การศึกษาสมรรถนะผู้นำของผู้บริหารทางการพยาบาลทางการพยาบาลระดับต้น
ในเมืองเซี่ยงไฮ้ ประเทศจีน

นางสาวเหวินเจิ้น ลี่

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาพยาบาลศาสตรมหาบัณฑิต
สาขาวิชาพยาบาลศาสตร์
คณะพยาบาลศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย
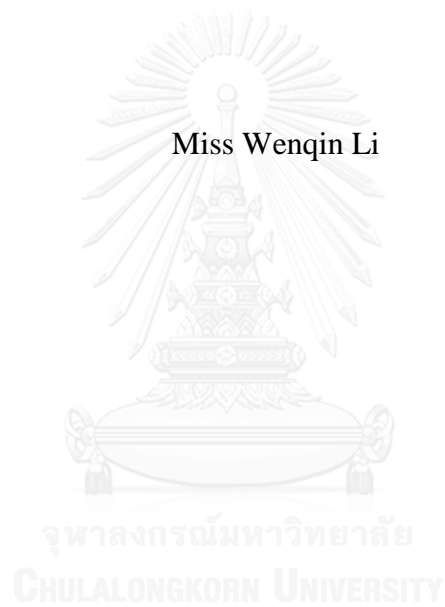ปีการศึกษา 2558
ลิขสิทธิ์ของจุฬาลงกรณ์มหาวิทยาลัย

A STUDY OF LEADERSHIP COMPETENCIES OF FIRST-LINE
NURSE MANAGERS IN SHANGHAI, CHINA

Miss Wenqin Li

A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Nursing Science Program in Nursing Science
Faculty of Nursing
Chulalongkorn University
Academic Year 2015
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Thesis Title	A STUDY OF LEADERSHIP COMPETENCIES OF FIRST-LINE NURSE MANAGERS IN SHANGHAI, CHINA
By	Miss Wenqin Li
Field of Study	Nursing Science
Thesis Advisor	Assistant Professor Suvinee Wivatvanit, Ph.D.

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เหวินเจิ้น ลี่ : การศึกษาสมรรถนะผู้นำของผู้บริหารทางการพยาบาลทางการพยาบาล
ระดับต้นในเมืองเซี่ยงไฮ้ ประเทศจีน (A STUDY OF LEADERSHIP
COMPETENCIES OF FIRST-LINE NURSE MANAGERS IN SHANGHAI,
CHINA) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: ผศ. ดร.สุวิณี วิวัฒน์วานิช, 165 หน้า.

การวิจัยเชิงพรรณาครั้งนี้มีวัตถุประสงค์เพื่อศึกษาสมรรถนะภาวะผู้นำของผู้บริหาร
ทางการพยาบาลระดับต้นในเมืองเซี่ยงไฮ้ ประเทศจีน โดยใช้เทคนิคเดลฟาย ผู้ให้ข้อมูลเป็น
ผู้เชี่ยวชาญ จำนวน 20 คน

ประกอบด้วย ผู้อำนวยการทางการพยาบาล 5 คน หัวหน้าหน่วยงานการพยาบาล/
หัวหน้าหอผู้ป่วย 2 คน พยาบาลอาวุโส 2 คน และอาจารย์พยาบาล 1 คน วิธีดำเนินการ
วิจัย ประกอบด้วย 3 ขั้นตอน คือ ขั้นตอนที่ 1 สัมภาษณ์ผู้เชี่ยวชาญด้วยแบบสอบถามกึ่ง
โครงสร้างถึงเรื่องสมรรถนะผู้นำของผู้บริหารทางการพยาบาลระดับต้นในเมืองเซี่ยงไฮ้ ประเทศจีน
ขั้นตอนที่ 2 นำข้อมูลที่ได้มาวิเคราะห์สาระสำคัญของข้อคำถามแต่ละข้อ และคำนวณค่ามัธย
ฐาน ค่าพิสัยควอไทล์ ขั้นที่ 3 นำข้อมูลที่ได้มาทำเป็นแบบสอบถามส่งกลับไปให้ผู้เชี่ยวชาญยืน
คำตอบ แล้วนำข้อมูลที่ได้มาคำนวณหาค่ามัธยฐานและค่าพิสัยระหว่างควอไทล์เพื่อสรุปผลการวิจัย

ผลการศึกษาพบว่า สมรรถนะภาวะผู้นำของผู้บริหารทางการพยาบาลระดับต้นในเมือง
เซี่ยงไฮ้ ประเทศจีน ประกอบด้วยสมรรถนะ 8 ด้าน จำนวน 60 ข้อ รายการ ดังนี้ 1) การเรียนรู้
เพื่อเพิ่มความสามารถส่วนบุคคล จำนวน 11 ข้อ 2) การคิดอย่างเป็นระบบ จำนวน 9
ข้อ 3) การสื่อสารและสร้างสัมพันธภาพ จำนวน 11 ข้อ 4) การบริหารการเปลี่ยนแปลง จำนวน
7 ข้อ 5) การบริหารทรัพยากรบุคคล จำนวน 9 ข้อ 6) การจัดการงบประมาณ จำนวน 5
ข้อ 7) ข้อมูลสารสนเทศ จำนวน 4 ข้อ และ 8) การมีความรู้ในการจัดสิ่งแวดล้อมในระบบ
สุขภาพ จำนวน 4 ข้อ

สาขาวิชา พยาบาลศาสตร์	ลายมือชื่อนิสิต ....
ปีการศึกษา 2558	ลายมือชื่อ อ.ที่ปรึกษาหลัก ....

5677224036 : MAJOR NURSING SCIENCE

KEYWORDS: LEADERSHIP COMPETENCY / FIRST-LINE NURSE MANAGERS / SHANGHAI / CHINA

WENQIN LI: A STUDY OF LEADERSHIP COMPETENCIES OF FIRST-LINE NURSE MANAGERS IN SHANGHAI, CHINA. ADVISOR: ASST. PROF. SUVINEE WIVATVANIT, Ph.D., 165 pp.

The purpose of this descriptive research was to explore leadership competency of first-line nurse managers in Shanghai, China. A total of 20 experts participated in this study including 5 directors of nursing, 12 head nurses, 2 senior nurses and 1 nursing educator. The Delphi technique consisted of three steps. First, the experts described the leadership competency of first-line nurse managers in Shanghai. Second, analyzed data using content analysis to develop rating scales. All items in the second round questionnaire met the criteria of consensus. The acceptable criteria of consensus were median equal to or greater than 3.50 and interquartile range equal to or less than 1.50. Third, developed the third round questionnaire and sent to the previous experts to confirm the items. Data was analyzed using median and interquartile range.

The results showed that leadership competency of first-line nurse managers in Shanghai, China consisted of 8 components and 60 items as follows. 1) Personal mastery, 11 items; 2) systems thinking, 9 items; 3) communication and relationship building, 11 items; 4) change management, 7 items; 5) human resource management includes 9 items; 6) financial management, 5 items; 7) information technology, 4 items; 8) knowledge of the healthcare environment, 4 items.

Field of Study: Nursing Science   Student's Signature _____

Academic Year: 2015   Advisor's Signature _____

ACKNOWLEDGEMENTS

With the successful completion of my master study, I would like to express my great appreciation for several people who have given me help, support, direction, and encouragement. First, I would like to express my deep appreciation for my advisor Assistant Professor Suvinee Wivatvanit, Ph.D. for her guidance and support throughout my study.

I would like to thank all dissertation committees who gave me direction and suggestions.

I would like to thank Jianming Xu, Director of nursing, Zhongshan Hospital, Shanghai, China, and Professor Aiyong Zhu, Dean of the School of Nursing, Second Military Medical University, Shanghai, China, for their excellent assistance in identifying the potential participants for this study. I would like to thank all of the experts in Shanghai who participated in this study.

I would like to thank all of the teachers who ever teach me and my friends who gave me support and help.

I would like to thank the research funding supported by Chulalongkorn University Graduate School Thesis Grant.

Finally, I'd like to express my deepest thanks to my parents, who always supported and encouraged me during my study.

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CHAPTER I

INTRODUCTION

Background and Significance of the Study

It is recognized that leadership is important and necessary for nurse managers due to their essential role in today's complex and changing healthcare environment. Leadership competency of nurse managers influences all aspects of nursing environment which indirectly impact on the quality of patient care (Cummings et al., 2010; Sherman, Eggenberger, Bishop, & Karden, 2007). According to International Council of Nursing (ICN), nurse managers need to be well prepared to work effectively in interdisciplinary teams and manage effective and cost-efficient services in the context of health reform (International Council of Nursing [ICN], 2010). In addition, ICN developed a competency framework for nurse leaders to deal with nursing human resource shortages, one of the domains is leadership (Reid & Weller, 2010). Further, the theme of 2015 Nurses Day is: A force for change: care effective, cost effective, reflecting the component of leadership (International Council of Nursing [ICN], 2015). Additionally, in response to healthcare challenges, there are many leadership competency models published for nurse managers (American Organization of Nurse Executives [AONE], 2005; Institute for Innovation and Improvement, 2006; McCarthy & Fitzpatrick, 2009; Sherman et al., 2007).

China, as a member of the world's family, is undergoing healthcare reform as a result of the fast developed economy. People in China demand more inclusive and sophisticated care (Hu, 2013). One of the components of health reform is to pilot public hospital reforms. Public hospitals in China are a critical part of the health

system, accounting for 89% of total beds and 92% of hospital admissions. Public hospitals are charged with providing safe, high quality, cost effective and efficient services through improving internal management, implementing policies of human resource management, cost analysis and pay-for-performance. In addition, public hospital reforms aim at promoting innovations in the public hospital system and mechanisms to form a more scientific and regulated management system (Barber, Borowitz, Bekedam, & Ma, 2014). Meanwhile, health reform strives to strengthen nursing as a profession and mobilize the enthusiasm of staff nurses (Hu, 2013), as well as focuses on patient-centered holistic care (Ministry of Health of People's Republic of China [MOH], 2010).

The current nursing administration system in hospital in China is under the leadership of vice president of the hospital consisting of three levels: director of nursing, head nurse of department and head nurse of ward (Ministry of Health of People's Republic of China [MOH], 2011).

Shanghai is one of the cities which are carrying out public hospital reform. In addition to dealing with changes derived from health reform, a shortage of staff nurses and a heavy workload in Shanghai pose a great challenge to nursing administrators in Shanghai. Staff retention therefore is a major concern for nurse managers in Shanghai (Cao, Ye, Zhang, Lu, & Sun, 2009). With a population of 24 million, public hospitals are responding to a heavy workload (Consulate General of Switzerland Shanghai, 2009; Wikipedia, 2013). There are only 38,700 nursing staff in Shanghai, this results in 2.15 per 1,000 people (Cao et al., 2009). A study with 2250 nurses in Shanghai showed that 50.2% of nurses were dissatisfied and 40.4% of nurses had intention to leave the nursing profession. In addition, Junior nurses

reported a lower level of job satisfaction compared with senior (Liu et al., 2011). Another study with 919 nurses revealed that job satisfaction, occupational commitment and age are the strongest predictor of nurses' intention to leave in Shanghai (L.Wang, Tao, Ellenbecker, & Liu, 2012). However, the average age of nurses in Shanghai is 26 years old (Cao et al., 2009). It is apparent that younger generation is the determinant of stability of nursing team. Therefore, retention strategies should target younger generation. Liu et al. (2011) have highlighted leadership as one of managerial interventions for nurse managers to improve level of nurses' job satisfaction and retention in Shanghai.

Nurse managers in Shanghai are responding to a heavy workload and more complex situations. Public hospitals in Shanghai are not only for local residents, but for patients with difficult and complex diseases from all over the country due to healthcare situation of Shanghai is considerably ahead of the country's average level. Public hospitals in Shanghai are comprehensive including tertiary hospitals, secondary hospitals and community healthcare centers. Therefore, public hospitals especially university-affiliated hospitals offer comprehensive and high-quality treatment or research (Consulate General of Switzerland Shanghai, 2009).

Current first-line nurse managers in Shanghai are charged with the responsibilities to make work plan according to the goal of the hospital, supervise the activities of staff nurses, lead staff nurses to provide high-quality care, initiate new programs, build collaborative relationship with multidisciplinary teams, and promote the professional development (Shanghai Quality Control Center, 2006). These responsibilities involve the components of leadership, such as systems thinking, communication and influence skills. In addition to these responsibilities, the redesign

of the hospital nursing administration system and the new quality imperatives brought about a need for nurse managers in Shanghai to learn new roles and develop new skills, such as skills of staff motivation and the ability to manage change. Wang, Chontawan, and Nantsupawat (2011) stated that apart from supervision, nurse managers should motivate nurses to make the latter enthusiastic about clinical nursing work. Xu (2013) pointed out that nurse managers need to demonstrate the ability of change management in the context of health reform.

Leadership is essential to provide guidance for solving complex problems related to staff job satisfaction and retention, high-quality of care, and coping with change. In addition, Marquis and Huston (2012) stated that it is necessary to integrate leadership skills with the ability to carry out management functions for contemporary nurse manager. Yukl (2010) asserted that "success as a manager in modern organizations involves leading". The systematic review of the literature has documented evidence that leadership styles and behaviors of nurse managers influence both nursing and patient outcomes. Relational leadership styles were positively associated with higher patient satisfaction and lower patient mortality, medication errors, restraint use and hospital-acquired infections (C. A. Wong, Cummings, & Ducharme, 2013). In addition, Relational focused leadership was related to higher nurse job satisfaction, increased research utilization and productivity, and better work environments (Cummings et al., 2010).

The importance of leadership competency of first-line nurse managers is recognized in reports internationally (Fennimore & Wolf, 2011; Heuston & Wolf, 2011). First-line nurse managers are the vital link between upper-level administrators and the staff nurses, as well as key to link the organizational vision and strategic plan

with the clinical practice at the unit level (Sherman et al., 2007). They are key to translate vision into reality (Perra, 2001). Leadership competency of first-line nurse managers influences staff nurses' professional practice behaviors and sense of self-efficacy (Manojlovich, 2005), relates to job satisfaction and a creative work climate (Sellgren, Ekvall, & Tomson, 2008; Wang et al., 2011), and can achieve the outcome of cost-effectiveness quality service (Perra, 2001). The attainment of quality outcomes requires sophisticated leadership skills of first-line nurse managers (Fennimore & Wolf, 2011; Perra, 2001).

In conclusion, current complex and changing health environment, the shortage of staff nurses and responsibilities of first-line nurse managers require nurse managers in Shanghai to demonstrate leadership competency. In addition, Shanghai, as one of the most advanced area of China, need to catch up with the international standard since leadership is the main theme of the nursing profession. However, there is little research conducted regarding leadership competencies of nurse managers in Shanghai, China. Therefore, it is necessary to explore leadership competencies needed by nurse managers in Shanghai, China. In this study, the term "nurse managers" refers to nurses who are in first-line management positions.

Research Questions

What are the components and details of first-line nurse managers' leadership competencies in Shanghai, China?

Objective of Study

To explore leadership competencies of first-line nurse managers in Shanghai, China, using Delphi technique.

Operational Definitions

1. Leadership competency refers to knowledge, skills, attributes, attitudes and values of first-line nurse managers in Shanghai to motivate, inspire and direct their staffs in their wards to achieve the organization's goals. This study applied the concept of AONE (2005) and Sherman et al. (2007) consisting of 8 components as follows.

1.1 Personal mastery refers to first-line nurse managers in Shanghai should demonstrate self-confidence, emotional stability and maturity, be trustworthy and fair, serve as a role model, have a high level of moral, demonstrate the value of lifelong learning, be innovative and creative, establish a good image, model a healthy lifestyle, have a passion to nursing profession, and display appropriate humor.

1.2 Systems thinking refers to first-line nurse managers in Shanghai need to demonstrate patient-centered managerial behaviors, maintain sensitivity to patient issues, build organizational commitment, focus on organizational goals, build concern for the hospital, stay updated about new trends and new knowledge in nursing, provide visionary thinking, catch up with the development of the hospital, and focus on input, process and outcome indicator.

1.3 Communication and relationship building refer to first-line nurse managers in Shanghai must determine the appropriate communication mode according to the situation, access internal climate, demonstrate listening skills, build

collaborative relationship with multidisciplinary team, develop rapport with a variety of people, engage staff in decision making, care about nurses as individuals, treat subordinates with respect, manage conflict professionally and actively, build academic relationship, and understand and respect culture diversity.

1.4 Change management refers to first-line nurse managers in Shanghai must be able to adapt to the change, possess the ability to empower others, create a learning environment, serve as a change agent, identify the level of resistance to change, and cooperate with change promoters in the ward.

1.5 Human resource management refers to nurse managers in Shanghai need to provide new staff with systematic training and orientation, implement hierarchical management approach, provide sufficient staffing, delegate tasks to staff according to their abilities, demonstrate servant leadership style, provide mentorship to staff, provide professional career ladder to staff, set the compensation for staff by performance appraisal, and develop the concept of teamwork.

1.6 Financial management refers to nurse managers in Shanghai need to understand cost analysis, have awareness of cost, and utilize resources in a judicious manner.

1.7 Information technology refers to nurse managers must be able to use computerized management system to record administrative data, demonstrate basic competency in e-mail and word processing, and communicate with staff informally by informational technology.

1.8 Knowledge of the healthcare environment refers to nurse managers need to understand clinical practice knowledge in the specialty areas of care, evidence-based practice, patient safety and risk management, quality improvement,

healthcare policy and patient care delivery models, integrate research into practice, and understand the concept of Magnet hospital and create a safe work environment.

3. First-line nurse managers in Shanghai refer to the head nurses of ward who have 24-hour accountability for the management of their wards in public hospitals of Shanghai.

Limitations of the Study

1. Initial hypothetical concepts of leadership competencies derived from AONE (2005) and Sherman et al. (2007).

2. This study only focuses on Shanghai, China which represents the most advanced part of the country.

3. Application of the findings besides "Shanghai" should be cautious.

Expected Benefits

1. To provide a guideline for leadership development programs for first-line nurse managers in Shanghai, China.

2. Nurse administrators can use these competencies as criteria to recruit and prepare first-line nurse managers.

CHAPTER II
LITERATURE REVIEW

This chapter will introduce the background knowledge related to healthcare system and health reform of China, describe situations of Shanghai as one of the pilot cities of health reform. The review of the literature consists of major themes as follows.

1. Health system in China

    1.1 Country profile

    1.2 Healthcare system of China

    1.3 Healthcare reform in China

    1.4 Healthcare situation of Shanghai

    1.5 Current trends related to nursing in Shanghai

2. Nursing administration in China

    2.1 Nursing organizations in China

    2.2 Current issues related to nursing administration in China

    2.3 Nursing administration system in hospital in China

    2.4 Responsibilities of nurse managers in Shanghai, China

    2.5 Qualifications of head nurse in China

3. Knowledge related to leadership

    3.1   Definition of leadership

    3.2   Leadership characteristics

    3.3   Leadership theories

    3.4   Leadership strategies

    3.5   Leadership competency models

4. Delphi technique

    4.1   Definition

    4.2   Characteristics

    4.3   Major process

    4.4   Advantages and limitations

    4.5   Validity and reliability

5. Research related to leadership

    5.1   Leadership competency of nurse managers in Shanghai

    5.2   International leadership qualities and competencies

    5.3   Leadership of first-line nurse managers

    5.4   The impact of leadership on patient and nursing outcomes

6. Concept analysis

7. Conceptual framework

1. Health System in China

    1.1 Country profile

        China is a large developing country with a population of more than 1.3 billion, which constitutes one fifth of the world's population. According to the statistics of 2012, the life expectancy on average was 75 years old. The total health expenditure in China has increased more than 30 fold, accounting for 5.4% of GDP in 2012 (World Health Organization [WHO], 2014). There are 22 provinces in China, including five autonomous regions, four direct-controlled municipalities, and two mostly self-governing special administrative regions. Shanghai is the largest Chinese city by population. It is one of the four direct-controlled municipalities of China (Wikipedia, 2013).

    1.2 Healthcare system of China

        The State Council, namely Central People's Government, is the highest executive organ of State power and administration. Various ministries are under the leadership of State Council undertaking ministerial responsibility. Ministry of Health is one of the ministries which are responsible for the healthcare system in China, but healthcare governance has been decentralized among Bureaus of Health in 31 provinces /autonomous regions (State Council of P.R. China, 2014). The healthcare delivery systems include tertiary hospitals, secondary hospitals and primary health facilities. Public hospitals play a critical role in China's healthcare system. More than 60% hospitals are public, accounting for 89% of total beds and 92% of hospital admissions (Barber et al., 2014; Hu, 2013). With the fast developed economy, people demand more sophisticated and inclusive care, this has led to the health reform.

1.3 Healthcare reform in China

1) Public hospital reform

China unveiled its healthcare reform in 2009 with the goal of providing affordable and equitable basic healthcare for all by 2020. The reform consists of five interrelated areas: expanding coverage to insure more than 90% of the population, establishing a national essential medicines system, improving the primary medical system, making public health services available and equal for all, and piloting public hospital reforms (Hu, 2013).

The goal of public hospital reform is to maintain the social welfare nature of public hospitals and encourage them to perform public service functions, thereby providing accessible and affordable healthcare services for the people. The guidance of public hospital reform is composed of three domains: First, perfect the service system to ensure that public hospitals perform their public service functions by improved organizational arrangements. Second, promote innovations in the public hospital system and mechanisms to form a more scientific and regulated management system, and mechanisms for governance, compensation, and monitoring. Third, improve internal management to upgrade operating performance for safe, high quality, cost-effective and efficient services (Barber et al., 2014). In addition, healthcare reform involves strengthening nursing as a profession. For example, the concept of patient-centered care will make nursing visible to the society as well as reflect the value of nursing, and clinical pathways will involve nurses as members of the multidisciplinary teams (Wong, 2010).

2) High-quality Nursing Model Program

In 2010, the Ministry of Health implemented High-quality Nursing

Model Program to improve the quality of nursing care nationwide. It is in consistent with and a part of healthcare reform. Two aspects underlie this program. First, it is a reform of nursing care model which focuses on patient-centered holistic care. It involves providing basic nursing care professionally, and establishing performance-appraisal policy. Moreover, it integrates the concept of "patient-centered" and humanistic care into nursing service, which in turn deepens the connotation of nursing service. Second, this program aims at motivating nurses through scientific human resource management (Ministry of Health of People's Republic of China [MOH], 2010).

Recently, the Ministry of Health released a notice aiming to deepen the high-quality nursing care. This policy requires tertiray hopitals to establish nursing divison and vice nursing president, as well as highlights the need to motivate staff nurses as the major care providers (Ministry of Health of People's Republic of China [MOH], 2015).

