

**Self-Directed Learning among Thai Nurses
in Clinical Practice**

A Dissertation

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DECLARATION

“I, *Somjai Nokdee*, declare that the Doctorate of Education thesis entitled *Self-directed learning among Thai nurses in clinical practice* is no more than 60,000 words in length, exclusive of tables, figures, appendices, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.”

A solid black rectangular box used to redact the signature of the author.

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Signed

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I hope that this dissertation is valuable for the staffs of the hospital, who wants to improve the self-directed learning skills and who can provide information to inspire nurses to pursue professional development.

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Abstract

The aim of this research was to explain the process of nurses' self-directed learning in clinical practice according to their self-perceptions. The researcher applied a phenomenological research approach as it enabled the researcher to discover and understand the direct daily experiences of nurses as they relate to self-directed learning in clinical practice. The research took place in a provincial Thai general hospital with over 500 beds. The participants were seven nurses from seven wards and four nurse educators from four departments of this hospital. Each participant had at least one year of work experience in a general hospital with 500 patient-beds in Thailand. Data were collected through semi-structured interviews, participant observation and field notes over seven months from July 2003 to January 2004. Inductive analysis was used to interpret participants' perceptions, experiences and behaviors. Data are presented to illustrate and substantiate interpretations of the self-directed learning process of nurses in clinical practices. The findings show that nurses defined self-directed learners by four characteristics: 1) independent in learning, 2) effective in learning, 3) accepting of responsibility for learning, and 4) able to use problem solving skills. It was also found that nurses learned about patients, nursing practice and nursing communications through self-direction by selecting their own methods of learning, as well as choosing the sources of their learning. Nurse educators have a role in encouraging and supporting nurses to learn through self-direction by providing and suggesting how to use learning resources, building a conducive atmosphere and environment for learning, and evaluating the effectiveness of nurses' self-directed learning. The findings from this study indicate that the opportunity to learn through self-direction already exists in the clinical setting. The nurses in this study primarily utilized learning sources within the hospital setting when engaged in self-directed learning, in particular human resources. Both structured and unstructured activities contributed to learning opportunities for nurses in clinical practice. Critical to their learning was the capability of identifying the learning opportunities that arise in their work. These results can be applied in nursing development plans in order to increase the self-directed learning potential of professional nurses. This effort may then enhance lifelong learning among nursing personnel of hospitals. Nurses can use

their knowledge and skills from self-development to provide higher quality nursing care to patients. Eventually, their self-development will lead to their career development and finally to the development of the organization.

CHAPTER 1

INTRODUCTION

1.1 Background

Ongoing change and advancements in the health care field, an ever-increasing amount of obsolete information and subsequent bodies of knowledge to be explored, in addition to the fundamentally intricate nature of clinical practice mean that it is crucial for nurses to maintain their competency in nursing through engaging in continuing education throughout their careers. According to Williams (2004), numerous efforts have been made using a variety of learning approaches to aid learners to continually update and to learn new practices proficiently.

Jen-Obrom (2003) defines learning as acquiring and applying knowledge, obtaining the skills necessary for solving problems effectively, to assess oneself, to discover areas for improvement and to make adjustments as needed. As Isarawatana (1999) affirms, developing these skills leads to lifelong learning. In addition to the skills inherent in self-directed learning, access to a range of learning resources and an understanding of relevant teaching approaches are critical to lifelong learning (Herrick and Carlson, 1998). As professionals, nurses must make a commitment to lifelong learning. Most organizations now expect staff members to take a much more active role in developing their skills and abilities by seeking out opportunities to learn both formally and informally. In relation to staff development, many organizations endeavor to ensure that their personnel will become lifelong learners. This enables people to learn from what they do so that they can improve their skills.

