School

Ph: +61 (0)7 5552 8302

y.brunetto@griffith.edu.au

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10	My head nurse has a warm personality. (我覺得護理長待人溫馨。)	1	2	3	4	5	6	7
11	I am allowed to decide what services are to be rendered. (我可以決定要提供病人何種照護。)	1	2	3	4	5	6	7
12	I am able to choose the procedure to utilise. (我可以決定照護的步驟。)	1	2	3	4	5	6	7
13	I am free to choose the method to use in carrying out my work. (我可以決定完成工作的方法。)	1	2	3	4	5	6	7
14	I have control over the scheduling of my work. (我可以完全掌控我的工作計劃流程。)	1	2	3	4	5	6	7
15	I have some control over the sequencing of my work activities (when I do what). (我稍微可以掌控我每項工作的順序。)	1	2	3	4	5	6	7
16	My job is such that I can decide when to do particular work activities. (工作上我可以決定何時處理比較特殊的工作項目。)	1	2	3	4	5	6	7
17	My job allows me to emphasise some aspects of my job and play down others. (工作上允許我去決定各項工作的輕重緩急。)	1	2	3	4	5	6	7
18	I am able to modify what I am supposed to accomplish. (我可以修改我的工作計畫。)	1	2	3	4	5	6	7
19	I have some control over what I am supposed to accomplish. (對於我的工作計畫，我有些許的掌控權。)	1	2	3	4	5	6	7
20	Close colleagues and I support each other for personal issues. (我跟比較要好的同事會在私事上互相打氣。)	1	2	3	4	5	6	7
21	Some colleagues and I help each other by sharing our work load. (我跟一些同事會彼此分攤工作互相幫助。)	1	2	3	4	5	6	7
22	I discuss patient care methods with colleagues. (我會跟一些同事討論照護病人的方法。)	1	2	3	4	5	6	7
23	Some colleagues and I support each other at work. (我跟一些同事在工作上會互相打氣支持。)	1	2	3	4	5	6	7
24	I swap shifts with certain colleagues when necessary. (必要時我會跟某些同事換班。)	1	2	3	4	5	6	7

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25	I distance myself from colleagues who hold negative attitudes. (我會跟對事持負面看法的同事保持距離。)	1	2	3	4	5	6	7
26	I ask close colleagues for help when I encounter problems at work. (工作上遇到問題時，我會向比較親近的同事求助。)	1	2	3	4	5	6	7
27	We have a positive work atmosphere in this ward. (我們單位的工作氣氛和諧。)	1	2	3	4	5	6	7
28	Staffs in our ward are like family to me. (對我來說，我們單位的工作夥伴就像家人一樣。)	1	2	3	4	5	6	7
29	We usually work individually on our tasks, but we work as a team as necessary. (我們通常獨立作業，但有需要時，我們會以團隊的方式工作。)	1	2	3	4	5	6	7
30	The atmosphere in our ward is intolerable. (我們單位的工作氣氛讓人無法忍受。)	1	2	3	4	5	6	7
31	Staffs are friendly to each other. (同事之間彼此都友善對待。)	1	2	3	4	5	6	7
32	Colleagues are supportive and approachable. (同事都和藹可親且互相支持。)	1	2	3	4	5	6	7
33	The atmosphere in our ward seems much pleasanter than that in other departments. (我們單位的工作氣氛比其他單位好很多。)	1	2	3	4	5	6	7
34	We have an unpleasant work atmosphere because colleagues attack each other. (我們單位的工作氣氛不好因為同事會互相攻擊。)	1	2	3	4	5	6	7
35	We have a good atmosphere for team work. (我們單位有良好的團隊合作氣氛。)	1	2	3	4	5	6	7
36	My hospital is targeting nursing employees for training to update current job skills. (我們醫院有提供護理人員學習最新技術的在職訓練。)	1	2	3	4	5	6	7
37	My hospital is targeting nursing employees for training so we can learn new skills and expertise. (我們醫院有提供護理人員在職訓練，所以我們可以學習到新的專業知識和技術。)	1	2	3	4	5	6	7