3) The compendium for development of nursing care in China

The Ministry of Health developed a 5-year plan (2010-2015) to strengthen and support the quality of nursing care. Two domains are related to nursing administration. First, develop an excellent nursing administration team in public hospitals. Second, establish nursing administration policy framework in public hospitals to stabilize and develop nursing team, and establish mechanisms of motivation and performance appraisal, thereby realizing scientific nursing administration (Ministry of Health of People's Republic of China [MOH], 2011).

1.4 Healthcare situation of Shanghai

1) Healthcare system and reform of Shanghai

Shanghai is one of the biggest cities in China, located in the east coast of China. With a population of more than 24 million, the healthcare system of Shanghai is responding to a heavy load of patients (Wikipedia, 2013). The average life expectancy in this city extended to 81 years old (Consulate General of Switzerland Shanghai, 2009).

Shanghai is one of the 34 pilot cities which are carrying out public hospital reforms. The healthcare system in Shanghai is headed by the Shanghai Municipal Commission of Health and Family Planning (SMCHFP). SMCHFP represents an administrative department of MOH and the main duties are to implement the national policies, carry out plans for developing Shanghai health services, and supervise public health (Consulate General of Switzerland Shanghai, 2009).

Shanghai's healthcare situation is considerably ahead of national average level. Public hospitals in Shanghai are comprehensive, including tertiary hospitals, secondary hospitals and community healthcare centers. In particular, military hospitals are additional special tertiary hospitals (Consulate General of Switzerland Shanghai, 2009). Tertiary hospitals play an important role in the healthcare system of Shanghai. Among 37 tertiary hospitals, ten key hospitals are linked to teaching universities. Moreover, of the country's top ten hospitals which serve as benchmarks, three are located in Shanghai (Hu, 2013). Therefore, tertiary hospitals offer comprehensive and high-quality treatment or research. These facilities are not only for local residents, but for patients with difficult and complex diseases from all over the country. With insufficient number of nurses and the complexity of

their work, nurses in tertiary hospitals are responding to a heavy workload (Cao et al., 2009; Consulate General of Switzerland Shanghai, 2009). One study conducted in Shanghai revealed that the score of head nurses' servant leadership behavior was the lowest in tertiary hospitals compared with secondary and community hospitals due to heavy workload and complexity of diseases (Ge et al., 2014). Therefore, nurse managers especially those in tertiary hospitals need to develop leadership competency.

2) Nursing profile in Shanghai

In terms of educational level of nurses including nurses at management positions, 76% of nurses are certificated prepared, 22% of nurses are diploma prepared, 2% holding a bachelor's or master's degree and less than 1% having a PhD degree. The average age of nurses in Shanghai is 26 years old, with 84% of nurses between 20 and 30 years old. Almost all nurses are women, only 0.81% of nurses are men. In addition, there are more nursing experts in tertiary hospitals than in secondary or community healthcare centers (Cao et al., 2009).

3) Nursing shortage and job satisfaction of nurses in Shanghai

Retention and recruitment of staff nurses are major concerns for nurse managers in Shanghai. Statistics of 2007 showed that Shanghai was suffering from a shortage of 13, 300 nurses. There are only 38,700 nursing staff in 2007 which results in 2.15 nurses per 1,000 people, while the Health Administration Ministry declared that nurse-to-bed ratio should not be less than 0.6:1 in hospitals (Cao et al., 2009).

In addition, 65% of nurses think that they have a relatively lower social status than other professions do and 66% of them are dissatisfied with their jobs. The reason may be heavy workload, low salary and low social status. Heavy workload and

nursing shortage result in decreased care quality, which poses a greate challenge to nurse managers in Shanghai (Cao et al., 2009).

Researchers in Shanghai reported nurses' job satisfaction and predictors of intent to stay using a large sample size. These research findings have provided essential information for nurse managers to develop retention strategies.

Wang et al. (2012) conducted a cross-sectional study to explore predictors of hospital nurses' intent to stay in the nursing profession in Shanghai. A sample of 919 nurses returned the survey, representing an 82% response rate. The conceptual framework included the following hypothesized predictors of nurse' intention to stay: job satisfaction, occupational commitment and nurse demographic characteristics, each predictor included several variables. Three out of five occupational commitment variables had significant effects on nurses' intention to stay, they are normative commitment (β=0.229, p<0.001), economic costs commitment (β=0.217, p<0.001) and limited alternatives commitment (β=-0.121, P<0.001), two of the eight dimensions of nurse job satisfaction including professional advancement opportunities (β=0.098, p<0.01) and praise/recognition (β=0.105, p<0.01), and two of the five indicators of nurse demographics including age (β=0.140, p<0.001) and classification of hospital (β=0.080, p<0.01) were significant predictors of intent to stay.

The findings of this study revealed that nurses who have sense of obligation and awareness of costs to leave the profession were more likely to stay in the nursing profession. Limited alternatives commitment was negatively related to intent to stay which mean that the greater numbers of alternative non-nursing jobs, the more likely nurses are to leave nursing. Older nurses are more likely to stay in the

nursing profession than younger nurses which mean that retention strategies should target younger nurses. Praise/ recognition and professional advancement opportunities were positively correlated to intent to stay. Wang et al. (2012) suggested that strategies that promote satisfaction with praise/recognition and professional advancement opportunities should be implemented.

Wang et al. (2012) proposed that improving nurse work environment and demonstrating respect to nurses can contribute to nurses intent to stay, such as improving wages and benefits, providing personal and professional development opportunities, providing social and organizational support and recognition for nurses, sharing information with peers, acknowledging nurses' value and respecting nurses as individuals.

Another cross-sectional study by Liu et al. (2011) reported nurses' views and experiences regarding job satisfaction and their intention to leave in Shanghai. A convenience sample of nurses was recruited from 19 large general hospitals in Shanghai. 2250 nurses completed the questionnaire, representing a response rate of 78.95%. Nurses' demographic variables and job satisfaction were used to predict intention to leave.

Regarding the overall job satisfaction, 50.2% of nurses were dissatisfied and 40.4% of nurses reported that they had intention to leave. 50.2% of respondents were dissatisfied with extrinsic rewards (n=1850, 82.2%), scheduling (n=1450, 64.4%), family/work balance (n=745, 70.3%). More than 57.3% aged 34 or below (n=1105) were dissatisfied, but 92.2% of those aged 35 or above felt satisfied with their job. More than 61.4% of nurses with less than 10 years' work experience were dissatisfied, while 89.8% of nurses with more than 10 years' work experience were

satisfied (n=901, 40.4%). Junior RN (n=520, 36.9%) reported a lower level of job satisfaction compared with senior RN (n=435, 64.4%). Nurses who are aged 34 or below (45%) and have less than 10 years' work experience (48%) reported that they have intention to leave. Age in this study was the most significant predictor of intention to leave, followed by marital status and job satisfaction. Extrinsic rewards were strongest predictors of intention to leave.

Liu et al. (2011) noted that these findings indicated a need for a clinical career ladder and a clear job description for nursing staff in China. Additionally, nurse managers should consider influences of extrinsic rewards, scheduling and family/work balance on nurses' job satisfaction. Liu et al. (2011) highlighted leadership as one of managerial interventions for nurse managers.

Conclusion

The two studies conducted in Shanghai add to our knowledge that the overall job satisfaction level and the strongest predictors of job satisfaction and intention to leave. Age in both studies is the strongest predictor of intention to leave. The findings and the suggestions by the papers provide evidence for the construction of operational definitions in this study. In addition, the suggestions highlighted the need and importance to develop leadership competency of nurse managers.

4) Key changes surrounding nursing in Shanghai

According to policy requirements of health reform and current trend of nursing in China as well as in Shanghai, key changes surrounding nursing in Shanghai include the following four aspects.

First, in terms of organizational structure, changes include a focus on improving internal management and a scientific nursing administration system, and a

transition of nursing care delivery model. In particular, the establishment of nursing division and vice nursing president will provide more rooms for nurse managers to practice their leadership competency.

Second, in terms of nursing workforce, with the development of advanced practice nurse and clinical nurse specialist, nursing workforce will be characterized by highly educated with multiple roles such as educator and researcher.

Third, in terms of information system, public hospital reform focuses on detailed information management and the government will support hospital information system development.

Fourth, in terms of reimbursement, the mechanism of compensation and policy of pay-for-performance will be established.

According to these changes, current trend of nursing and shortage of staff nurses in Shanghai, nurse managers in Shanghai need to be competent in systems thinking, change management, communication and relationship building, human resource management and financial management.

In addition to changes derived from health reform, the current policies of Shanghai focus on nursing staff motivation and retention. Since leadership deals with change and motivation, and leadership behaviors of first-line nurse managers relate to staff job satisfaction and retention, it is necessary for nurse managers in Shanghai to demonstrate leadership competency. Moreover, these changes expand the role and responsibilities of nurse managers. Therefore, they need to study new roles and develop new skills. However, the current nursing administration system and the role of nurse managers are somewhat different from those of western countries. The

following paragraphs will introduce nursing administration system and current issues in China.

1.5 Current trends related to nursing in Shanghai.

There are a number of factors contributing to the development of nursing in Shanghai. First, healthcare reform has provided opportunities for nurses to participate in innovating practice. Second, redesign of the hospital system specifically requires scientific nursing administration. Third, clinical pathways will involve nurses as members of the work groups. Fourth, patient-centered holistic care will contribute to nurse-patient relationship and make nursing visible to patients and society. The educational level of nursing is improving with key universities provide doctor's degree and clinical masters programs to prepare advanced practice nurses. In addition, the universities focus on the integration of education, research and practice which will contribute to the production of clinical specialists and evidence-based practice. Shanghai is one of the first cities in China to begin a clinical nursing specialist credentialing system since 2002. There are many clinical nursing training centers in different large hospitals certificated by the Shanghai Nursing Association. Nurses in Shanghai can utilize the opportunities provided by healthcare reform and the global economic situation to conceptualize innovative care models, test them and provide evidence for cost-effective care (Cao et al., 2009; Wong, 2010).

2. Nursing Administration in China

2.1 Nursing organizations in China

Chinese Nursing Association (CNA), an advocate for Chinese nurses, was founded in 1909 and as one of the academic social society was dual led by China

Association for Science and Technology and Ministry of Health of China. It is a non-profit registered academic and commonweal corporate body voluntarily formed by Chinese nursing science and technology professionals, and the bridge and the link to relate the government and nursing workers, and an important social force in the development of nursing care delivery in China. The CNA aims to promote the development of Chinese nursing, the grow-up of qualified nurses and the advancement of medical care (Chinese Nursing Association [CNA]).

Shanghai Nursing Association (SNA) is under the leadership of Shanghai Municipal Health Bureau, Shanghai Association for Science and Technology and CNA. The missions of SNA including: organizing domestic and international academic exchanges and discussion of key research topic, enhancing the relationship with domestic and international nursing association and nursing science and technology professionals, producing academic nursing journals, spreading nursing knowledge, carrying out continuing education of members, providing consult of important policies and suggestions on nursing, reporting the advice and demand of members to the government, and accepting the commission of the related division to conduct research (Shanghai Nursing Association [SNA]).

2.2 Current issues related to nursing administration in China

Schorlars and experts in China indicated current issues related to nursing administration in China as follows.

Xu (2013), director of nursing in Shanghai, pointed out that in comparison with the international level, most of the Chinese nurse managers lack of leadership competency in terms of vision, long-term perspective, strategic planning, and innovation management. She also indicated that current nursing administration system

is different from those of western countries in terms connotation of service, human resource allocation and educational level.

Qian (2009), associate professor nurse in Shanghai, reported on advances in the research on competency model of head nurse in China. She noted that China lacks of a unified standard in terms of qualifications of head nurse, and the development of head nurse competency model is in the preliminary stage.

According to Cai and Zhang (2014), current nurse managers are selected based on their clinical expertise, they lack of knowledge and skills of scientific management which consists of management and leadership. In addition, they are not well prepared to assume the role.

Wong (2010) stressed the need for the development of nurse managers by stating that contemporary nurse managers should be well prepared in human resource management, financial management, information technology, quality assurance and evidence-based practice. Wong (2010) also stressed the importance of nursing leadership in the era of health reform to make nursing visible and reflect the value of nursing.

2.3 Nursing administration system in hospital in China

Nursing administration system in China is different from those of western countries in terms of connotation of service, human resource allocation, educational preparation and informational system (Xu, 2013). Thus, nurse managers' role and responsibilities may somewhat different. However, with the development of the hospital in the context of health reform, the nursing administration system in China is in transition from experience-based administration to scientific administration.

The current nursing administration system in hospital in China is under the leadership of vice president of the hospital, consisting of three levels: director of nursing, head nurse of department, and head nurse of ward. Regardless of position, nurses in China are divided into five professional levels: junior RN, senior RN, nurse in charge, associate professor nurse, and professor nurse (Li, 2010). In order to enhance scientific nursing administration, the recent policies require public hospitals to establish nursing division and set the position of vice nursing president. Therefore, there will be more room for nurse managers to practice their leadership competency.

2.4 Responsibilities of nurse managers in Shanghai, China

Shanghai Quality Control Center (2006) listed the responsibilities for nurse managers of each level respectively. First, the responsibilities of director of nursing are: nursing professional development, human resource management, setting goals and making nursing work plan based on the goal of the hospital, setting practice standard, disease care rountine and administration policies, hosting meetings, focusing on the new initiatives of the hospital, making training and professional development plan, research and education, creating a good environment, collecting data, and coordinating with multidiciplinary teams. Second, the head nurse of departmemt are responsible for the quality control, staff training, performance appraisal, research, and human relations within the department. In addition, they need to participate in the rescue of critically ill patients and super-large surgery patient care. First-line nurse managers are charged with the responsibilities to make work plan according to the goal of the hospital, supervise the activities of staff nurses, lead staff nurses to provide high-quality care, initiate new programs, build collaborative relationship with multidisciplinary teams, and promote staff nurses professional development (Shanghai Quality Control Center, 2006).

The responsibilities of first-line nurse managers involve the components of leadership, such as influence skills, systems thinking, communication and motivation. In addition, the changes derived from health reform expand their responsibilities, such as the policy of cost analysis require nurse managers to study financial management. Moreover, nurse managers need to possess the ability to manage change. The shortage of staff nurses requires nurse managers to possess motivational skills. Therefore, nurse managers need to formally develop leadership competency to meet the demands of health reform.

2.5 Qualifications of head nurse in China

China lacks of a unified standard in the selection of head nurse, and the development of head nurse competency model is in the preliminary stage (Qian, 2009). The selection criteria of head nurse vary in hospitals and regions. In general, the basic criteria include: a bachelor's or master's degree in nursing, knowledge and skills of nursing administration, more than 5 years' experience of nursing practice, good communication and interpersonal skills, high sense of responsibility, and good organization skills (Li, 2010).

Conclusion

The nursing administration in China is in transition from traditional experience-based management to scientific management. Health reform aims to improve quality of care as well as motivate staff nurses through scientific nursing administration. In response to changes and associated challenges, there is a need to better understand the leadership competencies needed by nurse managers in Shanghai. This study will provide detailed information about leadership competencies needed by nurse managers in Shanghai.

3. Knowledge Related to Leadership

3.1 Definition of leadership

There are variety definitions of leadership. According to Huber (2010), most leadership definitions incorporate the two components of an interaction among people and the process of influencing, and key concepts related to leadership are influence, communication, group process, goal attainment, and motivation.

For example, Huber (2010) defined leadership as the process of influencing people to accomplish goals. Yukl (2010) defined leadership as the process of influencing others to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives. Although it has multiple definitions, common components are embodied in the term leadership.

3.2 Leadership characteristics

Dubrin (2010) stated that to understand leadership, it is important to grasp the difference between leadership and management.

According to Marquis and Huston (2012), leaders are in front, moving forward, taking risks, and challenging the status quo, while management is the process of leading and directing all part of an organization through the deployment and manipulation of resources. Leadership roles listed by Marquis and Huston (2012) as decision maker, communicator, risk taker, visionary, forecaster, influencer, role model, innovator and so on (Marquis & Huston, 2012).

Huber (2010) concluded that the leader focuses on people, whereas the manager focuses on system and structures. A leader innovates whereas a manager administers. In addition, leaders cope with change whereas managers cope with

complexity. The focus of leadership and management is different and their importance varies according to what is needed in a specific situation. They are distinct, and yet overlap, for example, directing occurs in both leadership and management activities whereas inspiring a vision is specifically a leadership function. Both leadership and management are important for nursing practice.

Huber (2010) stated that leadership is founded on trust and one specific defining quality of leaders is vision. The core activities of leaders are visioning, setting the direction, inspiration, motivation, and enabling systems and followers.

According to Dubrin (2010), leadership deals with change, inspiration, motivation, and influence. Leading is a major part of a manager's job. Leadership deals with the interpersonal aspects of a manager's job, whereas planning, organizing, and controlling deal with the administrative aspects; leadership requires collaboration and teamwork. Effective leaders also manage, and effective managers also lead.

Dubrin (2010) listed several key distinctions between management and leadership as follows: leadership produces change and movement whereas management produces order and consistency; leadership, in contrast to management, involves having a vision and mobilizing people to accomplish it. Based on the scholars' viewpoints, Yukl (2010) concluded that success as a manager in modern organizations involves leading.

In summary, leadership and management are distinct in terms of definition, focus and characteristics, yet they overlap, and have a symbiotic and synergistic relationship (Huber, 2010; Marquis & Huston, 2012). It is apparent that many scholars are of the opinion that leadership is an important component of modern

management, and integrating leadership skills with the ability to carry out management functions is necessary for nurse managers in today's rapidly changing healthcare environment.

3.3 Leadership theories

Leadership theories have evolved from last century. Early leadership theories focused on identifying specific characteristics of leaders. As leadership theories evolved, leadership came to be viewed as a dynamic process and an interaction among the leader, the follower, and the situation. Leadership theory began to move beyond a focus on traits to explore the concept of leadership styles. Eventually, theorist began to believe that leaders did not fit a textbook picture of any one style rather they moved dynamically along the continuum in response to each new situation. Transformational and transactional theories emerged after the era of trait, behavioral and situational theories.

1) Trait theories

Trait theories assume that some people have certain characteristics or personality traits that make them better leaders than others. However, the effect of followers and the impact of the situation were ignored. Contemporary theories argue that leadership skills can be developed (Marquis & Huston, 2012). Huber (2010) stated that it is important for nurses to recognize that they can learn, practice and improve their personal leadership competencies.

2) Leadership styles

Three primary leadership styles are authoritarian, democratic, and laissez-faire. Each of them is characterized by a range of characteristics (Marquis & Huston, 2012). The authoritarian leadership style emphasizes a concern for task.

Decisions are made solely by the leader, and the leader tells the follower what to do and how to do it. Democratic leadership styles focus on human relations and team work. The leader shares responsibility with the followers by involving them in decision making. Laissez-faire is based on noninterference, and there is a minimum of leader participation. Each of these styles has advantages and disadvantages. Styles should vary according to the situation. Before examining the situation elements and choosing a leadership style, nurse leaders need to have self-awareness and knowledge of the group's ability and willingness levels. In addition, self-awareness is key to strategically using leadership styles (Huber, 2010).

3) Situational and contingency theories

The situational and contingency theories focus on how leadership styles can be matched to situations, suggesting that leadership style should vary according to the situation or the individuals involved. The determinants of leadership style include the nature of the situation, the skills of the managers, and the abilities of the group members.

4) Transformational and transactional theories

After the eras of trait, behavior and situational leadership theories, theorists began to arguing that effect leadership depended on a greater number of variables, including organizational culture, the values of the leader and the followers, the work environment, the influence of the leader, and the complexities of the situation. Interactional leadership theories are on the basic premise that leadership behavior is generally determined by the relationship between the leader's personality and the specific situation. Transformational and transactional leadership theories emerged in the era of leader-manager interactions.

Transactional leaders focus on tasks and getting the work done. While transformational leaders focus on vision and empowerment, and vision is the essence of transformational leadership. Although, transformational qualities are highly desirable, they must be coupled with more traditional transactional qualities of the day-to-day managerial role of the leader (Marquis & Huston, 2012). Transformational leader is defined as a leader who motivates followers to perform to their full potential over time by influencing a change in perceptions and by providing a sense of direction. Transformational leaders use charisma, individualized consideration, and intellectual stimulation to produce great effort, effectiveness and satisfaction in followers (Huber, 2010).

5) 21st century leadership theories

21st century leadership theories have emerged to explain the complexity of the leader-follower relationship as the changing and complex healthcare environment has placed new role on nurse managers. For example, authentic leadership suggests that leaders must be true to themselves and their values and act accordingly. Servant leadership puts serving others as the first priority. In addition, servant leaders foster a service inclination in others that promote collaboration, teamwork, and collective activism. Quantum leadership suggests that change is constant and requires leaders to manage change effectively. In addition, leaders must work together with subordinates to identify common goals, exploit opportunities, and empower staff to make decisions for organizational productivity to occur. Emotional intelligence involves five components: self-awareness, self-regulation, motivation, empathy and social skills (Marquis & Huston, 2012).

Conclusion

It is apparent that a paradigm shift has taken place in the 21st century - a transition from industrial age leadership to relationship age leadership. Marquis and Huston (2012) argued that the leader-manager in contemporary healthcare organizations cannot focus solely on relationship building. Ensuring productivity and achieving desired outcomes are essential to organizational success. The key lies in integrating the two paradigms. It is important that nurse managers be able to integrate leadership roles and management functions and that some balance be achieved between industrial age leadership and relationship age leadership skills (Marquis & Huston, 2012). Huber (2010) agreed that both tasks to be accomplished and human relations in groups and organizations are important.

3.4 Leadership strategies

Leadership strategies consist of communication, conflict management, negotiation, motivation, change management, delegation, critical thinking, problem solving and decision making.

1) Communication

Communication is a key element of leadership role since leaders are in charge of communicating a vision, and has been considered as the most critical leadership skill (Huston, 2008; Marquis & Huston, 2012).

Communication forms a core activities of nurse managers and cuts off all phases of management functions (Marquis & Huston, 2012). Nurse managers can view communication as a tool to accomplish work and meet goals. It is a critical tool for effectiveness in engaging and motivating people and in getting work done through others. Good communication system can enhance patient safety by coordinating care and preventing information loss. In addition, Communication is essential for effective

implementation of the change process. Further, positive communication between staff nurses and nurse managers, and personal feedback on job performance are related to nurse job satisfaction (Huber, 2010).

Marquis and Huston (2012) presented a range of strategies of organizational communication. 1) be sensitive to the internal and external climate of the sender or receiver within the communication process; 2) select appropriate internal communication network or channel according to each unique situation; 3) select appropriate communication mode for a specific message. In addition, nurse managers need to be better listeners; 4) be able to apply technologies to make communication more effective.