Nurses work in a multifaceted health care setting where they are constantly faced with challenges stemming from the ongoing social and scientific changes inherent in the health care field. The responsibility of nursing education is in preparing and supporting nurses to be able to successfully adjust and act in response to these challenges (Majumdar, 1999). Nursing education programs now place a much greater importance on adult education, in particular self-directed learning, believing it is useful for learners to be given the skills to effectively search for, examine and apply new knowledge. Nurses who are unable to guide their own learning

will not be equipped with the skills that are essential in tackling the complex and changing nature of the health care field. Some nurses need the support of others in guiding them before they can direct their own learning independently. In the nursing profession, those who have a key role in encouraging and facilitating nurses to become self-directed learners are nurse educators. Consequently, nurse educators must realize the importance of being good facilitators and understand their role in supporting nurses to direct their own learning successfully.

This dissertation focuses on how those nurses who participated in the research study perceived themselves as self-directed learners, how they practiced self-directed learning, what factors influenced their self-directed learning and how those factors influenced their learning, and what roles nurses educators had in the support and facilitation of nurses in their self-directed learning. Self-directed learning is currently of broad interest, especially in relation to nurses in clinical practice. Nurses spend the most time in direct care of patients in a clinical setting. Self-directed learning for nurses' self and professional development is especially important in order for them to acquire the knowledge to apply to and enhance the quality of their practice. This thesis presents the self-directed learning experiences of nurses in clinical practice as represented by the perception of the sample group of nurses of this research. It is a phenomenological research investigation into how nurses in clinical practice self report their learning through self-direction.

1.2 Context for the study

One important requirement for the lifelong learner is to be able to learn autonomously. Knowles (1990, p. 55) argues this point in the following way:

As individuals mature, their need and capacity to be self-directing, to utilize (life) experience in learning, to identify their own readiness to learn, and to organize self-directed learning around life problems increases steadily (to adulthood).

By definition, adult learners are self-directed and are no longer reliant upon teachers for their learning. Furthermore, Knowles argued that whilst adults have the motivation to learn, limited time, an inability to easily access resources, and educational programs that counter adult learning theory all diminish this motivation. Dedication to learning activities by adult learners is greater when they are able to participate in determining their learning needs and can have control over

the content of their learning (Knowles, 1990). It is important for the learning activity to meet the adult learner's needs for self-direction, independence, as well as convenience. Whilst Knowles did not suggest a learning method that was most conducive to adults' learning, he did identify self-directed learning as a method in which learners initiate and plan the whole learning process by themselves. As a method, therefore, it is extremely pertinent in relation to the needs of adult learners. Moreover, self-directed learning is a method that is often used in learning from work experience, solving problems, and encouraging professional development (Boud and Garrick, 1999). Personnel in health care have to face critical situations, cope with sudden incidents and care for patients each day. Therefore they have several opportunities to learn from actual work experiences. Caring for patients can be the focus of further learning for healthcare personnel in order to increase their knowledge, skills and professional development.

However, health care providers such as nurses and nurse educators are facing more and more obstacles in their efforts to build upon their knowledge and skills and obtain continuing education credit. Lack of proximity to and time for learning, as well as insufficient staffing, nurse shortages in addition to rising costs of formal training are just some of the obstacles that health care providers face in attempting to acquire new knowledge and skills (St. Claire and Brillhart, 1990). As Mamary and Charles (2003) assert, doctors are constantly engaged in self-directed learning through caring for patients with each case requiring a diagnosis and the provision of appropriate treatment according to the quality and standards of their profession. Nurse educators in hospitals are also engaged in self-directed learning. They are actively involved in developing their knowledge and skills in order to be able to encourage, promote and support nurses in the management of their ongoing self and professional development (O'Shea, 2003). As part of supporting nurses in their development, nurse educators study the learning needs and analyze the problems that nurses face in self-directed learning. For example, the nurse educators at the hospital in which the current study is located study the learning and self-development needs of nurses annually in order to use the collected information in planning the facilitation of the nursing personnel's development each year. Also, they conduct group discussions with their colleagues and the head of the ward in order to organise meetings, trainings, and seminars to promote techniques of self-directed learning to staff. According to the Thailand Nursing Council (2004), nurses are the largest group of healthcare workers and work

closest to patients in health care settings, therefore they should be encouraged and supported to be lifelong learners.