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38	My hospital is offering external training courses. (我們醫院有提供院外舉辦的在職訓練課程。)	1	2	3	4	5	6	7
39	My hospital is offering internal training courses. (我們醫院有提供院內舉辦的在職訓練課程。)	1	2	3	4	5	6	7
40	Participation in training courses is prevented by my hospital. (醫院不願意我們參加在職訓練課程。)	1	2	3	4	5	6	7
41	My hospital refuses to pay for study leave. (醫院不願意讓我用公假(不扣薪)去參加在職訓練課程。)	1	2	3	4	5	6	7
42	My hospital will pay for study leave, if my course of study is relevant. (如果進修課程對單位或醫院有幫助，醫院會讓我用公假(不扣薪)去上這門課。)	1	2	3	4	5	6	7
43	Work safety issues are managed well by my hospital. (我們醫院的"員工工作安全措施"做的很好。)	1	2	3	4	5	6	7
44	Work safety relies on whether I perform my job tasks carefully or not. (員工工作安全是看個人工作時是否謹慎小心。)	1	2	3	4	5	6	7
45	Work is made less safe when working in unfamiliar wards. (從工作安全而言，在陌生的病房工作是比較不安全的。)	1	2	3	4	5	6	7
46	Workers' safety practices are very important to the management of my hospital. (醫院管理階層很重視護理人員的工作安全常規。)	1	2	3	4	5	6	7
47	Head nurses and other top management seem to care about my safety very much. (護理長及其他高階管理者似乎很重視我的工作安全。)	1	2	3	4	5	6	7
48	My head nurse places much emphasis on safety practices on the job. (在工作上，護理長很重視我們的工作安全常規。)	1	2	3	4	5	6	7
49	Giving instructions on safety policy/safety requirements of the hospital is one of management's safety practices. (我們醫院的安全常規之一是告知員工醫院的工作安全政策與要求。)	1	2	3	4	5	6	7

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50	Having regular job safety meeting is one of management's safety practices. (我們醫院的安全常規之一是定期舉辦員工工作安全會議。)	1	2	3	4	5	6	7
51	Having proper equipment for my tasks is one of management's safety practices. (我們醫院的安全常規之一是提供員工適當的安全裝備。)	1	2	3	4	5	6	7
52	I have much control over what happens to my safety on the job. (對於自身的工作安全，我有許多的掌控權。)	1	2	3	4	5	6	7
53	Taking risks is part of the job. (面臨風險是我工作的一部份。)	1	2	3	4	5	6	7
54	It is very likely that I might be injured on the job in the next 12-month period. (在未來的一年內我極有可能遭到工作傷害。)	1	2	3	4	5	6	7
55	I am satisfied in my job. (我對我的工作感到滿意。)	1	2	3	4	5	6	7
56	I find my job more interesting than I would in another job. (我覺得現在的工作比其他的工作還要有趣。)	1	2	3	4	5	6	7
57	I am not bored in my job. (我的工作不會讓我覺得無聊。)	1	2	3	4	5	6	7
58	I consider my job pleasant. (我的工作令我感到愉快。)	1	2	3	4	5	6	7
59	I am not disappointed in my job. (我對我的工作不會感到失望。)	1	2	3	4	5	6	7
60	I am happier in my job than most other people. (我比其他人還要滿意這份工作。)	1	2	3	4	5	6	7
61	I find enjoyment in my job. (我在工作上找到樂趣。)	1	2	3	4	5	6	7
62	I definitely like my job. (我的確喜歡我的工作。)	1	2	3	4	5	6	7
63	I would be very happy to spend the rest of my career with this hospital. (我很樂意在這所醫院服務直到退休。)	1	2	3	4	5	6	7
64	I enjoy discussing my hospital with people outside it. (我樂於與外人談論我服務的醫院。)	1	2	3	4	5	6	7
65	I really feel as if this hospital's problems are my own. (我把這所醫院遇到的問題當成是我自己的問題一樣。)	1	2	3	4	5	6	7

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66	I think that I could easily become as attached to another hospital as I am to this one. (我認為當我換到另一所醫院工作時，也能很容易融入新醫院。)	1	2	3	4	5	6	7
67	I do not feel like 'part of the family' at my hospital. (我感覺我不是這所醫院的一份子。)	1	2	3	4	5	6	7
68	I do not feel 'emotionally attached' to this hospital. (我並沒有感受到與這所醫院有'情感上的連結'。)	1	2	3	4	5	6	7
69	This hospital has a great deal of personal meaning for me. (這所醫院對我個人而言有很多的意義。)	1	2	3	4	5	6	7
70	I do not feel a strong sense of belonging to my hospital. (這所醫院沒有讓我感受到強烈的歸屬感。)	1	2	3	4	5	6	7

【問卷填寫完成，非常感謝您的填寫】

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