In addition, Marquis and Huston (2012) also presented tips for interpersonal communication. They emphasized sensitivity to verbal and nonverbal communication. Nurse managers who are sensitive to the environment and people around them have a keen understanding of how the unit is functioning at any time and are able to intervene appropriately when problem arise. Tools that facilitate effective interpersonal communication were discussed by Marquis and Huston (2012). SBAR (Situation, Background, Assessment, and Recommendation) provides a structured, orderly approach in providing accurate, relevant information in emergent patient situations as well as routine hand offs. It has great potential for reducing communication errors, and it may promote nursing autonomy and professionalism. Listening model of GRRRR (Greeting, Respectful listening, Review, Recommend or request for more information, and Reward) is especially helpful in organizations where disruptive behavior, toxic environments, and power struggles interfere with listening.

2) Conflict management

Marquis and Huston (2012) stated that the ability to understand and deal with conflict appropriately is a critical leadership skill. Currently, conflict was viewed as neither good nor bad because it can produce growth and or be destructive, depending on how it is managed.

The manager must recognize it in its early stage and actively intervene. In addition, the role of nurse managers is to create a work environment where conflict becomes dysfunctional.

Nurse managers need to understand process of conflict and its origin, such as some causes of unit conflict are unclear expectations, poor communication, and operational or staffing changes. Common conflict resolution strategies include compromise, competing, accommodating, smoothing, avoiding, and collaboration. The optimal goal in conflict resolution is creating a win-win solution for everyone involved. Marquis and Huston (2012) also presented a list of strategies for managers to facilitate conflict resolution between members in the workplace, such as confrontation, third-party consultation, behavior change, responsibility charting, structure change, and soothing one party.

3) Negotiation

Huber (2010) perceived negotiation as a tool to educate clients and other professionals about nurses' roles and contributions, to get a fair exchange in decision-making autonomy, to deal with client complaints, to deal with unionized employees, and to negotiate with medical staff.

Negotiation as a strategy of conflict resolution is emphasized by Marquis and Huston (2012). They presented lists of strategies before and during the

negotiation as follows. Nurse managers must systematically prepare for the negotiation. Before negotiation, the manager need to gather as much as information as possible. Well-prepared managers know with whom they will be negotiating and prepare accordingly. They are prepared with trade-offs, multiple alternatives, and a clear bottom line. Successful negotiation requires nurse managers to demonstrate self-confidence, risk taking and assertive communication skills (Marquis & Huston, 2012).

4) Motivation

Motivation is a key concept of leadership. Motivation is important for understanding why some people are highly productive, as well as for comprehending complex relationships related to teamwork and productivity in organizations (Huber, 2010).

After reviewing a large number of motivation theories, Huber (2010) concluded that the source of motivation comes from within individuals, as well as in the social or professional environment in which individual work. Herzberg's motivation and hygiene theory identified motivators related to job satisfaction, such as growth and development, advancement, increased responsibility for work, the work itself, recognition, and achievement. Expectancy theory stated that individuals seek to do what they think will produce desirable results. Goal-setting theory is based on premise that goals serve as targets for human behavior. Self-efficacy which relates to a person's confidence and sense of capacity in accomplish goals is a component of this theory. Further, autonomy, sense of self-esteem, job-related interpersonal relationships were identified as factors that contribute to work motivation. The core of what motivates nurse is the work itself. Lastly, Huber (2010) stated that the manager's job is to create an environment that fosters motivated behavior.

In addition, Huber (2010) derived some general principles from the various motivation theories. First, although, no single theory fits all situations, each one providing important insights in terms of why nurses behave as they do and nurse managers can use motivation theory to predict behavior. Second, individuals have unique genetic and personal backgrounds that shape who they are. Thus, recognizing the variation and uniqueness in those with whom they work will help managers to understand their staff's motivations and why they behave as they do. It is important for nurse managers to create environments that recognize and use the unique talents of all individuals in the work team since the work environment is a very important component in empowering and motivating employees. Third, goals are a major motivating factor, and setting goals is a powerful way to motivate individuals. Fourth, incentives and reward is always important. It is important for nurse managers to give feedback to individuals so that they receive cues on how they are doing and what else they might need to do. Fifth, equity is important since nurses what to be treated fairly and want to see consistency from leaders.

Marquis and Huston (2012) indicated that nurse managers can create a motivating climate by being a positive and enthusiastic role model in the clinical setting, because the attitude and energy level of managers directly affect the attitude and productivity of their employees. Thus, managers must be internally motivated before they can motivate others. Such as practicing health-seeking behaviors, finding social support and practicing self-care (Marquis & Huston, 2012).

Marquis and Huston (2012) listed a range of strategies to create a motivating climate, for example, managers should have a clear expectations for workers, be fair and consistent, be a firm decision maker, develop the concept of

teamwork and develop group goals, integrate the staff's needs and wants with the organization's interests and purpose, know the uniqueness of each employee, allow opportunities for growth, involve employees in decision making, be certain that employees understand the reason behind the decisions and actions, and reward desirable actions.

5) Change management

Change is the essence of leadership and implied in the definition of leadership (Huber, 2010; Yukl, 2010). For example, transformational leadership is a model of leadership that embodies change. However, it is the most important and also the most difficult leadership responsibilities (Yukl, 2010).

First-line nurse managers are not only the recipients of change, but also take on roles of change agents and early adopters of innovations. They may also take on roles in initiating and sustaining change (Huber, 2010).

Participation, communication, and assessing the readiness for change are useful strategy for preplanning the management of change. In addition, it is important for managers to anticipate resistance and better understand the perspectives of resistors. In the process of managing change, the nurse managers as change agents can follow a number of steps: 1) articulate a clear need for the change and explain a rationale for change; 2) allow emotions to be worked out; 3) provide participants with reliable information and details to implement the change; 4) help individuals to cope with change; 5) motivate through rewards and benefits. It is apparent that the most effective managers possess self-confidence, knowledge of change process, and interpersonal skills when facilitating effective change. In addition, it is important to create a learning environment that helping people embrace change (Huber, 2010).

According to Marquis and Huston (2012), nurse managers must act as role model to view change positively as a challenge and an opportunity for growth. They must be well grounded in change theories and be able to apply them appropriately, such as Lewin's (1951) change process. Classic change strategies include giving current research as evidence to support the change, using peer pressure and group norms to socialize and influence people, and application of power to effect change. Nurse managers need to recognize that subordinates' values, educational levels, culture and social backgrounds, and experience with change that will have impact on the degree of resistance. Strategies such as encouraging subordinates to talk about their perceptions of the driving forces can help managers to assess change support and resources, and assessing which worker will promote change and collaborating with change promoters. Nurse managers should identify trends and changes that may affect their organizations and proactively prepare for these changes.

In summary, communication, motivation, problem solving and decision making and good interpersonal relationships are important leadership competency to facilitate effective change (Huber, 2010; Marquis & Huston, 2012).

6) Delegation

Delegation is directly related to leadership effectiveness as well as an essential element of the directing phase of management process. It benefits both subordinates and the organization since subordinates gain self-esteem and increased job satisfaction from the responsibility and authority given to them, and the organization moves a step toward achieving its goals (Marquis & Huston, 2012).

Marquis and Huston (2012) presented strategies that will increase the likelihood of successful and effective delegation. First, plan ahead and carefully

assess the situation before delegating, and to clearly delineate the desired outcomes. Second, identify the skill or educational level necessary to complete the job. Third, select capable personnel who are initiative, interest, and imagination. Fourth, communicate the goals clearly. Fourth, empower the delegate. Fifth, set deadlines and monitor progress. Sixth, model the role and provide guidance. The next strategy is evaluating performance. Lastly, reward accomplishment.

The Five Rights of Delegation are: 1) right task 2) right circumstances 3) right person 4) right direction/communication 5) right supervision and evaluation (Huber, 2010; Marquis & Huston, 2012).

7) Critical thinking, problem solving and decision making

Critical thinking is defined as a set of cognitive skills including interpretation, analysis, evaluation, inference, explanation, and self-regulation. Critical thinking skills enhance the quality of clinical judgment, problem solving, and decision making. Problems present opportunities for decision making and change and require critical thinking to arrive at the best solution. Critical thinking skills are one of the top-rated competencies required for nurse managers.

Nurse managers have an obligation to create a climate that promotes critical thinking. First, nurse managers should encourage questions such as "Is what you are doing or proposing based on sound evidence?" In addition, allowing staff and self "thinking time" is essential for reflection and is key component of critical thinking. Other strategies including use of critical pathways and develop concept maps.

The general steps for problem solving are: 1) define the problem 2) gather information 3) determine desired outcome 4) develop solutions 5) consider

consequences 6) make decisions 7) implement and evaluate solutions. The steps of the decision-making process are as follows: 1) recognize and define the process 2) gather relevant data or information 3) identify possible solutions or options to solve a problem or deal with an issue 4) reach a decision 5) evaluate the results 6) test or assess the solutions. There are several problem-solving and decision-making tools, such as brainstorming and decision tree.

Nurse managers do not have to solve all the patient care problems that occur on a day-to-day basis. Strategies include direct intervention, indirect intervention, delegation, purposeful inaction, and consultation collaboration.

Conclusion

This review of the literature presents knowledge related to leadership systematically. Since leadership can be learned and practiced (Huber, 2010), nurse managers in Shanghai should understand the definition of leadership, clarify the similarities and differences between leadership and management, understand specific behaviors of leadership, adapt leadership styles to specific situations, and integrate leadership roles into management functions. In addition, leadership strategies can provide guidance for construction of operational definitions of this study. Moreover, the cognitive skills and interpersonal skills such as motivation and critical thinking can help nurse managers to promote the development of nursing profession.

3.5 Leadership competency models

In response to changes and associate challenges, there are many leadership competency models published for nurse managers.

In the USA, Sherman et al. (2007) developed a leadership competency model for front line nurse managers. The purpose of this research was to explore the

viewpoints of the participants on the contemporary nurse manager role and to gain perspective on the leadership skills and competencies to build a leadership competency model. A total of 120 front line nurse managers including 98 experienced nurse managers and 22 inexperienced nurse managers participated in this study. A grounded theory methodology was used and a structured face-to-face interview was conducted by the researchers.

In addition to patient safety and quality initiatives, recruitment and retention of staff, dealing with change and coaching staff to deal with change were seen as major responsibilities of nurse managers in today's healthcare environment.

Six competency categories emerged from the research findings to form a leadership competency model. These are personal mastery, interpersonal effectiveness, human resource management, financial management, caring and systems thinking. Each category involves relevant knowledge, skills, personal traits, attitudes and behaviors needed by contemporary nurse managers.

Personal mastery means nurse managers need to display self-awareness, self-confidence, and be able to trust and empower others. They should be able to acknowledge mistakes and treat each staff fairly. Interpersonal effectiveness requires nurse managers to demonstrate listening skills, effective communication skills, and to be visible to and respect staff, facilitate conflict, and manage change and information. Human resource management consists of coaching, supporting and developing staff, and policy awareness. Financial management requires nurse managers to be competent in budgeting, and staying current on and engaging staff in financial issues. Caring contains behaviors of self-care, caring for staff and patients. Systems thinking requires nurse managers to demonstrate visionary thinking stay updated about

regulatory requirements, keep staff informed about change and impact on the work area, and help staff understand the relationship between their work and organizational goals (Sherman et al., 2007).

The American Organization of Nurse Executives (AONE), an organization for the top nursing administrators in health care, identified five competencies for nurse managers at all levels. The five components are leadership, communication and relationship building, business skills, knowledge of the healthcare environment, and professionalism.

Leadership skills include foundational thinking skills, personal journey disciplines, systems thinking, succession planning, and change management. Foundational thinking skills require nurse managers to address ideas, beliefs or viewpoints that should be given serious consideration, recognize one's own method of decision making, critically analyze organizational issues after a review of the evidence, maintain curiosity and an eagerness to explore new knowledge and ideas, promote nursing leadership as both a science and an art, and provide visionary thinking on issues that impact the healthcare organization. Personal journey disciplines require nurse managers to value and act on feedback that is provided about one's own strengths and weaknesses, demonstrate the value of lifelong learning, learn from setbacks and failures as well as successes, assess one's personal, professional and career goals and undertake career planning, and seek mentorship from respected colleagues. Systems thinking requires nurse managers to promote systems thinking as a value in the nursing organization, consider the impact of nursing decisions on the health care organizations as a whole, provide leadership in building loyalty and commitment throughout the organization, and synthesize and integrate divergent

viewpoints for the good of the organization. Change management requires nurse managers to utilize change theory to plan for the implementation of organizational changes, serve as a change agent, assist others in understanding the importance, necessity, impact and process of change, support staff during times of difficult transitions, recognize one's own reaction to change and strive to remain open to new ideas and approaches, and adapt leadership style to situational needs (American Organization of Nurse Executives [AONE], 2005).

McCarthy and Fitzpatrick (2009) reported on the Irish Competency Model for Nursing Management study to identify and define the competencies required for effective nursing management in the Irish health and social services. The findings generated generic eight competencies. They are evidence-based decision-making, relationship building, communication and influencing, initiation and innovation, resilience and composure, integrity and ethical stance, and sustained personal commitment. In addition, competencies identified specifically for front-line nurse managers are planning and organization, building and leading a team, clinical practice and service quality, and orientation (McCarthy & Fitzpatrick, 2009).

In the UK, the National Health Service (NHS) Leadership Qualities Framework describes the details of each leadership quality, and the framework is applicable to leadership roles at any level of service. The leadership qualities are grouped into three clusters: personal qualities, setting the direction and delivering the service. Personal qualities are composed of self belief, self awareness, self management, drive for improvement, and personal integrity. Setting the direction consists of seizing the future, intellectual flexibility, broad scanning, political astuteness, and drive for results. Delivering the service encompasses leading change

through people, holding to account, empowering others, effective and strategic influencing, and collaborative working (Institute for Innovation and Improvement, 2006).

Conclusion

The components within each leadership competency models form the basis for the construction of conceptual framework in this study. The details of concept analysis and synthesis will be presented in the following paragraphs.

4. Delphi Technique

4.1 Definition

Delphi technique was a method used to achieve agreement among a group of experts on a certain issue where none previously existed (Keeney, Hasson, & McKenna, 2011).

4.2 Characteristics

First, quasi-anonymity among experts which refers to when the respondents may be known to each other, but their judgments and opinions remain strictly anonymous. Second, Delphi works due to the feedback given to the expert panel and the quasi-anonymity afforded to the panel. Third, the Delphi technique does not produce any right or wrong answers, instead, it produces valid expert opinion. Fourth, statistical group response which expresses judgment using summary measures of the full group response (Keeney et al., 2011).

4.3 Major process

1) Delphi rounds

The classical Delphi used four rounds, in some cases, it has been shortened to two or three rounds. The number of rounds depends on the time available, and whether the researcher commenced the Delphi sequence with one broad question or with a list of questions. Round 1 used to generate ideas and the panel members are asked for their responses or comments about the issue. Subsequent rounds take the form of structured questionnaires incorporating feedback to each panel member.

2) Design of first round

Traditional approach begins with an open qualitative round in the form of an open-ended question. Modified Delphi requires the researcher to identify those issues of high pertinence which can be developed from a review of the literature. Major modifications are: developing statements from the existing literature in the field, undertaking focus group, and undertaking one-to-one interviews.

3) Level of consensus

Consensus refers to a collective agreement or consistency of opinion among the panelists. According to Punpataracheevin (2008), criteria for gaining consensus on each item were median equal to or greater than 3.50, and interquartile range equal to or less than 1.50.

4) Identifying target sample

An expert has been defined as a group of informed individuals and as specialists in their field or someone who has knowledge about a specific subject.

The inclusion criteria can include: knowledge and practical experience with the issue under investigation, capacity and willingness to contribute, sufficient time, good written and communication skills, specific qualifications, and work experience in a particular area.

The sample size may number from tens to hundreds, depending on the topic under investigation, the relevant perspectives required, complexity of the problem, resources available, and range of expertise required. Large Delphi panels have a higher attrition rate. According to Macmillan (1971) cited by Bunaorn (1979), the sample size of the Delphi is at least 17.

Many Delphi studies have employed non-probability sampling techniques. In order to ensure the participation of the right kinds of experts, who understand the issues and represent a variety of viewpoints, sample selection may not be random.

4.4 Advantages and limitations of Delphi

Each round is constructed entirely on the experts' responses to previous rounds, this encourage ownership and active participation. In addition, in the second or third round, it enables participants to consider the opinions of other experts. Some weaknesses of Delphi include a lack of clear guidelines on aspects, such as expert selection, sample size, and the definition of consensus (Keeney et al., 2011).

4.5 Validity and reliability

Delphi provides evidence of validity as follows. First, the process is based on expert opinion from the real world and it is group opinion. Second, the open qualitative round allows experts to generate scale items and the subsequent rounds allow the opportunity to review and judge the appropriateness of the scale. Third,

Delphi contributes to concurrent validity due to the successive rounds and achievement of consensus. Reliability can be enhanced due to participants do not need to meet face-to-face, avoiding group bias. Situation bias can be controlled through standardizing the recruitment procedure, the sample size, the number of rounds, the design of questionnaire and the contents of the first round questionnaire (Keeney et al., 2011). In conclusion, issues that are critical to its validity and reliability are the development of questionnaire, the selection of experts, sample size, the level of consensus, feedback and data analysis.

5. Research Related to Leadership

5.1 Leadership competency of nurse managers in Shanghai

1) Ge et al. (2014) explored servant leadership behavior of head nurses as perceived by staff nurses from hospitals of different levels in Shanghai. 1151 nurses participated in this study. The questionnaire consisted of six components: dedication, caring, empowerment, respect, easy-going, and promoting the development of nursing profession. The results showed that the average score of head nurses' servant leadership behavior was higher than the median of the scale. The recognition of easy-going was the highest score while the recognition degree about empowerment was the lowest. In addition, the score of head nurses from tertiary hospitals was lowest compared with secondary and community hospitals. The results indicated that the level of head nurses' servant leadership behavior in Shanghai is comparatively good, but there is still room for improvement, especially for head nurses in tertiary hospitals. According to this paper, the lowest score of empowerment may due to nursing work mainly involves routine tasks and lacks of autonomy. The score of head

nurses' servant leadership behavior in tertiary hospitals was the lowest due to heavy workload and complexity of diseases.

2) Xu (2013), director of nursing in Shanghai, described the qualities of qualified nurse managers in China. She indicated that nurse managers should have a global mindset and understand the global trend of nursing. Second, nurse managers need to understand the vision of their organizations, as well as strategically think about nursing professional orientation. Third, nurse managers should demonstrate the astuteness of policy, influencing behaviors, communication and relationship building skills, negotiation skills, and the ability to manage change.

3) Shan (2006), a head nurse from Shanghai, described her experience and application of situational leadership theory. She noted that she adapted her leadership style on the basis of the level of the staff's maturity, such as age, personality, years of experience, professional title, and degree. For junior nurse, she applied authoritarian leadership style, and for senior nurse she applied participative and empowerment leadership style. The results showed that nursing outcomes and patient satisfaction improved after one year's practice of situational leadership. She stressed the importance of leadership in the development of nursing profession in China. In addition, she indicated that nurse managers should relish the challenge and explore the way to promote the development of nursing profession in China.

5.2 International leadership qualities and competencies

There are seven papers discussed the qualities of exemplary nurse managers, as well as the essential competencies needed by nurse managers.

1) Perra (2001) described nine qualities of nurse managers that contribute to quality outcomes in terms of staff and patient satisfaction as well as organizational

productivity based on integrated leadership theory. First, in terms of self-knowledge and respect, nurse managers should have clearly defined personal and professional values and a strong sense of worth which are fundamental to the practice of other qualities. They need to be sure that their values and those of the organization are not in conflict. Second, managers need to respect diversity and identify the unique needs of staffs. Third, trust relationship can be built through listening, follow through, sharing information, and providing tools necessary for staff to be successful. Fourth, integrity enables leaders to act on their beliefs and look critically at their practice and that of their staff which will facilitate change and improvement. Fifth, department managers play a critical role to translate the organizational vision into reality. In addition, sharing the goals with staff will enhance their sense of achievement. Sixth, learning can facilitate staff participation. Seventh, effective communication involves active listening, addressing body language, and clearly stating thoughts, needs and feelings. Finally, leaders need to view change positively, demonstrate risk taking, accept the failed consequences and role model and foster within their staff the flexibility.

2) Mathena (2002) reported variables key to the success of the nurse managers role and areas of education that may influence that success. Nurse managers within five major Harvard-affiliated hospitals participated in this study. Of the 91 surveys distributed, 55 were returned, representing a response rate of 60%. The instrument which contained a 5-point Likert-type scale was developed by the researcher from literature review. Face validity was then determined by the expert panel. Seventy-one skill sets in eight different categories were determined to identify the potential competencies needed by nurse managers. The categories included

interpersonal, clinical, technical, financial, staff development, resource management, political, and general skills. Paired t-test was used to test for significant differences between perceived importance of the skill set to a successful manager and the need for education intervention. Seventy one individual variables within each category were also analyzed by paired t-tests.

The results showed that the nurse managers rated general skills (M=4.50), interpersonal skills (M=4.41), and staff development skills (M=4.33) as the top three categories that were most important to their success. Technical skills (M=3.79) were rated as the least important. In terms of educational needs, they rated financial skills (M=3.50), technical skills (M=3.28), and general skills as the most important areas. Clinical skills (M=2.21) were rated as least important for further education. The mean scores of the categories defined as important to success ranged from 3.86 to 4.50, the previewed need for professional development ranged lower (2.21-3.50), reflecting that they thought their learning needs were not as critical. According to this paper, this may due to their length of tenure and feeling lack of time. The nurse managers rated communication, negotiation, critical thinking, balance between work and home, and conflict management as the most important variables within the categories. They perceive situational analysis, data management, cost benefit analysis, financial projections, and financial analysis as the most important educational needs.

3) Kleinman (2003) conducted a surveyed design study to explore perceptions of nurse managers and nurse executive regarding competencies required for nursing management roles. 35 nurse managers and 93 nurse executives participated in this study. The questionnaire was developed by the researcher and reviewed by the expert panel to ensure content validity. The results showed that both nursing management groups agreed that staffing and scheduling, management, and

human resource management are the three most important competencies for nurse managers. Nurse executives valued the acquisition of a master's degree as essential for nurse managers. In addition, this paper highlighted business skills for nurse managers due to they are less well prepared to manage the business activities than clinical activities.

4) Huston (2008), a researcher from the US, proposed eight leadership competencies likely to be essential to nurse leaders in 2020. The first competency is a global perspective or mindset which allows nurse managers to proactively identify and respond to emerging global healthcare and nursing trends, as well as sharing technologies, strategies. The second competency is a working knowledge of technology. Third, decision-making skills encompass several strategies such as decision-making based on empirical science and research-based and best practice, using network panels to help make decisions, and applying management tools. A fourth competency is prioritizing quality and safety. This paper advocated the application of quality tools such as "Six Sigma", and summarized the strategies that enhance patient safety, such as creating a safety climate, discussing safety issues at every opportunity and policy support. The fifth competency is politically astute. The sixth competency is collaborative and team building skills. This paper suggested that nurse managers should integrate the priorities of both the industrial age and relationship age leadership paradigm. In addition, collaboration is necessary as the healthcare team is characterized by highly educated. Seventh, nurse leaders should be able to balance authenticity and performance expectations. Finally, the most important competency needed by nurse managers is coping effectively with change.