There can be little argument that the most influential form of learning in clinical practice is learning from experience. According to Sleightholm (1990, p. 147), “the key to maximising learners’ clinical learning is the instructor’s deliberate attention to the experiential learning cycle.” Clinical learning is particularly valuable in that it provides immediacy where other learning activities may not. According to Raichura (1987), learning can occur through failure to the same degree that it can occur through success. Experiential learning can be defined as learning through action, but experiential learning theory extends beyond this definition. Experiential learning theory has its foundations in humanistic psychology and can be found in the work of Dewey (1938), Rogers (1961, 1983) and Maslow (1968). According to their perspectives, experiential learning connects direct personal involvement with human experience. Kolb (1984) further developed experiential learning theory with the aim of recognizing, understanding and explaining the connections that exist between abstract generalization and concrete experience, that is between theory and practice, and the cognitive and affective domains.

Kolb (1984, p. 38) defined learning as: “the process whereby knowledge is created through the transformation of experience”. In this way, Kolb illustrates that the cognitive and affective realms are inextricably connected within the learning process. As asserted by Andersen, Boud and Cohen (2000), previous and/or current experience inevitably involves itself in all learning in some form. Whilst experiential learning can occasionally be misunderstood and thought of simply as games and activities, Kolb (1986) asserts that experiential learning is only useful when its methods help to create a learning environment in which the learners’ ability to learn from their own experience is enhanced. The most valuable experiential learning activities are those which are self-sustaining and encourage learner autonomy.

The nursing profession is a practice-based profession. Practical experience has therefore been thought to be a valuable method for the learning of nurses. Infante (1985) remarked that clinical teaching strategies continue to center on tasks of patient care rather than facilitating student learning. This means that learning in clinical nursing is well removed from the concept of

experiential learning in higher education. In addition, the staff workload and their youthful inexperience, as well as financial limitations all present serious obstacles to reforming learning in a clinical setting (Nitayarumpong, 1997).

Whilst most adults are independent and autonomous in nearly all other aspects of their lives, their prior educational experiences may have trained them to be passive in their learning. Previous learning experiences may not have afforded adults the opportunity to direct their own learning, leaving adults with the belief that the educator is the one who must guarantee a successful learning outcome (Mast & Van Atta, 1986). Whilst there are those who may be able to develop the skills of self-directed learning by themselves, there are others who may not. We can, however, still empower learners to become self-directed. An individual's capacity to be self-directed as opposed to dependent on others is contingent upon the learning situation. According to Slusarski (1994), more involvement by the educator is preferred if the learning situation is either too unfamiliar or too intimidating to the learner. Several educators have maintained that assistance from others is needed prior to learners becoming autonomous in their learning (Kidd, 1973; Knowles, 1975; Griffin, 1978; Tough, 1979; Cross, 1981; Smith, 1982). This necessitates the presence of facilitators to impart and develop the skills of self-directed learning. It is the role of nurse educators to facilitate nurses to direct their own learning and professional development (Puetz, 1987).

Nurse educators are responsible for providing current and comprehensive continuing education to nurses in the context of a progressively more intricate clinical healthcare environment. As funding and available time and resources are continually reduced, nurse educators are challenged with finding new and innovative ways to provide this education. In planning continuing education, educators utilize the resources which are readily accessible to them. Yet, the texts, journals, software, and audio-visual resources that are available in libraries or for sale often do not meet the learning needs of the staff. According to Kang (2002), they lack breadth, are not comprehensive enough, and do not relate to particular populations or are too specific in their nature. Kang (2002) contends that resources are frequently written at a level inappropriate for the target audience. Furthermore, they often contradict hospital policies, or are inconsistent with the

funds available, or are obsolete (Kang, 2002). These realities are part of a broader political and economic context in which nursing clinical practice takes place.