5) Anderson, O'Connor, Manno, and Gallagher (2010) used a national survey instrument to explore the qualities nurse managers viewed as significant to their leadership success. A focus group consisted of 5 nurse managers who scored above the mean on the nursing leadership component of the job satisfaction scale were asked to participate the study. First level codes, collapsed codes and theoretical constructs of the data were presented. The results showed that the key elements of successful leadership were: visibility, communication, approachable, willing to help, fairness, role model, and supportive. Among them, visibility and communication form the core of the analysis. This study indicated that respect and empathy were the quality components that make visibility and communication effective. This study postulated the Nursing Leadership Values Model which represents the critical nursing leadership characteristics of visibility and communication and the values of respect and empathy, which inform them.

6) Anonson et al. (2014) reported on a study that explored six frontline nurses' perceptions of the characteristics of exemplary nurse leaders in times of change in Canada. Data was collected via interviews with six frontline nurses who were purposively selected based on their proximity to the researcher, their accessibility and their diverse experience. This study identified six characteristics of exemplary nurse leaders as follows: a passion for nursing, a sense of optimism, integrity and respect, ability to manage crisis involving knowledge and expertise, teamwork and communication, and facilitating professional growth.

7) Thompson and Hyrkas (2014) asserted that in the context of change and globalization, nursing leaders need to "have a good understanding of the healthcare system, social and political context, purposes of the healthcare reform, a vision of

how health and nursing services may be developed in their countries, the ability to plan strategically for and manage change, and the strength and confidence to be proactive in a challenging and often stressful change environment".

5.3 Leadership of first-line nurse managers

Six papers focused on leadership behaviors and styles of first-line nurse managers, as well as their impact on creative and safe work climate, job satisfaction, and staff nurses' professional practice.

1) Manojlovich (2005) conducted a survey study to explore the effect of leadership behavior of first-line nurse managers on the relationship of structure empowerment and nursing self-efficacy to professional nursing practice behaviors. 365 participants returned the questionnaires, representing a response rate of 73%. The results showed that 46% of the variance in nurses' professional practice behaviors was explained by the strong leadership behaviors of the first-line manager. Strong leadership enhanced nurses' sense of self-efficacy by giving them access to organizational structures, such as power, resources, information and opportunities. Higher levels of self-efficacy were related to more professional practice behaviors.

2) Sellgren et al. (2008) explored how first-line nurse managers' leadership behavior relates to job satisfaction and a creative work climate. 770 staff nurses at a large university hospital participated in this study. The results showed that the correlation between leadership and creative work climate is stronger than between leadership and job satisfaction. Between job satisfaction and work climate the correlation is strong. The results indicated that the first-line managers' role as a climate builder is very important and has great impact on nursing staff job

satisfaction. This study revealed that positive leadership behaviors of nurse managers can improve nurses' job satisfaction through building a creative climate.

3) Another paper by Johansson, Andersson, Gustafsson, and Sandahl (2010) described the first-line nurse managers' conceptions and experience of their routine work and how leadership was exercised. Interviews were conducted with three first-line nurse managers at three Swedish hospitals. The data can be grouped into two themes. First, what it was to be a good professional (being), which involves personal traits, self-knowledge and awareness, and goals and frameworks for good nursing care. The second theme was creating a good work climate (doing), which consists of facilitating goals, trust, communication, knowledge of a good work climate, and promoting personal development. Further, the first-line nurse managers in this study indicated that personal development and knowledge mainly came from dealing with different situations and through training courses.

4) Heuston and Wolf (2011) reported transformational leadership behaviors demonstrated by the first-line nurse managers in an academic medical center based on Kouzes and Posner's Five Practices of Exemplary Leadership Framework. In-depth interviews were conducted with 35 qualified nurse managers to solicit a range of ideas about specific behaviors they used to demonstrate each of the 5 practices of exemplary leadership. This study also highlighted the importance and necessity of leadership competency of first-line nurse managers in times of change and advised that these behaviors can be adaptable to other settings.

5) N.Thompson, Hoffman, Sereika, and Lorenz (2011) performed a comparative study to compare nursing staff perceptions of safety climate in clinical units characterized by high and low ratings of leader-member exchange (LMX). 711

staff nurses and 34 unit directors participated from 34 inpatient units in an academic medical center, representing a broad perspective of varied units. The results revealed that high-quality relationships were associated with positive staff perceptions of safety behaviors. This study found that first-line nurse managers who have higher quality relationships with their staff can positively impact safety climate.

6) Wang et al. (2011) conducted a descriptive correlation survey to describe the effect of transformational leadership of first-line nurse managers on nurse job satisfaction in China. The purpose of this study was to describe the relationship between the transformational leadership of nurse managers and job satisfaction among clinical Registered Nurses at a tertiary care hospital in China. 238 nurses with the experience of more than one year completed the questionnaires, representing a response rate of 95.20%. The Chinese version of the Leadership Practice Inventory (LPI) and Nurse Job Satisfaction Scale (NJSS) which use a 5-point Likert scale were employed as questionnaires. The Chinese version of LPI and NJSS had a reliability of 0.91 and 0.93 respectively. Pearson's Product-Moment Correlation Coefficient was employed to analyze the relationship between two variables.

The findings showed that the total mean score of transformational leadership of nurse managers as perceived by the participants was at moderate levels (M=106.50, SD=27.31). Among five subscales, component of enabling others to act had a high level (M=3.74, SD=1.19), whereas components of modeling the way (M=3.59, SD=1.20), encouraging the heart (M=3.58, SD=1.16), inspiring shared vision (M=3.57, SD=1.15), and challenging the process (M=3.22, SD=1.14) were all at moderate levels. The lowest score of challenging the process indicated inadequate preparation for leadership of nurse managers. The job satisfaction was at a moderate

level (M=206.28, SD=40.32). The components of recognition and praise had the highest mean score (M=3.89, SD=0.84), the two lowest components were salary and compensation (M=2.67, SD=1.20), balance of family and work (M=2.99, SD=1.13). The findings revealed a positive relationship between the transformational leadership of nurse managers and job satisfaction among clinical Resisted Nurse (r=0.556, p<0.001), this result was consistent with previous studies conducted overseas. Among five components of transformational leadership, encouraging the heart (r=0.545, p<0.001) was the most related to job satisfaction, followed by enabling others to act (r=0.527, p<0.001), inspiring a shared vision (r=0.506, p<.001), challenging the process (r=0.504, p<0.001), and the lowest was modeling the way (r=0.495, p<0.001). The results indicated that Chinese nurses believe that nurse managers should act as role models both in clinical nursing and nursing management, define clear tasks and goals, provide new and innovative approaches to their work, convey new organizational values and revised management practices and policies, and show trust and confidence in their nurse as well as empower them.

This paper suggested that it is essential to provide training programs to improve leadership competency among nurse managers. In addition, Wang et al. (2011) maintained that apart from supervision, nurse managers should motivate nurses to make the latter enthusiastic about clinical nursing work. In addition, nurse managers who are role models should be acknowledged and supported.

5.4 The impact of leadership on patient and nursing outcomes

Two papers of systematic review of the literature documented the evidence that leadership influence both patient and nursing outcomes.

1) Wong et al. (2013) performed a systematic review of 20 studies that examine the relationship between nursing leadership practices and patient outcomes. A conceptual framework was developed based on Donabedian's structure, process and outcome framework. Leadership style of the leaders that categorized as either relational or task-oriented was defined as structure. The process concept in this framework was defined as the leadership processes or mechanisms by which leaders may contribute to patient outcomes. Patient outcomes were grouped into five categories using content analysis: patient mortality, satisfaction, adverse events, complications and healthcare utilization.

In terms of process, the findings showed that leadership influences patient outcomes indirectly through processes such as making changes in the work context or influencing staff attitudes, behavior or performance that may facilitate patient care. Relational leadership style was positively related to staff expertise, communication, collaboration, a clear vision and expectations which in turn decreased adverse events and mortality. In addition, relational leadership style was negatively related to staff turnover, overtime and nurse to patient ratio.

Adverse events, patient mortality and patient satisfaction were the three main patient outcomes that were supported in terms of number of studies and direction of effect. The findings showed that relational leadership was associated with the reduction of adverse events, specifically, medication errors, through leaders' influence on human resource variables that may facilitate patient care, staff expertise, turnover, absenteeism, overtime and nurse to patient ratios. Three of six studies showed a significant negative relationship between leadership and patient mortality. Four out of the seven studies showed significant associations between leadership and

increased patient satisfaction. Among the four studies two studies showed relational leadership was associated with patient satisfaction while other two studies found that task-oriented leadership style and transactional leadership were related to increased patient and family satisfaction. According to the researchers, these findings may indicate that some elements of each style are needed to ensure care processes that contribute patient satisfaction such as clear standards, role expectations and collaborative working relationships. Further, one study showed that manager support was associated with a lower patient length of stay through the human resource indicators of lower absenteeism, overtime and nurse to patient ratio. Another study showed that higher leadership ratings were associated to reduced patient complications.

2) In a systematic review of 53 studies, Cummings et al. (2010) examined the relationships between various styles of leadership and outcomes for the nursing workforce and their work environments. A total of 64 outcomes were grouped into five categories: staff satisfaction with work, staff relation with work, staff health and wellbeing, work environment factors, and productivity and effectiveness.

Twenty four studies in this review reported that relational leadership styles were associated with higher nurse job satisfaction, whereas 10 studies found that task-oriented leadership styles were associated with lower job satisfaction. The category of staff relations with work include staff reports of organizational commitment, intent to stay or leave the profession, and actual turnover. Ten studies reported significantly increased organizational commitment with relational leadership, whereas five studies reported significantly lower organizational commitment with task focused leadership styles. Nurses' intent to stay was significantly higher with consideration leadership

and lower with decision decentralization, similarly, nurse' intent to leave was significantly higher with management by exception leadership and lower with charismatic leadership. Actual retention was significantly higher with consideration, better subordinate relations. In addition, leader-member exchange and transformational leadership contributed to a decrease in turnover.

Relationally focused leadership styles was positively related to the category of work environments which involve empowerment, culture and climate, research utilization, role clarity and teamwork. Such as six studies reported relational leadership styles increased nurses' research utilization, use of evidence-based practices from research, and implementation of best practice guidelines. Other work environment outcomes such as innovation, conflict management, and nursing models of care were all reported significantly higher in association with relational leadership styles. Thirteen of the 18 studies which examined the outcomes of productivity and effectiveness were reported significantly higher in association with relational leadership styles. Six studies reported significantly reduced effectiveness and productivity was associated with task focused leadership styles. Finally, this paper highlighted the importance of factors influence nurses' job satisfaction due to its relation to quality care issues. According to this paper, leadership style can have indirect impact on patient outcomes by directly working through the nursing workforce and effects on the work environments (Cummings et al., 2010).

6. Concept Analysis

        Based on the review of the literature, the researchers analyzed the concept in the international leadership competency models and the suggestions by nursing experts in Shanghai. Table 1 lists the components as follows.

Table 1 Leadership competency of first-line nurse managers in Shanghai from literature review

AONE (2005)	NHS (2006)	Sherman et al. (2007)	McCathy and Fitzpatrick (2009)	Xu (2013)	Ge et al. (2014)
1.Leadership	1.Personal qualities	1.Personal mastery	1.Evidence-based decision making	1.Global mindset	1.Dedication
2.Communication and relationship building	2.Setting the direction	2.Systems thinking	2.Relationship building	2.Vision	2.Caring
3.Business skills	3,Delivering service	3.Interpersonal effectiveness	3.Communication and influencing skills	3.Astuteness of policy	3.Empowerment
4.Knowledge of the healthcare environment		4.Human resource management	4.Initiation and innovation	4.Communication and relationship building	4.Respect
5.Professionalism		5.Financial management	5.Resilience and composure	5.Change management	5.Easy-going
		6.Caring	6.Integrity and ethical stance		6.Promote the development of nursing profession
			7.Sustained personal commitment		

In summary, personal journey disciplines, resilience and composure, initiation and innovation, integrity and ethical stance, sustained personal commitment, personal qualities, dedication, caring, respect, and easy going are congruence with the concept of personal mastery in the Sherman et al. (2007) leadership competency model.

Components of evidence-based decision making, setting the direction, global mindset, and vision are congruent with the concept of systems thinking. In addition, interpersonal effectiveness, negotiation, and influencing behaviors can be synthesized as communication and relationship building in the AONE (2005) model.

Delivering the service involves leading change through people, and change is embodied in the concept of leadership displayed by AONE (2005). Moreover, promoting the development of nursing profession requires the ability to manage change.

Business skills displayed by AONE (2005) consist of human resource management, financial management, and information technology. Empowerment demonstrated by Ge et al. (2014) can be grouped into human resource management.

As displayed by AONE (2005), knowledge of the healthcare environment includes clinical skills, patient safety, quality improvement and risk management, astuteness of policy, patient care delivery models, health economics, and evidence-based practice. Astuteness of policy is also emphasized by Xu (2013).

Conclusion

The initial hypothetical model of conceptual framework in this study consists of 8 components which are consistent with the concept of AONE (2005) and Sherman et al., (2007). It is shown in Figure 1.

7. Conceptual Framework

Based on the analysis of the concept of each component in international leadership competency models and the suggestions by nursing experts in Shanghai, the researchers synthesized 8 components for this study from the concept of AONE (2005) and Sherman et al. (2007) leadership competency models. It is presented in Figure 1.

Concept of leadership competencies of
first-line nurse managers of the American
Organization of Nurse Executives [AONE]
(2005) and Sherman
et al. (2007). There are 8 components as
follows:
1. Personal mastery
2. Systems thinking
3. Communication and relationship
   building
4. Change management
5. Human resource management
6. Financial management
7. Information technology
8. Knowledge of the healthcare
   environment

Leadership
competencies
of first-line
nurse
managers in
Shanghai,
China

The expert panel consists of:
1. Director of nursing
2. Supervisor/ head nurse
3. Senior nurse
4. Nursing educator

Figure 1 Conceptual framework

CHAPTER III
METHODOLOGY

This study aimed to explore leadership competencies of first-line nurse managers in Shanghai, China, using Delphi technique. This chapter contains the methodology utilized to conduct the research. The study design, sample selection, and data collection and analysis are discussed in this chapter.

Study Design

The e-Delphi approach was used to address the aim of the study. The experts in this study preferred to use e-mail to respond to each round of questionnaire. The reason for this because they use it as the main form of communication. They consider the electronic questionnaires as environmental friendly as well as efficient way to carry out research. In addition, the experts in this study work in different areas in Shanghai. Therefore, the e-Delphi approach was selected an appropriate and relevant research approach.

The advantages of the e-Delphi are obvious. Not only it is an environmentally friendly way to conduct research, it leads to more rapid feedback from the experts. The electronic responses can be fed into a Statistical Package which speeds up analysis, and there is no cost in terms of postage or printing (Keeney et al., 2011). In conclusion, the e-Delphi is time-efficient and cost-saving.

The disadvantages are that the busy people will complete the e-Delphi in a casual fashion or may decide not to participate, and their secretaries have access to their e-mail accounts and this may threaten response anonymity (Keeney et al., 2011).

Sample

The first stage of the study involved setting up a panel of participants who are knowledgeable about nursing administration and leadership. According to Macmillan (1971) cited by Bunaorn (1979), the sample size of the Delphi is at least 17. The expert panel in this study consists of 20 experts including director of nursing, supervisor or head nurse, senior nurse and nursing educator. All experts who participated in the study met the inclusion criteria as follows: 1) a bachelor's degree or higher in nursing and more than 5 years' experience of nursing administration; 2) publications or receiving training programs related to nursing administration and leadership; 3) willing to contribute to the study.

This study combines snowball sampling with purposive sampling method to recruit participants. According to Burns and Grove (2011), researchers obtain the first few participants through a purposive sampling method, and expand the sample size using snowball sampling, which is an effective strategy for identifying subjects who can provide the greatest insight and essential information.

The first two experts who are director of nursing and Dean of faculty of nursing in Shanghai were identified from an extensive review of the literature. The researchers contacted with the director of nursing and the Dean. Both of them helped identify the potential participants who met the sampling criteria.

A total of 20 experts were identified in Shanghai including 5 directors of nursing, 12 head nurses, 2 senior nurses, and 1 nursing educator. Demographic information on the participants is presented in Table 2 and Table 3.

Table 2 Number of the Experts in Each Round

Position	Round 1	Round 2	Round 3
1. Director of nursing	5	5	5
2. Supervisor or head nurse	12	12	12
3. Senior nurse	2	2	2
4. Nursing educator	1	1	1
Total	20	20	20

Table 3 Demographic Characteristics of Participants

Characteristics	Number	Percentage%
Type of hospital		
General hospital	13	65.00
Military hospital	7	35.00
Hospital classification		
Tertiary hospital	17	85.00
Secondary hospital	1	5.00
Primary hospital	2	10.00
Position		
Director of nursing	5	25.00
Supervisor or head nurse	12	60.00
Senior nurse	2	10.00
Nursing educator	1	5.00

Table 3 Demographic Characteristics of Participants (Continued)

Characteristics	Number	Percentage%
Highest academic degree		
Bachelor	11	55.00
Master	8	40.00
Doctorate	1	5.00
Professional title		
Nurse in charge	12	60.00
Associate professor nurse	7	35.00
Professor nurse	1	5.00
Years of experience in nursing administration		
5-9	7	35.00
10-19	12	60.00
> 20	1	5.00

Research Procedures

Round 1

Design of instrument

The round 1 questionnaire consisted of two sections. The first section asked for demographic information including employment and correspondence details, as well as their experience related to nursing administration. The second section was a semi-open ended form questionnaire. This was developed by the researchers on the basis of literature review. The procedures are presented as follows:

1) Conduct an extensive review of the literature related to leadership competency. Focus specifically on evidence-based leadership competency models for nurse managers, as well as suggestions by nursing experts in Shanghai.

2) Analyze the situation of Shanghai and assess the development needs of nurse managers according to the international standard, domestic policy requirements, and development trends of nursing in Shanghai.

3) Analyze the concept of each component in international leadership competency models. Then synthesized 8 components from the concept of American Organization of Nurse Executives [AONE] (2005) and Sherman et al. (2007) leadership competency models. These components form 8 questions within first round questionnaire respectively, for example, "How do you think about personal mastery of the leadership competency of first-line nurse managers in Shanghai, China?".

4) Incorporate key words emerged from operational definitions into each question which serve as guidance for completion.

5) Discuss with advisor to ensure the content and face validity of the questionnaire.

The semi-open ended form questionnaire with 8 components allows respondents the freedom to describe the details of each component.

Data collection

The letter of invitation and round 1 pack including cover letter, instructions, and round 1 questionnaire were e-mailed to the 20 experts in June 2015. The questionnaire asked the experts to describe details in each component of leadership competency freely based on their knowledge and experience as well as what they perceive important and necessary for first-line nurse managers. Panel members were given a 2-week deadline to return the completed questionnaire, and a reminder was e-mailed 1 week before the cut-off date. In addition, another reminder was send to those who had still not responded 2 weeks later. This follow-up strategy for non-respondents was also used in the subsequent two rounds. The period of first round data collection was 20 days.

Data analysis

The qualitative data from round 1 was analyzed using Burnard (1991) content analysis framework. This provided a systematic approach to the measurement of the frequency or the intensity of occurance of words, phrases or sentences. The aim of content analysis is to group all similar statements into areas and then examine each area for statements that are either exactly the same and can be collapsed into one statement (Burnard, 1991).

Round 2

Design of instrument

The round 2 questionnaire was designed using the items generated from the first round. The experts were asked to rate each of the item on a 5-Likert scale (5. very important; 4. fairly important; 3. neither important or not important; 2. not very important; 1. not at all important).

The round 2 questionnaire consists of 8 components with 60 items as follows:

1. Personal mastery   11 items

2. Systems thinking   9 items

3. Communication and relationship building 11 items

4. Change management   7 items

5. Human resource management   9 items

6. Financial management   5 items

7. Information technology   4 items

8. Knowledge of the healthcare environment   4 items

The example of the round 2 questionnaire is presented below.

No.	Items of leadership competency	Level of importance				
		5	4	3	2	1
1.	**Personal mastery**	5	4	3	2	1
1.1	Demonstrate self-confidence, emotional stability and maturity					
	……………					
8.	**Knowledge of the healthcare environment**					
8.4	Concern about the hot topics of nursing research and incorporate research findings into nursing practice					

Data collection

Responses from round 1 were used to design a second questionnaire which was again e-mailed to those experts who participated in the first round in July 2015. Respondents were asked to rate the importance of each on a 5-point Likert scale (5, very important; 4, fairly important; 3, neither important or not important; 2, not very important; 1, not at all important). As well as the above follow-up strategy for non-respondents. Panel members were given a 2-week deadline to return the completed questionnaire. The period of round 2 data collection was 15 days.

Data analysis

The data from round 2 responses were quantitative. Descriptive statistics including median and interquartile range were calculated for each item using a Statistical Package. Median (Md) and interquartile range (IR) were used to describe the overall group response and the spread of the responses, respectively. The

acceptable criteria of each item suggested by Punpataracheevin (2008) were presented

as follows.

The criteria of median (Md)

Range of median	Meaning of the criteria
4.50 – 5.00	The opinion of the experts agree that the item of leadership competency of first-line nurse managers in Shanghai is the **most** significant
3.50 – 4.49	The opinion of the experts agree that the item of leadership competency of first-line nurse managers in Shanghai is **more** significant
2.50 – 3.49	The opinion of the experts agree that the item of leadership competency of first-line nurse managers in Shanghai is **moderate** significant
1.50 – 2.49	The opinion of the experts agree that the item of leadership competency of first-line nurse managers in Shanghai is **less** significant
1.00–1.50	The opinion of the experts agree that the item of leadership competency of first-line nurse managers in Shanghai is the **least** significant

The criteria of interquartile range (IR)

Interquartile range (IR)	Meaning of IR
Less than or equal to 1.50	The expert opinion of leadership competency of first-line nurse managers in Shanghai **achieved consensus**
More than 1.50	The expert opinion of leadership competency of first-line nurse managers in Shanghai **didn't achieve consensus**

Round 3

Design of instrument

Sixty items of leadership competency which have achieved consensus during round 2 were included in a third round questionnaire. The individual response, the overall group response which describes by median, and the spread of the responses which describes by interquartile range were presented in the round 3 questionnaire. In addition, the experts were asked to give appropriate reasons if they change their original response. The example of the third round questionnaire and the meaning of the symbol are presented below.

△ Overall group response in round 2

✕ Your own response in round 2

Items of leadership competency	Level of importance					Overall group response	
1. Personal mastery	**5**	**4**	**3**	**2**	**1**	**Md**	**IR**
1.1 Demonstrate self-confidence, emotional stability and maturity Reason for change………………………	△ ✕					5	0

Data collection

Round 3 pack including cover letter, instructions for completion and round 3 questionnaire was e-mailed to the experts in August 2015. Sixty items that have achieved consensus, individual response and the overall group response were included in a third round questionnaire. The experts who responded during round 2 were asked to re-rate the items in the light of the overall group response using the same Likert scale from the round 2. They were given 2 weeks deadline to respond to the third round. The period of round 3 data collection was 18 days.

Data analysis

The analysis of this round also involved quantitative data, and descriptive statistics including median and interquartile range were again used to determine which item achieved consensus. The same acceptable criteria as the second round with the median equal to or greater than 3.50 and the interquartile range equal to or less than 1.50. In addition, the acceptable criterion of percentage of changes across round 2 and round 3 is less than 15% (Linestone & Turoff, 1975).

The results of the third round showed that a total of 60 items achieved consensus (Md=4.00-5.00, IR=0.00-1.00). The percentage of changes across round 2 and round 3 is 7.75% (shown in Appendix D), which is less than the acceptable criterion of 15%, indicating that there is no great changes regarding the results of round 2 and round 3. Therefore, the Delphi study stopped at the third round.

Validity and Reliability

In this study, Delphi provide evidence of content and face validity as follows. First, the development of questionnaires is based on expert opinion from the real clinical setting and it is group opinion. Second, the open qualitative round allows experts to generate scale items and the subsequent rounds allow the opportunity to review and judge the appropriateness of the scale. Futher, Delphi contributes to concurrent validity due to the successive rounds and achievement of consensus (Keeney et al., 2011). Reliability was enhanced by two ways. First, the participants do not need to meet face-to-face, avoiding group bias, and quasi-anonymity was ensured in this study, contributing to the equivalence of the research conditions. Second, the third round provided opportunity for experts to confirm and reconsider their responses from round 2. The analysis of changes showed that there is no great changes regarding round 2 and round 3 responses, indicating reliability regarding the results. Therefore, the Delphi stopped at the third round. Analysis of changes is shown in Appendix D.

Ethical Considerations

Full ethical approval was obtained from Ethics Review Committee for Research Involving Human Research Subjects, Health Sciences Group, Chulalongkorn University, Thailand (ECCU). Before data collection, the participant information sheet was e-mailed to the participants explaining the nature of the study, as well as providing assurance regarding the anonymity, voluntary and confidential nature of the response. In addition, the concept of quasi-anonymity was fully explained to the experts, which asked the experts do not discuss responses with each other as the study progresses. The researcher is obligated to ensure that the

respondents' identities and their responses are not disclosed to any other panel member. Although participants' identities and their responses were not anonymous to the researcher, they were anonymous to each other. Written consent form was gained before first round.

CHAPTER IV
RESULTS

This study aimed to explore leadership competencies of first-line nurse managers in Shanghai, China. This chapter presents the results of the study in each round. The results showed that a total of 60 items under the 8 components were generated in round 1, and 60 items achieved consensus during round 2 and round 3. These items are presented in tables as follows.

Round 1

After content analysis, the result of the first round showed that the 8 components contain a total of 60 items. First, personal mastery consists of 11 items. Second, systems thinking consists of 9 items. Third, communication and relationship building is composed of 11 items. Fourth, change management encompasses 7 items. Fifth, human resource management includes 9 items. Sixth, financial management encompasses 5 items. Seventh, information technology consists of 4 items. Lastly, knowledge of the healthcare environment consists of 4 items. Table 4 demonstrates the items generated from round 1.

Table 4 Items generated from first round

No.	Items generated from round 1
1.	**Personal mastery (11 items)**
1)	Demonstrate self-confidence, emotional stability and maturity
2)	Stay calm and remain optimistic under pressure and when facing misunderstand
3)	Be trustworthy and fair
4)	Serve as a role model for staff
5)	Demonstrate the value of lifelong learning
6)	Be innovative and creative
7)	Have a high level of moral and treat others politely
8)	Establish a good image that is spirit, amiable and elegant temperate
9)	Model a healthy lifestyle to patients and subordinates
10)	Demonstrate the spirit of devotion and a passion to nursing profession for reasons that go beyond money or status
11)	Display appropriate humor
2	**Systems thinking (9 items)**
1)	Demonstrate managerial behaviors that are patient-centered and build concern for the organization and staff
2)	Maintain sensitivity about patient issues and demonstrate pro-activity before problem arise
3)	Build organizational commitment and make nurses feel goal-directed
4)	Focus on organizational goals and take responsibilities for hospital
5)	Stay updated about new trends and developments in nursing
6)	Stay updated about new knowledge and skills in nursing, as well as new solutions to complicated diseases
7)	Provide visionary thinking on new initiatives in nursing
8)	Catch up with the development of the hospital and understand the direction of the top leader
9)	Collect and analyze data regarding input, process and outcome indicator
3.	**Communication and relationship building (11 items)**
1)	Determine the appropriate communication mode according to the situation
2)	Access internal climate includes the values, feelings, temperament prior to communication
3)	Demonstrate listening skills and empathic understanding
4)	Build trust, collaborative relationship with multidiciplinary team
5)	Develop rapport with a variety of people and make friends with subordinates
6)	Engage staff in decision making

Table 4 Items generated from first round (Continued)

No.	Items generated from round 1
3	**Communication (Continued)**
7)	Care about nurses as individuals and communicate with nurses of different generation and background
8)	Treat all subordinates with respect in terms of their interests and achievements, and create an environment which recognize and value differences in others
9)	Manage conflict professionally and actively
10)	Build academic relationship with nursing experts, and attend nursing programs actively
11)	Understand and respect culture diversity
4.	**Change management (7 items)**
1)	Adapt to the change according to the new policies and trends
2)	Create a management model that empower all subordinates to participate in management duties
3)	Recognize the benefits of empowerment and empower staff according to their abilities
4)	Create a learning environment
5)	Serve as a change agent and keep staff informed of change, and assist staff in understanding the importance, necessity, impact and process of change
6)	Identify the level of resistance to change and involve staff in building consensus on issues
7)	Cooperate with change promoters in the ward
5.	**Human resource management (9 items)**
1)	Provide new staff with systematic orientation and training
2)	Implement hierarchical management approach in terms of compensation, education and training
3)	Provide sufficient staffing to ensure patient safety and make flexible staffing plan according to the situation
4)	Assign tasks and delegate responsibilities to staff based on their abilities
5)	Demonstrate humanistic leadership and servant leadership style
6)	Provide mentorship, training and counseling to staff and encourage staff to make progress
7)	Provide a professional career ladder to staff
8)	Set the compensation and welfare for staff by performance appraisal
9)	Establish core value of nursing team and develop concept of teamwork
6.	**Financial management (5 items)**
1)	Understand cost analysis and cost control of the ward

Table 4 Items generated from first round (Continued)

No.	Items generated from round 1
6	**Financial management (Continued)**
2)	Understand healthcare economics knowledge, such as unit-cost analysis, cost-benefit analysis
3)	Demonstrate awareness of cost and utilize resources in a judicious manner, and improve the cost awareness of staff
4)	Improve the reputation of the hospital and protect the benefit of patients by avoiding to collect fees in disorder
5)	Add evaluation of cost-benefit to nursing outcome
7.	**Information technology (4 items)**
1)	Use computerized management system to record and analyze nursing data
2)	Demonstrate basic competency in statistics and Microsoft office
3)	Communicate and share the latest nursing information with staff by information technology
4)	Provide staff with database to search research articles
8	**Knowledge of the healthcare environment (4 items)**
1)	Understand clinical practice knowledge, evidence-based practice, patient safety and risk management, quality improvement, healthcare policy and patient care delivery models
2)	Learn the knowledge that can foster the development of nursing profession, such as research, ethics and law
3)	Understand the concept of Magnet hospital and create a safe and healthy work environment
4)	Concern about the hot topics of nursing research and incorporate research findings into practice

Round 2 and Round 3

A total of 20 questionnaires were returned in round 2 and round 3, representing a response rate of 100%. The results showed that a total of 60 items meet the criteria of consensus (Md=4.00-5.00, IR=0.00-1.00). The results of round 2 and round 3 show in Table 5.

Table 5 Items which achieved consensus during round 2 and 3

Items of leadership competency	Round 2			Round 3		
	Md	IR	Significance level	Md	IR	Significance level
1. Personal mastery						
1)Demonstrate self-confidence, emotional stability and maturity	5	0	Most	5	0	Most
2) Stay calm and remain optimistic under pressure and when facing misunderstand	5	0	Most	5	0	Most
3) Be trustworthy and fair	5	0	Most	5	0	Most
4) Serve as a role model for staff	5	0	Most	5	0	Most
5) Have a high level of moral and treat others politely	5	0	Most	5	0	Most
6) Demonstrate the value of lifelong learning	5	0	Most	5	0	Most
7) Be innovative and creative	5	0	Most	5	0	Most
8) Establish a good image that is spirit, amiable and elegant temperate	5	1	Most	5	1	Most

Table 5 Items which achieved consensus during round 2 and 3

Items of leadership competency	Round 2			Round 3		
	Md	IR	Significance level	Md	IR	Significance level
1. Personal mastery						
9) Model a healthy lifestyle to patients and subordinates	5	1	Most	5	1	Most
10) Demonstrate the spirit of devotion and passion to nursing profession for reasons that go beyond money or status	5	1	Most	5	1	Most
11) Display appropriate humor	4.5	1	Most	4.5	1	Most
2. Systems thinking						
1) Demonstrate managerial behaviors that are patient-centered and build concern for the organization and staff	5	0	Most	5	0	Most
2) Maintain sensitivity about patient issues and demonstrate pro-activity before problem arise	5	0	Most	5	0	Most
3) Build organizational commitment and make nurses feel goal-directed	5	0.75	Most	5	0	Most
4) Focus on organizational goals and take responsibilities for hospital	5	0	Most	5	0	Most
5) Stay updated about new trends and developments in nursing	5	0	Most	5	0	Most

Table 5 Items which achieved consensus during round 2 and 3 (Continued)

Items of leadership competency	Round 2			Round 3		
	Md	IR	Significance level	Md	IR	Significance level
2. Systems thinking						
6) Stay updated about new knowledge and skills in nursing, as well as new solutions to complicated diseases	5	0	Most	5	0	Most
7) Catch up with the development of the hospital and understand the direction of the top leader	5	0	Most	5	0	Most
8) Provide visionary thinking on new initiatives in nursing	5	1	Most	5	1	Most
9) Collect and analyze data regarding input, process and outcome indicator	5	1	Most	5	1	Most
3. Communication and relationship building						
1) Determine the appropriate communication mode according to the situation	5	0	Most	5	0	Most
2) Assess internal climate includes the values, feelings, temperament prior to communication	5	0	Most	5	0	Most
3) Demonstrate listening skills and empathic understanding	5	0	Most	5	0	Most

Table 5 Items which achieved consensus during round 2 and 3 (Continued)

Items of leadership competency	Round 2			Round 3		
	Md	IR	Significance level	Md	IR	Significance level
3. Communication and relationship building						
4) Build trust, collaborative relationship with multidisciplinary team	5	0	Most	5	0	Most
5) Develop rapport with a variety of people and make friends with subordinates	5	0	Most	5	0	Most
6) Care about nurses as individuals and communicate with nurses of different generation and background	5	0.75	Most	5	0	Most
7) Treat all subordinates with respect in terms of their interests and achievements, and create an environment which recognize and value differences in others	5	0	Most	5	0	Most
8) Manage conflict professionally and actively	5	0	Most	5	0	Most
9) Build academic relationship with nursing experts, and attend nursing programs actively	5	0.75	Most	5	0	Most
10) Engage staff in decision making	5	1	Most	5	1	Most

Table 5 Items which achieved consensus during round 2 and 3 (Continued)

Items of leadership competency	Round 2			Round 3		
	Md	IR	Significance level	Md	IR	Significance level
3. Communication and relationship building						
11) Understand and respect culture diversity	5	1	Most	5	1	Most
4. Change management						
1) Adapt to the change according to the new policies and trends	5	0	Most	5	0	Most
2) Create a management model that empower all subordinates to participate in management duties	5	0	Most	5	0	Most
3) Recognize the benefits of empowerment and empower staff according to their abilities	5	0	Most	5	0	Most
4) Create a learning environment	5	0	Most	5	0	Most
5) Serve as a change agent and keep staff informed of change, and assist staff in understanding the importance, necessity, impact and process of change	5	0	Most	5	0	Most

Table 5 Items which achieved consensus during round 2 and 3 (Continued)

Items of leadership competency	Round 2			Round 3		
	Md	**IR**	**Significance level**	**Md**	**IR**	**Significance level**
4. Change management						
6) Identify the level of resistance to change and involve staff in building consensus on issues	5	0	Most	5	0	Most
7) Cooperate with change promoters in the ward	5	0	Most	5	0	Most
5. Human resource management						
1) Provide new staff with systematic orientation and training	5	0	Most	5	0	Most
2) Implement hierarchical management approach in terms of compensation, education and training	5	0	Most	5	0	Most
3) Provide sufficient staffing to ensure patient safety and make flexible staffing plan according to the situation	5	0	Most	5	0	Most
4) Assign tasks and delegate responsibilities to staff based on their abilities	5	0	Most	5	0	Most
5) Demonstrate humanistic and servant leadership style	5	0	Most	5	0	Most

Table 5 Items which achieved consensus during round 2 and 3 (Continued)

Items of leadership competency	Round 2			Round 3		
	Md	IR	Significance level	Md	IR	Significance level
5. Human resource management						
6) Provide mentorship, training and counseling to staff and encourage staff to make progress	5	0	Most	5	0	Most
7) Provide professional career ladder to staff	5	0	Most	5	0	Most
8) Set the compensation and welfare for staff by performance appraisal	5	1	Most	5	0	Most
9) Establish core value of nursing team and develop the concept of teamwork	5	0	Most	5	0	Most
6. Financial management						
1) Improve the reputation of the hospital and protect the benefit of patients by avoiding to collect fees in disorder	5	0.75	Most	5	0	Most
2) Demonstrate awareness of cost and utilize resources in a judicious manner, and improve the cost awareness of staff	5	1	Most	5	1	Most
3) Add evaluation of cost-benefit to nursing outcome	4	0.75	More	4	0.75	More

Table 5 Items which achieved consensus during round 2 and 3 (Continued)

Items of leadership competency	Round 2			Round 3		
	Md	IR	Significance level	Md	IR	Significance level
6. Financial management						
4) Understand healthcare economics knowledge, such as unit-cost analysis, cost-benefit analysis	4	1	More	4	1	More
5) Understand cost analysis and cost control of the ward	4	1	More	4	1	More
7. Information technology						
1) Use computerized management system to record and analyze nursing data	5	0.75	Most	5	0	Most
2) Demonstrate basic competency in statistics and Microsoft office	5	1	Most	5	1	Most
3) Communicate and share the latest nursing information with staff by information technology	5	1	Most	5	1	Most
4) Provide staff with database to search research articles	4	1	More	4	1	More

Table 5 Items which achieved consensus during round 2 and 3 (Continued)

Items of leadership competency	Round 2			Round 3		
	Md	**IR**	**Significance level**	**Md**	**IR**	**Significance level**
8. Knowledge of the healthcare environment						
1) Understand clinical practice knowledge, evidence-based practice, patient safety and risk management, quality improvement, healthcare policy and patient care delivery models	5	0	Most	5	0	Most
2) Understand the concept of Magnet hospital and create a safe and healthy work environment	5	0.75	Most	5	0	Most
3) Learn the knowledge that can foster the development of nursing, such as research, ethics and law	5	1	Most	5	1	Most
4) Concern about the hot topics of nursing research and incorporate research findings into practice	5	1	Most	5	1	Most

According to Table 5, researchers found that 7 items under the component of personal mastery achieved consensus at the most significant level during round 2 (Md=5.00, IR=0.00). They are self-confidence, calm and optimistic, trustworthy and fair, role model, high level of moral, lifelong learning, and innovation. Items related to good image, healthy lifestyle, and a passion to nursing also achieved a consensus

level of the most significant (Md=5.00, IR=1.00). In addition, the median of "display appropriate humor" equals to 4.50 and the interquartile range equals to 1.00.

In the component of systems thinking, 6 items achieved a consensus level of the most significant with the highest scores (Md=5.00, IR=0.00). They are patient-centered managerial behaviors, sensitivity, organizational goals, staying updated about new trends, new solutions to complicated diseases, and hospital development. In addition, The item related to organizational commitment achieved a consensus level of the most significant (Md=5.00, IR=0.75). Items related to vision and nursing indicator also achieved a consensus level of the most significant (Md=5.00, IR=1.00).

In the component of communication and relationship building, 7 items achieved a consensus level of the most significant with the highest scores (Md=5.00, IR=0.00). They are communication mode, assessing internal climate, listening skills, collaborative relationship, developing rapport with a variety of people, respect, and conflict resolution. In addition, "engage staff in decision making" and "understand and respect culture diversity" achieved consensus with the median equal to 5.00 and the interquartile range equal to 1.00, respectively. Items related to individualized consideration and academic relationship achieved consensus with the median equal to 5.00 and the interquartile range equal to 0.75, respectively.

In terms of change management, 7 items achieved a consensus level of the most significant (Md=5.00, IR=0.00). They are adapting to the change, new management model of empowerment, recognizing the benefits of empowerment, creating a learning environment, change agent, identifying level of resistance to change, and cooperating with change promoters.

In terms of human resource management, 8 items achieved a consensus

level of the most significant with the highest scores (Md=5.00, IR=0.00). They are new staff orientation and training, hierarchical management, staffing, delegation, servant leadership style, mentorship, professional career ladder, and core value of nursing and concept of teamwork. In addition, "set the compensation and welfare for staff by performance appraisal" achieved consensus at the most significant level with the median equals to 5.00 and the interquartile range equals to 1.00.

In the component of financial management, 2 items achieved consensus at the most significant level (Md=5.00, IR=0.75-1.00). They are awareness of cost and reputation of the hospital. In addition, 3 items related to cost analysis, health economics knowledge, and cost benefit analysis achieved a consensus level of more significant (Md=4.00, IR=0.75-1.00).

In terms of information technology, items related to nursing data, statistics and Microsoft office, and sharing information achieved a consensus level of the most significant (Md=5.00, IR=0.75-1.00). In addition, "provide staff with database to search research articles" achieved a consensus level of more significant (Md=4.00, IR=1.00).

In terms of knowledge of the healthcare environment, the item related to clinical knowledge, evidence-based practice, patient safety and policy achieved a consensus level of the most significant with the highest scores (Md=5.00, IR=0.00). In addition, items related to the relevant knowledge of nursing and research utilization achieved consensus at the most significant level (Md=5.00, IR=1.00). "Understand the concept of Magnet hospital and create a safe and healthy work environment" achieved a consensus level of the most significant (Md=5.00, IR=0.75).

During round 3, 43 items kept the highest scores of consensus level

(Md=5.00, IR=0.00). Seven items in the component of personal mastery achieved a consensus level of the most significant with the highest scores. They are self-confidence, optimistic, trustworthy and fair, role model, high level of moral, lifelong learning, and innovation. Seven items in the component of systems thinking achieved a consensus level of the most significant with the highest scores. They are patient-centered behaviors, sensitivity, organizational commitment, organizational goals, staying updated about new trends, staying updated abut new knowledge, and hospital development. Nine items in the component of communication and relationship building kept the highest scores of consensus level. They are communication mode, internal climate, listening skills, collaborative relationship, developing rapport with a variety of people, respect, individualized consideration, conflict resolution, and academic relationship. In terms of change management, 7 items kept the highest scores of consensus level. They are adapting to the change, management model of empowerment, the benefits of empowerment, learning environment, change agent, level of resistance to change, and cooperating with change promoters.

Nine items in the component of human resource management kept the highest scores of consensus level. They are new staff orientation, hierarchical management, sufficient staffing, delegation, servant leadership style, mentorship, professional career ladder, performance appraisal, and concept of teamwork. One item in the component of financial management kept the highest scores of consensus level. It is improving the reputation of the hospital. One item in the component of information technology kept the highest scores of consensus level. It is using computerized management system to record and analyze nursing data. Two items in the component of knowledge of the healthcare environment kept the highest scores of

consensus level. They are clinical knowledge and concept of Magnet hospital. In addition, of the 60 items which achieved consensus at the most significant level, 3 items achieved a consensus level of more significant (Md=4.00, IR=0.75-1.00). They are cost-analysis, healthcare economics knowledge, and cost-benefit analysis.

CHAPTER V
DISCUSSION

This chapter presents the information about study summary, discussion of each component, limitations, implications, and recommendations for future research.

Summary

This descriptive study aimed to explore leadership competencies of first-line nurse managers in Shanghai, China, using Delphi technique. This study combines snowball sampling with purposive sampling method to recruit participants. A total of 20 experts participated in this study including 5 directors of nursing, 12 head nurses, 2 senior nurses and 1 nursing educator. The data collection procedure proceeded from the June, 2015 to September, 2015 including 53 days.

Three rounds of questionnaires were developed by the researchers consisting of the first round semi-open ended form questionnaire, the second and third round questionnaire with 5-Likert rating scale. The statistical tools for data analysis were median and interquartile range. The acceptable criteria of consensus on each item are median equal to or greater than 3.50, and interquartile range equal to or less than 1.50.

Following three rounds of the Delphi, consensus was achieved on 60 items under the 8 components of leadership competency. Let us discuss one by one as follows.

Discussion

1. Personal mastery

The experts in this study reported that personal mastery are the foundation upon which other competencies are built. Perra (2001) agreed, stating that nurse managers should have clearly defined personal and professional values which are fundamental to the practice of other qualities.

Of the 11 items which achieved consensus at the most significant level (Md=4.50-5.00, IR=0.00-1.00), 7 items kept the highest scores of consensus level during the second and third rounds (Md=5.00, IR=0.00), indicating that the experts put emphasis on personal mastery of nurse managers. They are self-confidence and emotional maturity, optimistic, trustworthy and fair, role model, a high level of moral, lifelong learning, and innovation. Besides "a high level of moral", other items are consistent with previous studies (American Organization of Nurse Executives [AONE], 2005; Sherman et al., 2007). "Demonstrate self-confidence, emotional stability and maturity" and "stay calm and remain optimistic under pressure and when facing misunderstand" are consistent with "manage self effectively in emotionally charged situations" and "remain calm under pressure" in the Sherman et al. (2007) study. In addition "be resilience and composure" stated by Irish leadership competency model is also similar with these items (McCarthy & Fitzpatrick, 2009). The experts in this study reported that it is important for nurse managers to know how to cope with stress and complex situations since the work environment is more complex and stressful in Shanghai. In the experts' opinions, subordinates will not trust the manager who lack of self-confidence in dealing with complex problems. According to Yukl (2010), a person who is emotionally mature has sense of self-

awareness in terms of his or her strengths and weaknesses, is less defensive and self-centered, and is more willing to learn from mistakes. In addition, a person who is emotionally mature tend to be optimistic which will enable managers to cope with complex and stressful interpersonal situations. Sherman et al. (2007) agreed, stating that personal mastery enables nurse managers to look at their mistakes as well as acknowledge and learn from them.

The items related to trustworthy and fair, and role model were also demonstrated by Sherman et al. (2007) and AONE (2005). In the experts' opinions trust can strengthen the relationships and build a cohesive team. The experts also said that equity is important since nurses want to be treated fairly and want to see consistency from managers. Huber (2010) stated that leadership is found on trust, and trust is the glue that binds leaders and subordinates. In addition, fairness helps nurse managers to gain trust and is one of the motivational strategies.

Experts in this study reported that nurse managers should serve as a role model for staff due to they have direct interaction with subordinates. Marquis and Huston (2012) agreed, asserting that the attitude of managers directly affect the attitude of their employees. Role model is one of the key elements of successful leadership (Anderson et al., 2010). Experts in this study emphasized innovation in nursing and the value of lifelong learning as a result of the constent change in health care in terms of administration system, technology and nursing workforce, which is consistent with the findings of previous studies (American Organization of Nurse Executives [AONE], 2005; Sherman et al., 2007). In the context of health reform, it is important to be open-minded to new ideas and approaches in nursing. The redesign of the nursing administration system requires nurse managers to create a innovative

model of management to monitor and provide high-quality of nursing care, as well as study new roles and responsibilities. Moreover, managers in China relatively lack of innovation management (Xu, 2013). Therefore, it is necessary for nurse managers to be innovative and creative.

The item related to a passion and devotion to nursing (Md=5.00, IR=1.00) is consistent with the Anonson et al. (2014) study, which found that a passion for nursing is one of the characteristics of exemplary nurse leaders. Marquis and Huston (2012) indicated that nurse managers should create a motivating climate by being a positive and enthusiastic role model, and must be internally motivated before they can motivate others. "Display appropriate humor" in this study also achieved a consensus level of the most significant (Md=4.50, IR=1.00). This dimension was also demonstrated by the Sherman et al. (2007) study.

Three items are somewhat different from those studies conducted overseas, which are characterized by Chinese culture and society. They are a high level of moral, a good image, and a healthy lifestyle. The experts emphasized that nurse managers should have high level of moral and demonstrate personal charizma. In addition to personal qualities and the ability to learn, establishing a good image is emphasized by the experts in this study, which is a major difference from those studies conducted overseas. It may be because of Chinese culture that women should be amiable and elegant temperate. These dimensions haven't been described by other studies. In the experts' opinions, managers who have a high level of moral will contribute to influencing behaviors and trusting relationship. In addition, a high level of moral is the fundamental principle upon which other qualities and behaviors are built. In particular, the experts emphasized a heathy lifestyle both for themselves as

well as for staff and patients. With the fast developed economy, people's health consciousness improved, and health is the core competitiveness of contemporary society. Since one of the responsibilities of nursing profession is health promotion, therefore, it is important for nurse managers to model a healthy lifestyle to the people they serve. As stated by Sherman et al. (2007), "caring for staff or patients begins with self-care".

2. Systems thinking

Of the 9 items which achieved consensus at the most significant level (Md=5.00, IR=0.00-1.00), 7 items kept the highest scores during round 3 (Md=5.00, IR=0.00). They are patient-centered managerial behaviors, sensitivity, organizational commitment, organizational goals, staying updated about new trends and developments in nursing, staying updated about new knowledge and skills in nursing, and catching up with the development of the hospital. The nursing care delivery model in China is in transition from disease-centered care to patient-centered care. High-quality Nursing Model Program which is a part of health reform requires nurses to provide patient-centered holistic care. Therefore, nurse managers need to make decisions that are patient-centered, as well as build concern for the hospital and staff. "Maintain sensitivity about patient issues and demonstrate pro-activity before problem arise" is consistent with the Sherman et al. (2007) study, which indicated that "nurse managers need to be sensitive to watching the cues in an environment when things are not going well". The experts in this study told us that nurse managers need to be sensitive to the complex work environment and diseases and have a keen understanding of how the unit is functioning at any time.

A study conducted in Shanghai showed that organizational commitment and goal will improve level of nurses' job satisfaction and intent to stay (Wang et al., 2012). This item is also similar with the Sherman et al. (2007) study, "takes responsibility for building loyalty and commitment throughout the organization" and "help staff understand the relationship between their work and organizational goals". Experts consider organizational goals as motivational strategies. They also emphasized that linking nurses' job to organizational goals will help nurses to search for strategies and ultimately lead to higher performance. Huber (2010) stated that goals are major motivating factor, and setting goal is a powerful way to motivate subordinates.

"Staying updated about new trends and developments in nursing" is similar with the items of AONE (2005) and Sherman et al. (2007). This may be because of their consideration about the health reform in Shanghai. Shanghai is one of the cities which are carrying out healthcare reform. The redesign of the hospital system requires nurse managers to look at new initiatives, analyze changes surrounding nursing and make work plan according to the requirements of health reform. In addition, China has joined the International Council of Nursing since 2013. Therefore, it is important for nurse managers to catch up with the international standard since healthcare situation of Shanghai is ahead of the country's average level. The experts reported that understanding the organizational goals and the development of the hospital will enable managers to make work plan accordingly. The hospitals in Shanghai are in the process of development as a result of health reform. Therefore, it is important for nurse managers to catch up with the new developments. Nurse managers in Shanghai should "stay updated to new knowledge and skills in nursing, as well as new solutions

to complicated diseases". The healthcare system in Shanghai is ahead of the country's average level, and the hospitals especially university-affiliated hospitals provide high quality care and research. Thus, these facilities are not only for local residents but also for patients with complex diseases from all over the country. Therefore, it is important for nurse managers to learn new skills and solutions to complicated diseases.

Items related to visionary thinking on new initiatives in nursing and nursing indicator achieved consensus with the median equal to 5.00 and the interquartile range equal to 1.00. According to Shanghai Quality Control Center (2006), first-line nurse managers in Shanghai are responsible for new initiatives. In addition, nurse managers should understand the vision of the organization. In terms of nursing indicator, the experts indicated that the hospital should create a model to ensure organizational productivity, as well as ensure patients and staff satisfaction.

In particular, "catch up with the development of the hospital and understand the direction of the top leader" is different from previous studies. In the context of health reform, the hospital is in the process of development. Nurse managers are responsible for focusing on the development of the hosptial and goals and making work plan accordingly. The experts indicated that it is important to understand the direction of the top leaders of the hospital. The reason for this may be because in the traditional system, nursing administration is under the leadership of the vice president of the hospital.

3. Communication and relationship building

Of the 11 items which achieved a consensus level of the most significant (Md=5.00, IR=0.00-1.00), 9 items kept the highest scores during round 3 (Md=5.00, IR=0.00). They are communication mode, internal climate, listening skills, collaborative relationship, developing rapport with a variety of people, individualized consideration, respect, conflict resolution, and academic relationship. The experts indicated that selecting the appropriate communication mode according to the situation will facilitate effective communication. Assessing internal climate before communication as one of the effective strategies is also emphasized by Marquis and Huston (2012). The experts noted that active listening and feedback incorporating nonverbal communication mode will make communication more effective. Empathic understanding is the quality to understand the position and circumstances of others. Assessing internal climate before communication as one of communication strategies is also highlighted by Marquis and Huston (2012).

The experts indicated that collaboration with multidiciplinary team is necessary as nurses become important partener in the multidiciplinary team, which will in turn promote the development of nursing profession. The current health reform has provided many opportunities for the development of nursing profession, such as clinical pathways has involved nurses as members of the work group. Huston (2008) stated that collaboration is necessary since healthcare team is characterized by highly educated. Similarly, the nursing workforce in Shanghai will be characterized by highly educated with the development of advanced practice nurse and clinical nurse specialist. The experts reported that make friends with subordinates especially who have influence on others will help managers to gain support to build a good

environment. Thompson et al. (2011) found in their research that first-line nurse managers who have higher quality relationships with their staff can positively impact safety climate. Similarly, visibility is emphasized by Anderson et al. (2010). In terms of individualized consideration, the experts reported that younger generation would like to be treated as individuals since the average age of nurses in Shanghai is 26 years old. In addition, Huber (2010) indicated that understand the uniqueness of subordinates will help managers to understand their motivations and use the unique talents of all individuals in the work. Respecting diversity is also emphasized by Sherman et al. (2007) and AONE (2005). In addition, the experts said that respecting and recognizing subordinates' interests and achievements will contribute to mobilizing the enthusiasm of nurses and building a cohesive nursing team. Moreover, younger nurses would like to be treated as individuals, and they hope their voice can be heard.

"Manage conflict professionally and actively" is consistent with AONE (2005) and Sherman et al. (2007). The experts indicated that nurse managers should apply conflict management theory and manage it professionally since healthcare environment is complex. In terms of academic relationship, the experts reported that building academic relationship with nursing experts will contribute to nursing research since evidence-based practice is a new trend in Shanghai.

"Engage staff in decision making" and "understand and respect culture diversity" achieved consensus with the median equal to 5.00 and the interquartile range equal to 1.00, respectively. The experts reported that engaging staff in decision making is an important motivational strategy and help subordinates understand the rationale behind decision, which is consistent with previous studies (American

Organization of Nurse Executives [AONE], 2005; Sherman et al., 2007). Shanghai is a city having a lot of foreign companies, as well as a international city with multiculture. Therefore, the experts emphasized respecting culture diversity.

However, the experts in this study didn't mention communicating a shared vision to subordinates, which is a major difference with previous studies. One reason may be that 85% of nurse managers in this study came from tertiary hospitals where nursing work is characterized by fast pace and high strength. Managers at first level respond to a heavy workload as a result of complexity of diseases and insufficient numbers of staff nurses. Therefore, they might be relatively unconcerned about matters related to long-term vision. It is also very likely that 35% of experts participated in this study came from military hospitals where decision making tend to come from top to bottom. Another possible explanation is that the scope of responsibilities of first-line nurse managers in Shanghai doesn't involve communicating a vision. Xu (2013), director of nursing in Shanghai, stated that nurse managers in China lack of vision and long-term perspective, which is consistent with the results of this study. As suggested by several experts in this study, first-line nurse managers should be supported by the top-level nurse administrators in terms of their scope of responsibility and work strength.

4. Change management

Seven items achieved a consensus level of the most significant with the highest scores during round 3 (Md=5.00, IR=0.00), indicating that the experts value change management. Nurse managers in Shanghai should accept change as well as manage change effectively in the context of health reform (Xu, 2013). Change

management has been recognized as the most critical leadership competency needed by contemporary nurse leaders internationally. Nurse managers should view change positively, and identify trends and changes that affect their work area and proactively prepare for these changes (Marquis & Huston, 2012). Huston (2008) indicated that change management may be one of the most significant competencies with respect to the persistent change and complexity of healthcare environment.

Items related to creating a learning environment, change agent, level of resistance to change, and cooperation with change promoters are consistent with previous studies. The experts noted that creating a learning environment will help subordinates to embrace change. In addition, learning can facilitate staff participation in the change process (Perra, 2001). The strategies of explaining a rational for change, anticipating resistance to change, and cooperating with change promoters are consistent with the items of AONE (2005). The change agent role of nurse managers also emphasized by Sherman et al. (2007) and AONE (2005). Likewise, nurse managers in this study reported that it is necessary for them to participate in change process and serve as a change agent in the context of health reform. Marquis and Huston (2012) stated that first-line nurse managers are not only the recipients of change, but also take on roles of change agents.

Identifying level of resistance to change and involving staff in building consensus on issues, which is consistent with the Sherman et al. (2007) study. According to the experts, involving staff in building consensus on issues will facilitate change management and provide support appropriately. The redesign of the hospital administration system brought about changes as well as challenges in nursing. Therefore, nurse managers need to better understand staffs' perspectives about change

and support them appropriately.

Items related to empowering all subordinates and recognizing the benefits of empowerment are different from other studies in terms of importance and focus. The experts noted that current hospital nursing administration system in China is different from those of western countries in terms of nursing educational background, social status, managerial behavior, job content, human resource allocation, and connotation of the service. Given these differences and development trends, the experts addressed the importance and necessity of creating a new management model which meet the demands of high-quality care, and catch up with the international standard. The experts reported that empowerment in terms of resource, information, opportunities will improve nurses' job satisfaction, autonomy, self-efficacy and self-esteem. They also suggested that first-line nurse managers also need more resources, information and opportunities provided by top-level nurse administrators thereby they can fully empower their subordinates. In addition, in the traditional medical-oriented system, nursing job mainly involves rountine tasks and lacks of autonomy. Moreover, one study conducted in Shanghai showed that nurse managers got the lowest score in terms of empowerment (Ge et al., 2014). Therefore, it is important for nurse managers to possess the ability to empower others, as well as gain empowerment from top-level nurse administrators. However, they emphasized that empowerment should based on staff's abilities. Shan (2006), a head nurse from Shanghai also indicated that empowering subordinates should according to the level of subordinates' maturity.

5. Human resource management

Nine items in the component of human resource management achieved a consensus level of the most significant with the highest scores during round 3 (Md=5.00, IR=0.00). They are new staff orientation, hierarchical management, sufficient staffing, delegation, servant leadership style, mentorship, professional career ladder, performance appraisal, and concept of teamwork. According to the experts' opinions, providing new staff with systematic orientation and training will enhance retention of nurses. They also reported that they are challenged by generation issues since subordinates' needs and desires vary in generation. The experts also told us that providing systematic training and orientation for new staff will make them more familiar with the work environment. Similarly, Sherman et al. (2007) reported that "retention begins with a sound selection and orientation process".

Hierarchical management is emphasized by experts in this study, which didn't described by previous studies. This may be because that nursing administration in Shanghai is still in the process of development, as well as in times of transition. In the traditional system, nurses with different educational level undertake the same task with unclear job description. In addition, nurses' compensation mainly linked to the income of their departments (Cai & Zhang, 2014). Therefore, it is imperative to implement hierarchical management approach to reflect the value of different educational prepared nurses. Similar with the Kleinman (2003) study, staffing and scheduling are the most important competencies for nurse managers. The heavy load of patients and insufficient number of staff nurses threat patient safety, as well as pose a great challenge for nurse managers in Shanghai. The nurse managers reported that staffing influences the quality of care, therefore, it is important to make flexible

staffing plan according to the situation. Flexibility is one of the leadership characteristics (Marquis & Huston, 2012).

In terms of delegation, the experts reported that assessing the abilities of subordinates and delegation accordingly will improve efficiency and job satisfaction. This item is also demonstrated by AONE (2005) and Sherman et al. (2007). Delegation benefits both subordinates and the organization since subordinates gain self-esteem and increased job satisfaction from the responsibility and authority given to them (Marquis & Huston, 2012). One study conducted in Shanghai found that nurse managers in tertiary hospitals got the lowest score in terms of servant leadership style (Ge et al., 2014). The experts in this study mainly came from tertiary hospitals, therefore, they focused on humanistic and servant leadership styles. The experts emphasized that leadership styles that focus on people will improve job satisfaction and retention of nurses, which in turn impact on the quality of patient care. One of the responsibilities of nurse managers in Shanghai is promoting personal growth. Therefore, the experts indicated that nurse managers should encourage staff to make progress by providing mentorship, training and counseling to staff. These supportive behaviors also demonstrated by previous studies. Items such as "provides coaching to staff on performance issues" and "models coaching and mentoring" were also found by Sherman et al. (2007). In addition, the nurse managers in the Sherman et al. (2007) study reported that they are "all things to all people". Anderson et al. (2010) found that "supportive" is one of the key elements of successful leadership.

Providing a professional career ladder to staff and providing mentorship to staff will contribute to motivation and job satisfaction. The experts reported that in the era of health reform it is important and necessary to build nursing core value which

will contribute to building a cohesive nursing team. The experts also indicated that establishing core value of nursing is necessary which held believes and priorities that guide decision making. According to Marquis and Huston (2012), develop the concept of teamwork contributes to creating a motivating climate. Performance appraisal is the policy requirement of public hospital reforms which will contribute to the stability of nursing team as well as scientific nursing administration. In the experts' opinions, performance appraisal can help them to gather insight about their subordinates in terms of their strengths and weaknesses, and their values and interests. They view it as an opportunity to improve and motivate their subordinates.

However, the experts in this study reported that they lack of systematic and ongoing training of human resource management. In addition, they reported that nursing human resource management lacks of top-level decision making in terms of hierarchical management and career planning. They also suggested Shanghai Nursing Association to provide nurse managers with onging and formal training program in human resource management. In addition, AONE (2005) and Sherman et al. (2007) leadership competency models also emphasized self-care and work-life balance as strategies of staff retention and self-motivation. However, these aspects haven't been considered as the most important competency by the experts in this study. This may be because of much attention has been placed on clinical work as a result of the heavy workload and complexity of diseases in public hospitals in Shanghai. Since a heavy workload in Shanghai, nurse managers should promote programs to enhance work-life balance. Wang et al. (2011) found in their research that the component of balance of family and work rated by staff nurses in a Chinese hospital got the lowest scores.

6. Financial management

Two items in the component of financial management achieved a consensus level of the most significant during round 3 (Md=5.00, IR=0.00-1.00). They are reputation of the hospital and cost awareness. The item related to reputation of the hospital and protecting the benefit of patients by avoiding to collect fees in disorder achieved a consensus level of the most significant with the highest scores (Md=5.00, IR=0.00). The experts reported that the current patient-centered holistic care model requires nurse managers to monitor the cost, thereby improving the reputation of the hospital. The item related to awareness of cost achieved a consensus level of the most significant (Md=5.00, IR=1.00). The experts reported that utilizing resources in a judicious manner is the requirement of the hospital, which also contributes to the benefits of the hospital and patients.

Three items achieved a consensus level of more significant (Md=4.00, IR=0.75-1.00). They are cost-analysis, health economics knowledge, and cost-benefit analysis. Compared with other components, these items within financial management got relatively lower scores. The experts indicated that the development of financial management in China is still at the preliminary stage. In addition, they didn't consider it as imperative for them due to the current hospital system. First, the current system of public hospitals haven't provided opportunities for them to manage financial issues. Second, unlike western countries, the public hospitals lack of computerized system to support cost analysis. Third, nurse managers have taken on roles of other activities such as quality control, education and research. Fourth, they lack of systematic training in financial subjects. Therefore, little attention is given to financial management. These findings are consistent with previous studies in which nurse

managers reported financial management as their greatest learning need (Mathena, 2002; Sherman et al., 2007). In addition, financial management is considered as one of the important competencies needed by nurse managers in China (Wong, 2013). Further, current public hospital reforms focus on cost control and implementing policy of cost analysis (Hu, 2013). Therefore, it is important and necessary for nurse managers to possess knowledge of health economics and cost analysis.

7. Information technology

Of the 4 items achieved consensus, 3 items achieved consensus at the most significant level during round 3 (Md=5.00, IR=0.00-1.00). They are nursing data, Microsoft office and statistics, and sharing nursing information. Using computerized system to record nursing data kept the highest scores of consensus level (Md=5.00, IR=0.00). The experts reported that information technology can improve their job efficiency in terms of nursing data and research. Since the public hospital reform will support hospital information system development, some experts argued that nurse managers need sufficient training of information technology, such as word processing, excel and statistics. Similarly, Mathena (2002) found that nurse managers perceive data analysis as one of the most important educational needs.

Two items related to basic competency of statistics and Microsoft office, and sharing information with staff by information technology achieved a consensus level of the most significant (Md=5.00, IR=1.00). The experts reported that sharing the latest nursing information, policies, trends and developments with subordinates, as well as knowing their life and study by information technology contribute to building a cohesive team. According to Perra (2001) trusting relationship can be built through

sharing information.

"Provide staff with database to search research articles" achieved a consensus level of more significant (Md=4.00, IR=1.00). The experts reported that research will promote the development of nursing profession. However, this item doesn't involve in the responsibility of nurse managers in Shanghai, and their major focus is quality control. Therefore, this item didn't get the highest scores.

8. Knowledge of the healthcare environment

Four items in the component of knowledge of the healthcare environment achieved a consensus level of the most significant during round 3 (Md=5.00, IR=0.00-1.00). The item related to a set of clinical skills, evidence-based practice, quality improvement, policy, patient care delivery models kept the highest scores of consensus level during the second and third rounds (Md=5.00, IR=0.00). The clinical practice knowledge, patient safety, quality control are currently major concern of nurse managers in Shanghai. In particular, they tend to focus more on quality control. The experts also reported that nurse managers should have austuteness of policy, assess their learning needs and prepare proactively according to the new initiatives in nursing. Evidence-based practice is a new trend in clinical nursing with key universities in Shanghai integrating research into education and practice. The experts indicated that evidence-based practice will promote nursing as a profession.

The item related to Magnet hospital achieved a consensus level of the most significant with the highest scores during round 3 (Md=5.00, IR=0.00). The experts indicated that it is necessary to create a good environment for staff nurses by applying the concept of Magnet hosptial since Shanghai is suffering from a shortage of nurses.

They also indicated that quality work environment will produce quality of patient care. Similarly, researchers from Shanghai also indicated that improving nursing work environment contributes to nurses' intent to stay (Wang et al., 2012).

Items related to nursing relevant knowledge and research utilization achieved consensus (Md=5.00, IR=1.00). Shan (2006), a head nurse from Shanghai, indicated that nurse managers should explore the way to promote the development of nursing profession. Since nursing profession in Shanghai is still on the way of development, the experts in this study reported that nurse managers should have broad knowledge to provide holistic care to patients. The experts reported that nurse managers should stand in the forefront of nursing knowledge and concern about hot topics of nursing research. Since evidence-based practice is a new trend in Shanghai, it is imperative to focus on nursing research and integrate research into practice.

Conclusion

The 60 items of leadership competency on which consensus was gained will serve as a guideline for the design of leadership development programs in Shanghai, China. Nurse administrators can use these competencies as criteria to recruit and prepare first-line nurse managers in Shanghai, China.

Limitations of the Study

1. Initial hypothetical concepts of leadership competency derived from AONE (2005) and Sherman et al. (2007).

2. This study only focuses on Shanghai, China which represents the most advanced part of the country.

3. Application of the findings besides "Shanghai" should be cautious.

Implications for Nurse Administrators and Educators

The findings inform the top-level administrators that first-line nurse managers need to be continuousely supported in terms of empowerment and career planning. The current nurse managers are selected based on their clinical expertise, and they lack of advanced and systematic trainning in topics ranging from human resource management, financial management, change management, and information technology. These subjects should be arranged by hospitals and academic organizations in Shanghai.

In addition, top-level nurse administrators should clarify the role and redefine the responsibilities of nurse managers based on these items and requirements of the policies in China, as well as international standards. Nurse managers are not only responsible for the quality of patient care and supporting staff development, they must also be capable to handle change and deal with financial issues, efficiency and staff motivation.

Further, nurse administrators should acknowledge the importance of leadership since strong and effective leadership of nurse managers is recognized as imperative for the delivery of quality of care, as well as the way of strengthening nursing as a profession.

Lastly, academic organizations and educational programs should test the research findings and develop competency-based curriculums to formally prepare next generation of nurse leaders.

Recommendations for Future Research

1. Future research can utilize the research findings to design a leadership competency assessment scale for first-line nurse managers in Shanghai, China.

2. A qualitative research which recruits nursing experts of this study can be considered to develop culturally appropriate leadership competency models.

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APPENDIX

APPENDIX A

Information Sheet and Ethical Approval
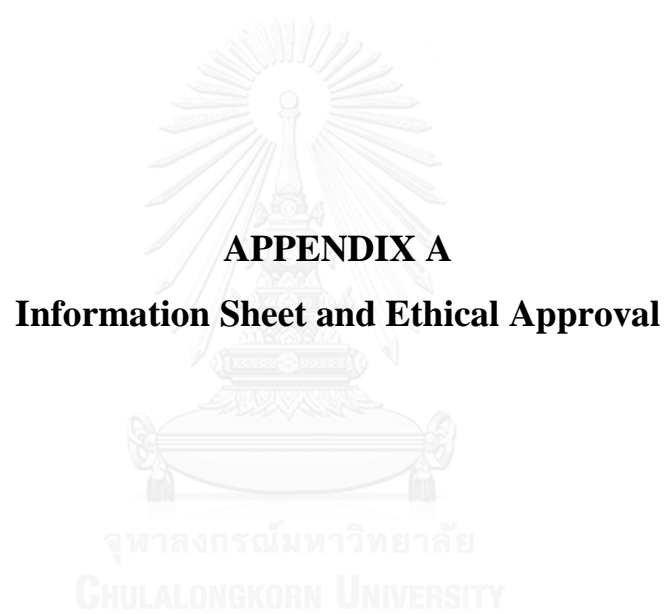
Participant Information Sheet

Title of research project: A study of leadership competencies of first-line nurse managers in Shanghai, China.

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1. You are being invited to take part in a research project. Before you decide to participate it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and do not hesitate to ask if anything is unclear or if you would like more information.
2. This research project involves three rounds of questionnaires which require the participants to describe leadership competency of first-line nurse managers in Shanghai, China.
3. The objective of the study is to provide detailed information of leadership competency of first-line nurse managers in Shanghai, China, using Delphi technique.
4. **Details of participant**

   You have been asked to take part because you have been identified as an expert in this area. The total number of experts will be 20 in this study. The inclusion criteria including: qualifications (educational preparation, years of experience), being interested in this topic, willingness to participate, and having knowledge and practice experience in nursing administration. The one who have at least master's or bachelor's degree and have at least 5 years' experience of nursing administration will include in this study. Those who provide information in Round 1, if they do not rate back questionnaire, the researcher will keep exclude from the study. The participants are in one group consisting of director of nursing, supervisor or head nurse, senior nurse, and nursing educator. The sampling method is snowball sampling begins with purposeful sampling technique.

5. **Delphi technique and concept of quasi-anonymity**

   Delphi technique was a method used to achieve agreement among a group of experts on a certain issue where none previously existed. The Delphi technique doesn't produce any right or wrong answers, instead, it produce valid expert opinion. Delphi works due to the feedback given to the expert panel and the quasi-anonymity afforded to the panel. The questionnaires are constructed entirely on the experts' responses to previous round.

   Anonymity provides an equal chance for each panel member to present and react to ideas unbiased by the identities of other participants. It provides each participant with an opportunity to express an opinion to others without feeling pressured psychologically by the more influential panel members. Quasi-anonymity refers to when the respondents may be known to one another, but their judgments and opinions remain strictly anonymous.

6. Procedure upon participants

If you agree to take part in the study you will be asked in the first instance to complete a consent form and return this. This research will be carried out using the Delphi technique consisting of three rounds of questionnaires aimed to achieve consensus. With your permission, the questionnaires will be e-mailed to you.

At the beginning of first round, the participants will be asked not to discuss subsequent Delphi rounds responses with each other as the study progresses and not to share information outside so as to maintain rigor and justice of the research.

It is up to the participants whether the first round begins with e-mail or face –to-face interview. If first round begins with face-to-face interview, it may take up 30 to 45 minutes and tape record may be used. The researcher will keep the contents of tape record confidential. The tape record will be destroyed when the research finish. The participants will be asked to answer the demographic questionnaire, and semi-open ended form of questionnaire with instructions for completion, which require the panelists to describe the details of leadership competency based on the key words provided for them. The participants will be informed that they can take a break whenever they feel uncomfortable or tired during first round interview. If the experts prefer to use E-mail to answer the round 1 questionnaire, 2 weeks will be provided for them to return the round 1 questionnaire.

Round 2 questionnaire will use the items generated from round 1, the experts will be asked to rate each item on a 5-Likert scale. They will be given individual and group response within the round 3 questionnaire. The statement that not yet reach consensus, the individual response, and the overall group response will be presented in round 3 questionnaire. This feedback will allow the expert to consider the group response and their own response. They may change or modify their opinion, and the panel may move towards consensus. There is no right or wrong answers to the questions. This study is seeking your expert opinion. Round 2 and 3 will take up 30 minutes. If E-mail will be used to respond to round 2 and 3, one week will be provided for them to return the questionnaire.

7. Process of providing information

Information related to the study will be provided to the 20 experts by the researcher, using e-mail.

8. Benefit of the project

The benefits of conducting this study will help first-line nurse managers to develop leadership competency and hospitals can get the criteria for the selection of head nurse.

9. Do I have to take part?

It is up to you to decide whether or not to take part and there is no obligation. If you decide to take part you will be given this information sheet to keep and you will be asked to sign a consent form. If you decide to take part, and then withdraw, you are free to withdraw at any time without giving a reason. A decision to withdraw at any time, or a decision not to take part, it will not affect your employment or service provision in any way. The potential risk that may occur is that the experts may have exhaustion or feel discomfort in response to the questionnaire or in an interview.

10. If you have any question or would like to obtain more information, the researcher can be reached at all time. If the researcher has new information regarding benefit on risk/harm, participants will be informed as soon as possible.

11. Information related directly to you will be kept **confidential.** All records are confidential. Your name will only be recorded on the consent form, it will not be recorded on the questionnaire. Each participant will be allocated a unique code. Results of the study will be reported as total picture. Any information which could be able to identify you will not appear in the report.

12. There will be no compensation for time loss or transportation. Instead, the researcher will provide Thai style gifts for the 20 experts, such as hand cream, bags, and fried fruits. The gifts will be given before first round when they sign consent form.

13. If researcher does not perform upon participants as indicated in the information, the participants can report the incident to the Ethics Review Committee for Research Involving Human Research Subjects, Health Sciences Group, Chulalongkorn University (ECCU). 254 Jamjuree Bldg 1, 2 ed fl., Phyathai Rd., Bangkok 10330, Thailand, Tel/Fax: 0-2218-3202E-mail:eccu@chula.ac.th

Informed Consent Form

Address…………………………………………

Date ………………………………………….

Code number of participant …………………………………………………

I have signed here below agree to participate in this research project

Title: A study of leadership competencies of first-line nurse managers in Shanghai, China.

Principle researcher's name: Wenqin Li

Contact address: Faculty of Nursing, Chulalongkorn University, Thailand

Telephone: +8618101941916

   I have **read** about rationale and objective of the project, what I will be engaged with in details, and benefit of this project. The researcher has explained to me and I **clearly understand with satisfaction.**

   I willingly **agree** to participate in this project and consent the researcher to respond to the three round questionnaires which are used to describe leadership competency of first-line nurse managers in Shanghai, China. I have been informed that there are totally three rounds of questionnaires and each round will take approximately 30 minutes.

I have **the right** to withdraw from this research project at any time as I wish with no need to **give any reason**. This withdrawal **will not have any negative impact upon me.**

   Researcher has guaranteed that procedure(s) acted upon me would be exactly the same as indicated in the information. Any of my personal information will be **kept confidential.** Results of the study will be reported as total picture. Any of personal information which could be able to identify me will not appear in the report.

   If I am not treated as indicated in the information sheet, I can report to the Ethics Review Committee for Research Involving Human Research Subjects, Health Sciences Group, Chulalongkorn University (ECCU). 254 Jamjuree Bldg 1, 2 ed fl., Phyathai Rd., Bangkok 10330, Thailand, Tel/Fax: 0-2218-3202E-mail:eccu@chula.ac.th.

   I also have received a copy of information sheet and informed consent form

 Sign …………………..……………   Sign …………………..……………

  (…………………..…………)   (…………………………..…………)

    Researcher   Participant

          Sign …………………..……………

          (…………………………..…………)

            Witness

AF 02-12

The Research Ethics Review Committee for Research Involving Human Research Participants, Health Sciences Group, Chulalongkorn University
Jamjuree 1 Building, 2nd Floor, Phyathai Rd., Patumwan district, Bangkok 10330, Thailand, Tel/Fax: 0-2218-3202 E-mail: eccu@chula.ac.th

COA No. 129/2015

Certificate of Approval

Study Title No. 087.1/58 : A STUDY OF LEADERSHIP COMPETENCY OF FIRST-LINE NURSE MANAGERS IN SHANGHAI, CHINA, USING DELPHI TECHNIQUE

Principal Investigator : MS. WENQIN LI

Place of Proposed Study/Institution : Faculty of Nursing,

Chulalongkorn University

The Research Ethics Review Committee for Research Involving Human Research Participants, Health Sciences Group, Chulalongkorn University, Thailand, has approved constituted in accordance with the International Conference on Harmonization – Good Clinical Practice (ICH-GCP) and/or Code of Conduct in Animal Use of NRCT version 2000.

Signature: Prida Tasanapradit   Signature: Nuntaree Chaichanawongsaroj

(Associate Professor Prida Tasanapradit, M.D.)   (Assistant Professor Nuntaree Chaichanawongsaroj, Ph.D.)

Chairman   Secretary

Date of Approval   : 24 June 2015   Approval Expire date : 23 June 2016

The approval documents including

1) Research proposal   Protocol No. 087.1/58
2) Patient/Participant Information Sheet and Informed Consent Form   Date of Approval 24 JUN 2015
3) Researcher   Approval Expire Date 23 JUN 2016

The approved investigator must comply with the following conditions:
1. The research/project activities must end on the approval expired date of the Ethics Review Committee for Research Involving Human Research Subjects, Health Science Group, Chulalongkorn University (ECCU). In case the research/project is unable to complete within that date, the project extension can be applied one month prior to the ECCU approval expired date.
2. Strictly conduct the research/project activities as written in the proposal.
3. Using only the documents that bearing the ECCU's seal of approval with the subjects/volunteers (including subject information sheet, consent form, invitation letter for project/research participation (if available).
4. Report to the ECCU for any serious adverse events within 5 working days
5. Report to the ECCU for any change of the research/project activities prior to conduct the activities.
6. Final report (AF 03-12) and abstract is required for a one year (or less) research/project and report within 30 days after the completion of the research/project. For thesis, abstract is required and report within 30 days after the completion of the research/project.
7. Annual progress report is needed for a two- year (or more) research/project and submit the progress report before the expire date of certificate. After the completion of the research/project processes as No. 6.

APPENDIX B

Questionnaires
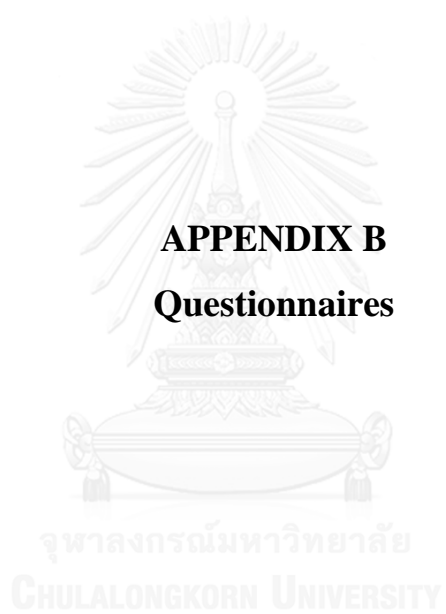
Round 1 Delphi cover letter

Title: A study of leadership competencies of first-line nurse managers in Shanghai, China,

Dear………………

Thank you for returning your consent form indicating that you meet the inclusion criteria for this study and that you are willing to participate.

Your will find enclosed with this letter an instruction sheet and the first round questionnaire which consists of demographics sheet and a semi-open ended form of questionnaire. The aim of this study is to explore the components and details of leadership competency of first-line nurse managers in Shanghai, China.

Please read the instructions carefully and complete the Delphi questionnaire as fully as you can. This will enable the researcher to provide you with feedback in subsequent rounds. Return of completed Delphi round implies you consent to participate.

You can ask the researcher any questions about the study during the research process. Thank you for agreeing to participate in this study.

Yours sincerely,

Wenqin Li, graduate student of Faculty of Nursing,

Chulalongkorn University, Thailand

Instructions on how to complete Delphi Round 1

Part 1: Please complete the demographic data. The demographics of the expert are very important for the Delphi technique study.

Part 2: Please answer the question in each item. The question in each item is the component of leadership competency of first-line nurse managers in Shanghai, China. The key words in each component serve as guidance for completion. You can describe each component based on your knowledge and experience as well as what you perceive important and necessary for contemporary first-line nurse managers. Please describe the details in each component of leadership competency freely. Your response of first round will contribute to the construction of round 2 questionnaire.

Questionnaire round 1

A study of Leadership Competencies of First-line Nurse Managers in Shanghai, China

Part 1. Demographic data of the experts

1. Code number………………………………….
2. Workplace…………………………………...
3. Position (present)………………………………
4. Working period (years)…………………………
5. Working period of this position………………...
6. Highest academic degree / experience of receiving training program in nursing administration

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7. Professional title (junior RN/ senior RN/ nurse in charge/ associate professor nurse/ professor nurse)

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8. If applicable, please list your working experience from the beginning to now

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(2)……………………………………………………………………

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(3)……………………………………………………………………

Part 2.Expert opinion round 1.

1. How do you think about personal mastery of the leadership competency of first-line nurse managers in Shanghai, China, such as: high energy level and stress tolerance, self-confidence, sense of responsibility, emotional stability and maturity, the ability to learn, role model, being trustworthy and fair, and being flexible and innovative.

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2. How do you think about systems thinking of the leadership competency of first-line nurse managers in Shanghai, China, such as: visionary thinking and being proactive, organizational goal, keeping updated with change, organizational commitment, "big picture" thinker, capturing the opportunities provided by healthcare reform, and considering input, process and outcome indicator in the ward.

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3. How do you think about communication and relationship building of the leadership competency of first-line nurse managers in Shanghai, China, such as: listening skills, persuasion, conflict resolution, application modes of communication according to the situation, relationship establishment and management, influence of behaviors, working with diversity, and shared-decision making.

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4. How do you think about change management of the leadership competency of first-line nurse managers in Shanghai, China, such as: the pattern of change surrounding nursing administration and impact of change on your work area, change agent and communicating of change, identifying the level of resistance to change and cooperating with change promoters, empowering staff and creating a learning environment.

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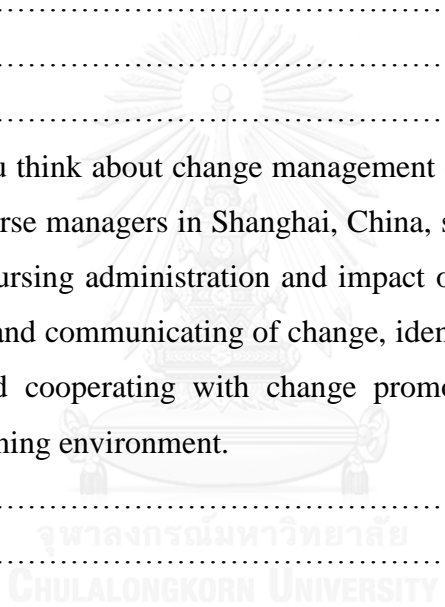
5. How do you think about human resource management of the leadership competency of first-line nurse managers in Shanghai, China, such as: performance appraisal, staffing and scheduling, clinical career ladder and assisting staff in career planning, coaching and mentoring, and developing staff retention strategies that target younger nurses.

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6. How do you think about financial management of the leadership competency of first-line nurse managers in Shanghai, China, such as: the basic concept of accounting, unit cost analysis, cost effectiveness analysis, cost-benefit analysis, and cost-utility analysis.

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7. How do you think about information technology of the leadership competency of first-line nurse managers in Shanghai, China, such as: the ability to use computerized system to record nursing data and communication with staff informally by information technology.

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8. How do you think about knowledge of the healthcare environment of the leadership competency of first-line nurse managers in Shanghai, China, such as: clinical practice knowledge, evidence-based practice, patient safety and risk management, quality improvement and metrics, healthcare policy and patient care delivery models.

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Round 2 Delphi cover letter

Title: A study of leadership competencies of first-line nurse managers in Shanghai, China

Dear………………..

Thank you for returning the first round Delphi questionnaire. Your will now find enclosed the second round Delphi questionnaire which includes all the responses in relation to leadership competency of first-line nurse managers.

You will find enclosed with this letter an instruction sheet and the second-round Delphi questionnaire. This questionnaire is completed differently to the first round and the instruction sheet will guild you through this process. Please read the instructions carefully. Return of completed Delphi Round 2 implies consent to participate.

If you could return the questionnaire by e-mail to Lee.6688@163.com by **insert return date**, we would be most grateful. You can contact with the researcher if you have any questions about the study.

Thank you for your continued participation in this study.

Yours sincerely,

Wenqin Li, graduate student of Faculty of Nursing,

Chulalongkorn University, Thailand

Instructions on how to complete Delphi round 2

The second round of this Delphi lists all the responses from panel members in Round 1. These responses have been content analyzed and similar responses grouped together to ensure that the questionnaire is not repetitive and easily completed. The meaning of the responses has not been changed.

You will see a scale beside each item. This scale is numbered 1 to 5. Please put an ($\surd$) in the box which you feel best to describe each item. These numbers correspond to a response as below:

5- Very important

4- Fairly important

3- Neither important or not important

2- Not very important

1- Not at all important

Once you completed the questionnaire, please return it to the researcher by e-mail to Lee.6688@163.com by **insert return date**.

Questionnaire of Round 2

Please put (√) in the box which you feel best describes how important each items. These numbers correspond to a respond as below:

5-Very important

4-Fairly important

3-Neither important or not important

2-Not very important

1-Not at all important

The questionnaire below consists of 8 components with 60 items.

No.	Items of leadership competency	Level of importance				
		5	4	3	2	1
1. Personal mastery						
1)	Demonstrate self-confidence, emotional stability and maturity					
2)	Stay calm and remain optimistic under pressure and when facing misunderstand					
3)	Be trustworthy and fair					
4)	Serve as a role model for staff					
5)	Demonstrate the value of lifelong learning					
6)	Be innovative and creative					
7)	Have a high level of moral and treat others politely					
8)	Establish a good image that is spirit, amiable, and elegant temperate					
9)	Model a healthy lifestyle to patients and subordinates					
10)	Demonstrate the spirit of devotion and a passion to nursing profession for reasons that go beyond money or status					
11)	Display appropriate humor					

Items of leadership competency	Level of importance				
	5	4	3	2	1
2. Systems thinking					
1) Demonstrate managerial behaviors that are patient-centered and build concern for the organization and staff					
2) Maintain sensitivity about patient issues and demonstrate pro-activity before problem arise					
3) Build organizational commitment and make nurses feel goal-directed					
4) Focus on organizational goals and take responsibilities for hospital					
5) Stay updated about new trends and developments in nursing					
6) Stay updated about new knowledge and skills in nursing, as well as new solutions to complicated diseases					
7) Provide visionary thinking on new initiatives in nursing					
8) Catch up with the development of the hospital and understand the direction of the top leader					
9) Collect and analyze data regarding input, process and outcome indicator					
3.Communication and relationship building					
1) Determine the appropriate communication mode according to the situation					
2) Access internal climate includes the values, feelings, temperament prior to communication					
3) Demonstrate listening skills and empathic understanding					
4) Build trust, collaborative relationship with multidisciplinary team					

Items of leadership competency		Level of importance				
		5	4	3	2	1
3.Communication (Continued)						
5)	Develop rapport with a variety of people and make friends with subordinates					
6)	Engage staff in decision making					
7)	Care about nurses as individuals and communicated with nurses of different generation and background					
8)	Treat all subordinates with respect in terms of their interests and achievements, and create an environment which recognize and value differences in others					
9)	Manage conflict professionally and actively					
10)	Build academic relationship with nursing experts, and attend nursing programs actively					
11)	Understand and respect culture diversity					
4.Change management						
1)	Adapt to the change according to the new policies and trends					
2)	Create a management model that empower all subordinates to participate in management duties					
3)	Recognize the benefits of empowerment and empower staff according to their abilities					
4)	Create a learning environment					
5)	Serve as a change agent and keep staff informed of change, and assisting staff in understanding the importance, necessity, impact and process of change					
6)	Identify the level of resistance to change and involve staff in building consensus on issues					
7)	Cooperate with change agent in the ward					
5.Human resource management						
1)	Provide new staff with systematic orientation and training					
2)	Implement hierarchical management approach in terms of compensation, education and training					

Items of leadership competency	Level of importance				
	5	4	3	2	1
5. Human resource management (Continued)					
3) Provide sufficient staffing to ensure patient safety and make flexible staffing plan according to the situation					
4) Assign tasks and delegate responsibilities to staff based on their abilities					
5) Demonstrate humanistic leadership and servant leadership style					
6) Provide mentorship, training and counseling to staff and encourage staff to make progress					
7) Provide a professional career ladder to staff					
8) Set the compensation and welfare for staff by performance appraisal					
9) Establish core value of nursing team and develop the concept of team work					
6. Financial management					
1) Understand cost analysis and cost control of the ward					
2) Understand healthcare economics knowledge, such as unit-cost analysis, cost-benefit analysis					
3) Demonstrate awareness of cost and utilize resources in a judicious manner, and improve the cost awareness of staff					
7. Information technology					
1) Use computerized management system to record and analyze nursing data, such as staff profile data, quality control, and staffing					
2) Demonstrate basic competency in statistics and Microsoft office					
3) Communicate and share the latest nursing information with staff by information technology					
4) Provide staff with database to search research articles					

Items of leadership competency	Level of importance				
	5	4	3	2	1
8. Knowledge of the healthcare environment					
1) Understand clinical practice knowledge, evidence-based practice, patient safety and risk management, quality improvement, healthcare policy and patient care delivery models					
2) Learn the knowledge that can foster the development of nursing profession, such as research, ethics and law					
3) Understand the concept of Magnet hospital and create a safe and healthy work environment					
4) Concern about the hot topics of nursing research and incorporate research findings into practice					

Round 3 Delphi cover letter

Title: A study of leadership competencies of first-line nurse managers in Shanghai, China

Dear………………

Thank you for returning the second round Delphi questionnaire. You will now find enclosed the third round Delphi questionnaire which includes the items that have reached consensus. Items of leadership competency that have reached consensus on their importance do not mean that they are the most important leadership competencies, only that they have reached consensus at an early stage.

You will find enclosed with this letter an instruction sheet and the third round Delphi questionnaire. As before, this questionnaire is completed differently to the first and second round questionnaire and the instruction sheet enclosed will guide you through this process. Please read the instructions carefully.

If you could return the questionnaire by e-mail to Lee.6688@163.com by **insert return date**, we would be most grateful. You can contact with the researcher if you have any questions about the study.

Thank you for your continued participation in this study.

Yours sincerely,

Wenqin Li, graduate student of Faculty of Nursing,

Chulalongkorn University, Thailand

Instructions on how to complete Delphi Round 3

The third round of this Delphi includes those items that have reached agreement from the panel. You will see two columns beside each statement.

Column one is a 5-Likert rating scale and is provided as an opportunity for you to reconsider your response since Round 2. The researcher would appreciate it if you would reconsider your original response in the context of the group response to each item and if you wish to change your response, please do so by placing ($\sqrt{}$) in the appropriate box beside each item. And please give appropriate reasons if you would like to change your response. Please note that you do not have to change your original response if you do not wish to.

There are two symbols in column one representing different meanings. These symbols correspond to a meaning as below.

$\triangle$ Overall group response in round 2

$\times$ Your own response in round 2

Column two shows the group response to the items. This will described by median (Md), and the spread of responses which described by interquartile range (IR).

Once you have completed the questionnaire, please return it to the researcher by e-mail to Lee.6688@163.com by **insert return date**.

Questionnaire of Round 3

Please reconsider your response in the context of feedback provided. If you wish to change your response, please place ($\sqrt{}$) in the box. These numbers correspond to a response as below:

5- Very important

4- Fairly important

3- Neither important or not important

2- Not very important

1- Not at all important

The symbols correspond to a meaning as below:

$\triangle$ Overall group response in round 2

$\times$ Your own response in round 2
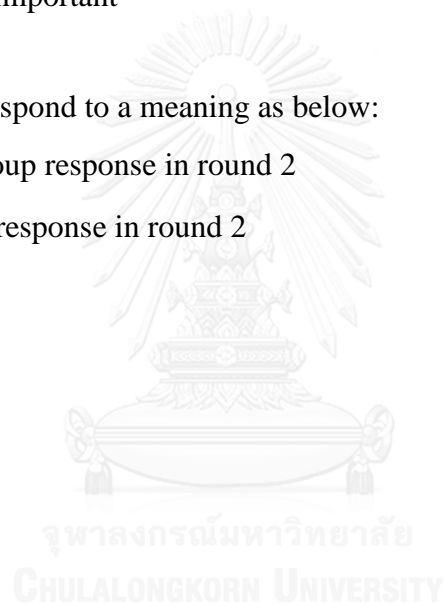
Items of leadership competency	Level of importance					Overall group response	
	5	4	3	2	1	Md	IR
1. Personal mastery							
1) Demonstrate self-confidence, emotional stability and maturity							
2) Stay calm and remain optimistic under pressure and when facing misunderstand Reason for change……………							
3) Be trustworthy and fair Reason for change……………							
4) Serve as a role model for staff Reason for change……………							
5) Be a continuous learner and demonstrate the value of lifelong learning Reason for change……………..							
6) Be creative and innovative Reason for change……………							
7) Have a high level of moral and treat others politely Reason for change……………..							
2. Systems thinking 1) Demonstrate managerial behaviors that are patient-centered and build concern for the organization and staff Reason for change……………							

Items of leadership competency	Level of importance					Overall group response	
	5	4	3	2	1	Md	IR
2.Systems thinking (Continued)							
2) Maintain sensitivity about patient issues and demonstrate pro-activity before problem arise Reason for change…………...							
3) Build organizational commitment and make nurses feel goal-directed							
4) Focus on organizational goals and take responsibilities for hospital, ward, patients and nurses Reason for change……………							
5) Stay updated about new trends and developments in nursing both at home and abroad, and make work plan based on new policies Reason for change…………….							
6) Stay updated about new knowledge and skills in nursing, as well as new solutions to complicated diseases Reason for change…………….							
7) Focus on the development of the hospital and understand the direction of the top leader, and catch up with the development of the hospital Reason for change……………							

Items of leadership competency	Level of importance					Overall group response	
	5	4	3	2	1	Md	IR
2. Communication and relationship building							
1) Determine the appropriate communication mood according to the situation Reason for change…………..							
2) Access internal climate includes the values, feelings, temperament prior to communication Reason for change………….							
3) Demonstrate listening skills and empathic understanding, listen to the needs of patients and take advices from others Reason for change…………...							
4) Build trust, collaborative relationship with multidisciplinary team, as well as coordinated with director of nursing and the vice president of the hospital Reason for change……………..							
5) Develop rapport with a variety of people and make friends with subordinates especially the one who have influence on others Reason for change…………….							
6) Care about nurses as individuals and communicate with nurses of different generation and background Reason for change…………..							

Items of leadership competency	Level of importance					Overall group response	
	5	4	3	2	1	Md	IR
2.Communication (Continued)							
7) Treat all subordinates with respect in terms of their interests and achievement, and create an environment which recognize and value differences in others Reason for change………….							
8) Manage conflict professionally and actively Reason for change………….							
9) Build academic relationship with nursing experts throughout the country and internationally, and attend nursing programs actively Reason for change…………….							
4.Change management							
1) Adapt to the change according to the new policies and trends							
2) Create a management model that empower all subordinates to participate in management duties Reason for change……………							
3) Recognize the benefits of empowerment and empower staff according to their abilities Reason for change………….							
4) Create a learning environment							

Items of leadership competency	Level of importance					Overall group response	
	5	4	3	2	1	Md	IR
4.Change management							
5) Serve as a change agent and keep staff informed of change, and assist staff understand the importance, necessity, impact and process of change Reason for change…………….							
6) Identify level of resistance to change and involve staff in building consensus on issues Reason for change……………..							
7) Cooperate with change-agent in the ward Reason for change……………..							
5.Human resource management							
1) Provide new staff with systematic orientation and training, and develop retention strategies that target younger nurses Reason for change……………..							
2) Implement hierarchical management approach in terms of compensation, education and training Reason for change……………..							
3) Provide sufficient staffing to ensure patient safety and make flexible staffing plan according to the situation Reason for change……………							

Items of leadership competency	Level of importance					Overall group response	
	5	4	3	2	1	Md	IR
5.Human resource management (Continued)							
4) Assign tasks and delegate responsibilities to staff based on their abilities Reason for change…………….							
5) Demonstrate humanistic leadership and servant leadership style Reason for change…………….							
6) Provide mentorship, training and counseling to staff and encourage staff to make progress Reason for change…………….							
7) Provide a professional career ladder to staff and mentor staff to do career planning Reason for change……………							
8) Set the compensation and welfare for staff by performance appraisal Reason for change…………….							
9) Establish core value of nursing team and develop the concept of team work Reason for change…………….							
6.Financial management							
1) Improve the reputation of the hospital and protect the benefit of patients by avoiding to collect fees in disorder Reason for change……………							

Items of leadership competency	Level of importance					Overall group response	
	5	4	3	2	1	Md	IR
7.Information technology							
1) Use computerized management system to record and analyze nursing data, such as staff profile data, quality control, and staffing Reason for change……………..							
2) Demonstrate basic competency in statistics and Microsoft office Reason for change…………….							
3) Communicate and share the latest nursing information with staff by information technology Reason for change……………..							
8. Knowledge of the healthcare environment							
1) Understand clinical practice knowledge, evidence-based practice, patient safety and risk management, quality improvement, healthcare policy and patient care delivery models Reason for change……………..							
2) Understand the concept of Magnet hospital and create a safe and healthy work environment Reason for change……………..							

APPENDIX C
Round 2 Data Analysis

| Items	Frequencies (Counting)					Md	IR	Consensus %
1. Personal mastery	**5**	**4**	**3**	**2**	**1**			
1) Demonstrate self-confidence, emotional stability and maturity	19	1	-	-	-	5	0	100
2) Stay calm and remain optimistic under pressure and when facing misunderstand	19	1	-	-	-	5	0	100
3) Be trustworthy and fair	18	2	-	-	-	5	0	100
4) Serve as role model for staff	16	4	-	-	-	5	0	100
5) Demonstrate the value of lifelong learning	17	3	-	-	-	5	0	100
6) Be innovative and creative	18	2	-	-	-	5	0	100
7) Have a high level of moral and treat others politely	20	-	-	-	-	5	0	100
8) Establish a good image that is spirit, amiable, and elegant temperate	13	7	-	-	-	5	1	100
9) Have a strong and healthy body and model a healthy lifestyle to patients and subordinates	14	5	1	-	-	5	1	95
10) Demonstrate the spirit of devotion and a passion to nursing profession for reasons that go beyond money or status	13	6	1	-	-	5	1	95
11) Display appropriate humor	10	7	3	-	-	4.5	1	85
2. Systems thinking								
1) Demonstrate managerial behaviors that are patient-centered and build concern for the organization and staff	17	3	-	-	-	5	0	100
2) Maintain sensitivity about patient issues and demonstrate pro-activity before problem arise	19	1	-	-	-	5	0	100
3) Build organizational commitment and make nurses feel goal-directed	15	5	-	-	-	5	0.75	100

Items	Frequencies (Counting)					Md	IR	Consensus %
2.Systems thinking (Continued)	**5**	**4**	**3**	**2**	**1**			
4) Focus on organizational goals and take responsibilities for hospital	20	-	-	-	-	5	0	100
5) Stay updated about new trends and developments in nursing	16	4	-	-	-	5	0	100
6) Stay updated about new knowledge and skills in nursing, as well as solutions to complicated diseases	18	2	-	-	-	5	0	100
7) Provide visionary thinking on new initiatives in nursing	12	8	-	-	-	5	1	100
8) Catch up with the development of the hospital and understand the direction of the top leader	18	2	-	-	-	5	0	100
9) Collect and analyze data regarding input, process and outcome indicator	13	6	1	-	-	5	1	95
3.Communication and relationship building								
1) Determine the appropriate communication mode according to the situation	17	3	-	-	-	5	0	100
2) Assess internal climate includes the values, feelings, temperament, prior to communication	16	4	-	-	-	5	0	100
3) Demonstrate listening skills and empathic understanding	19	1	-	-	-	5	0	100
4) Build trust, collaborative relationship with multidisciplinary team	18	2	-	-	-	5	0	100
5) Develop rapport with a variety of people and make friends with subordinates	16	3	1	-	-	5	0	95
6) Engage staff in decision making	13	7	-	-	-	5	1	100

Items	Frequencies (Counting)					Md	IR	Consensus %
	5	4	3	2	1			
3.Communication (Continued)								
7) Care about nurses as individuals and communicate with nurses of different generation and background	15	5				5	0.75	100
8) Treat all subordinates with respect in terms of their interests and achievements, and create an environment which recognize and value differences in others	18	2	-	-	-	5	0	100
9) Manage conflict professionally and actively	17	3	-	-	-	5	0	100
10) Build academic relationship with nursing experts, and attend nursing programs actively	15	4	1			5	0.75	95
11) Understand and respect culture diversity	13	6	1	-	-	5	1	95
4.Change management								
1) Adapt to the change according to the new policies and trends	16	3	1	-	-	1	0	95
2) Create a management model that empower all subordinates to participate in management duties	16	4	-	-	-	5	0	100
3) Recognize the benefits of empowerment and empower staff according to their abilities	17	3	-	-	-	5	0	100
4) Create a learning environment	16	4	-	-	-	5	0	100
5) Serve as a change agent and keep staff informed of change, and assist staff in understanding the importance, necessity, impact and process of change	17	3	-	-	-	5	0	100

Items	Frequencies (Counting)					Md	IR	Consensus %
	5	4	3	2	1			
4.Change management								
6) Identify the level of resistance to change and involve staff in building consensus on issues	17	3	-	-	-	5	0	100
7) Cooperate with change promoters in the ward	16	4	-	-	-	5	0	100
5.Human resource management								
1) Provide new staff with systematic orientation and training	17	3	-	-	-	5	0	100
2) Implement hierarchical management approach in terms of compensation, education and training	18	2	-	-	-	5	0	100
3) Provide sufficient staffing to ensure patient safety and make flexible staffing plan according to the situation	20	-	-	-	-	5	0	100
4) Assign tasks and delegate responsibilities to staff based on their abilities	17	3	-	-	-	5	0	100
5) Demonstrate humanistic leadership and servant leadership style	16	4	-	-	-	5	0	100
6) Provide mentorship, training and counseling to staff and encourage staff to make progress	16	4	-	-	-	5	0	100
7) Provide a professional career ladder to staff	17	3	-	-	-	5	0	100
8) Set the compensation and welfare for staff by performance appraisal	13	7	-	-	-	5	1	100
9) Establish core value of nursing team and develop concept of teamwork	16	4	-	-	-	5	0	100

Items	Frequencies (Counting)					Md	IR	Consensus %
6.Financial management (Continued)	**5**	**4**	**3**	**2**	**1**			
1) Understand cost analysis and cost control of the ward	9	9	1	1	-	4	1	90
2) Understand healthcare economics knowledge, such as unit-cost analysis, cost benefit-analysis	8	10	1	1	-	4	1	90
3) Demonstrate awareness of cost and utilize resources in a judicious manner, and improve the cost awareness of staff	11	8	1	-	-	5	1	95
4) Improve the reputation of the hospital and protect the benefit of patients by avoiding to collect fees in disorder	15	5	-	-		5	0.75	100
5) Add evaluation of cost-benefit to nursing outcome	5	13	1	1	-	4	0.75	90
7.Information technology								
1) Use computerized management system to record and analyze nursing data	15	5	-	-	-	5	0.75	100
2) Demonstrate basic competency in statistics and Microsoft office	13	7	-	-	-	5	1	100
3) Communicate and share the latest nursing information with staff by information technology	14	6	-	-	-	5	1	100
4) Provide staff with database to search research articles	7	12	1	-	-	4	1	95

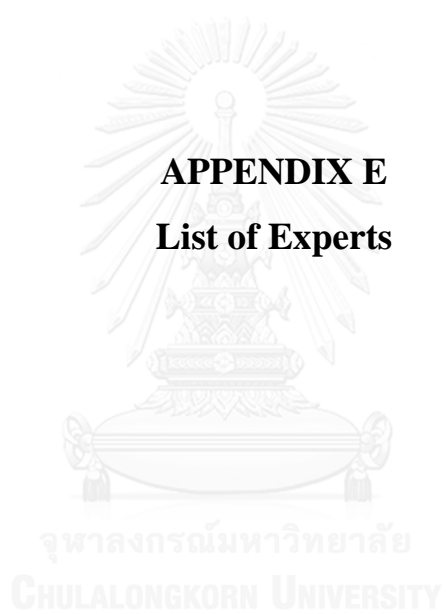| Items	Frequencies (Counting)					Md	IR	Consensus %
8.Knowledge of the healthcare environment	5	4	3	2	1			
1) Understand clinical practice knowledge, evidence-based practice, patient safety and risk management, quality improvement, healthcare policy and patient care delivery models	17	3	-	-	-	5	0	100
2) Learn the knowledge that can foster the development of nursing profession, such as research, ethics and law	12	7	1	-	-	5	1	95
3) Understand the concept of Magnet hospital and create a safe and healthy work environment								
4) Concern about hot topics of nursing research and incorporate research findings into practice	12	8	-	-	-	5	1	100

APPENDIX D

Analysis of Changes
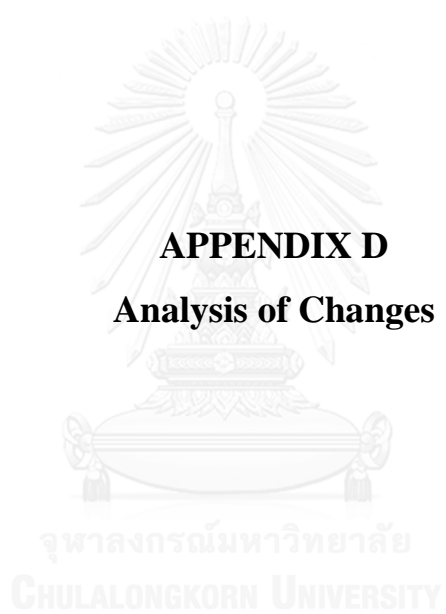
Expert code	Number of changes from R2 to R3	Change pattern (score)
1	15	4 → 5
2	2	4 → 5
3	1	4 → 5
4	3	4 → 5
5	4	5 → 4
6	8	4 → 5
7	1	4 → 5
	13	5 → 4
8	1	4 → 5
9	2	5 → 4
10	16	4 → 5
11	-	-
12	18	4 → 5
13	-	-
14	-	-
15	-	-
16	7	4 → 5
17	-	-
18	-	-
19	2	4 → 5
20	-	-

A total of 60 items achieved consensus by the experts, and the total number of changes is 93. Therefore, according to the formula below, the percentage of changes is 7.75%.

$$\frac{93 \times 100}{60 \times 20} = 7.75\%$$

APPENDIX E

List of Experts

No.	Educational background	Position	Work experience/ Publications
1	1. Master of nursing 2. Training course of nursing administration in Fudan University 3. Leadership program of ICN (GNL 2011, ICN) 4. WHO 2008: Training of the trainer for QA	1.Director of nursing, Zhongshan Hospital, Fudan University 2. Director of ICU Committee, Shanghai, Nursing Association 3. Director of Clinical Nursing Education Sector, Fudan University	1. More than 20 years' experience of nursing administration 2. Publications of nursing administration, evidence-based practice, and quality control
2	1. Bachelor 2. Training course of clinical education and nursing administration in Fudan University	Clinical nursing educator of Zhongshan Hospital, Shanghai	1. 12 years' experience of nursing administration 2. Publications of nursing administration and education
3	1.Master 2. Certificate of nursing training program from Shanghai Nursing Association (SNA) 3. Training course of Nursing administration in Taiwan	1. Senior nurse 2. Nursing educator of surgical department of Zhongshan Hospital, Shanghai	1. 15 years' experience of nursing administration 2. Publications of nursing administration and education
4	1. Master 2. Training course of nursing administration in Fudan university	Head nurse of emergency room, Zhongshan Hospital, Shanghai	1. 12 years' experience of nursing administration 2. Publications of nursing administration
5	1.Bachelor 2. Training course of nursing administration in Taiwan	Head nurse of surgical department, Zhongshan Hospital, Shanghai	1. 14 years' experience of nursing administration 2. Publications of clinical nursing and nursing administration

No.	Educational background	Position	Work experience/ publications
6	1. Master 2. Training course of nursing administration in Taiwan and Hong Kong	Head nurse of Zhongshan Hosptial, Shanghai	1. 12 years' experience of nursing administration 2. Publications of nursing human resource management
7	1. Master 2. Training course of nursing human resource management in Fudan University	Head nurse of Zhongshan Hospital, Shanghai	1. 5 years' experience of nursing administration 2. Publications of nursing administration
8	1.Bachelor 2. Training course of nursing administration in SNA	Head nurse of Zhongshan Hospital, Shanghai	1. 9 years' experience of nursing administration 2. Publications of evidence-based practice and quality control
9	1.Bachelor 2. Training course of nursing administration in SNA	1.Head nurse of Shanghai Ninth People's Hospital 2. Guest Lecturer of Tongji University	1. 10 years' experience of nursing administration 2. Publications of nursing administration
10	1. Master 2. Certificate of expert of quality control in SNA 3. Certificate of international colostomy therapist	1.Director of nursing of Center Hospital, Yangpu, District, Shanghai 2. Guest Lecturer of Tongji University	1. 14 years' experience of nursing administration 2. Prizes of quality control 3.Publications of nursing administration and clinical nursing
11	1. Bachelor 2. Training course of nursing administration in SNA	Director of nursing, Yangpu Community Healthcare Center, Shanghai	1. 10 years' experience of nursing administration 2. Prizes of expert in community care 3. Publications of administration of community hospital

No.	Educational background	Position	Work experience/ publications
12	Bachelor	1. Head nurse of Yangpu Community Healthcare Center, Shanghai 2. Head of nursing research in nursing department	1. 10 years' experience of nursing administration 2. Publications of nursing administration
13	Bachelor	Director of nursing, Shi Dong Hospital, Yangpu District, Shanghai	1. 12 years' experience of nursing administration 2. Prizes of nursing innovation and achievements
14	Ph.D.	Director of nursing, Changhai, Hospital, Shanghai	1. 16 years' experience of nursing administration 2. Publications of nursing administration
15	Master	Head nurse of Changhai, Hosptial, Shanghai	1. 8 years' experience of nursing administration 2. Publications of nursing administration
16	1.Master 2. Training course of Chinese Nursing Association	Assistant of Director of nursing, nursing department, Changzheng, Hospital, Shanghai	1. 10 years' experience of nursing administration 2. Publications of nursing administration
17	1.Bachelor 2. Training course of nursing administration in Singapore General Hospital	Head nurse of Changzheng Hospital, Shanghai	6 years' experience of nursing administration
18	1.Bachelor 2. Training course of nursing administration in Singapore General Hospital	Head nurse of Changzheng Hospital, Shanghai	1. 5 years' experience of nursing administration 2. Seminar of trend and development of nursing administration in Shanghai

No.	Educational background	Position	Work experience/ publications
19	1.Bachelor 2. Training course of nursing administration in Singapore General Hospital	Head nurse of Changzheng Hospital, Shanghai	1. 7 years' experience of nursing administration 2. Publications of nursing administration
20	1.Bachelor 2. Training course of nursing administration in Singapore General Hospital	Head nurse of Changzheng Hospital, Shanghai	1. 6 years' experience of nursing administration 2. Publications of nursing administration

VITA

Miss Wenqin Li was born on April 24, 1987 in China. She got bachelor's degree in Nanjing Medical University, Jiangsu Province, China. During 2009 to 2011, she worked in the First Hospital, Jiangsu Province, which is a tertiary hospital. During 2013 to 2015, she studied Master of Nursing Science Program in Faculty of Nursing, Chulalongkorn University, Thailand.

During she worked in the hospital, she got award of examination of clinical knowledge and skills in 2011. She mainly worked in the surgical department, such as department of oncology, general surgical department, department of stomatology, and out-patient transfusion room.