1.3 Political and economic context for the study

The changes that have happened due to the worldwide economic crisis during the late 1990's have caused the Government of Thailand to reduce the budget of every Ministry and Office. In addition, every office in the public sector is undergoing administrative reform in order to be more independent, self-reliant, and more efficient and to perform its duty with higher quality and greater public satisfaction (Nitayarumpong, 1997). The Ministry of Public Health is responsible for taking care of people's health and specifically for covering the following four dimensions: health promotion, disease prevention, curative, and rehabilitation for people nationwide (The Ministry of Public Health Administrators, 2000). As a result, the Ministry's aims are to support the Government's policy by planning and promoting expenditure reduction in health services whilst still providing high quality health services to people. The Ministry has developed and put in place a policy for administrative reform and has assigned every hospital and office under its supervision to support the Government's policy with regards to its public administrative system (The Health Care Reform Committee, 1997). The reform of the health service system to reduce waiting times in some of the steps in the process of their service provision is complicated. This includes continually improving the quality of services to keep people feeling satisfied (The Health Care Reform Administrators, 1997). Moreover, there is a plan in place to reduce the manpower of the Ministry and utilize the resources of the Ministry in order to achieve maximum benefits in health care administration for people (The Health Care Reform Committee, 1997). Therefore, there has to be a reduction in manpower of the personnel who provide health services. In addition to this, the Ministry has laid out a policy for every hospital to develop its personnel's performance potential with highest efficiency. This is to be achieved by giving emphasis to the promotion and support of ongoing self-development activities in healthcare personnel (Nitayarumpong, 1997).

Furthermore, the process of nursing personnel development of every hospital's department includes self-directed learning activities as one method of knowledge and skills development in

nursing practice . However, some nurses do not use this method. In 2004, the Nursing Council introduced a policy of encouraging every nurse to learn by self-directed learning methods and it is a learning activity for which nurses can take examinations in order to pass the standard and accumulate credits until they get 50 credits within 5 years. Then the nurses can extend their professional licenses automatically (The Thailand Nursing Council, 2004). In addition, the Nursing Council of Thailand has launched a project of continuous education in nursing and has arranged for every Thai nurse to enhance their knowledge by self-directed learning. Examinations can be taken to obtain scores for continuous education credit by using printed media or on-line media. This is a way for nurses who cannot attend academic seminars, training or short education courses to study at home and in the workplace and to be able to collect credits. The main objective of this project is to outline and promote self-directed learning as a method of ongoing self and professional development to every Thai nurse in order to enhance their potential and to empower him or her to practice quality nursing (The Thailand Nursing Council, 2004) The Thailand Nursing Council (2004, p. 8) has recently outlined the following educational objectives and subsequent study activities to undertake:

1. To enhance knowledge and capability in the profession or academy through:
 - 1.1 Annual academic meetings
 - 1.2 Academic trainings or short study courses
 - 1.3 Workshops
 - 1.4 Academic seminars
 - 1.5 Group discussions
 - 1.6 The organization of continuous academic lectures (academic lecture series)
 - 1.7 Special guest speakers
2. Study/Self-directed learning
 - 2.1. Interactive learning through information technology such as Computerize assistance instruction, Internet and continuing nursing education
 - 2.2. Self-assessment and review
3. Curriculum study and/or training about health science
4. Participation in personnel development activities or profession development
 - 4.1 To publicize nursing articles in journals
 - 4.2 To write nursing textbooks
 - 4.3 Scientific presentations
 - 4.4 Editorial peer reviews
 - 4.5 To check the research tools

- 4.6 Proposals and editorial reviews
 - 4.7 Peer reviews
 - 4.8 External examination and observation
 - 4.9 To create clinical nursing practice guidelines
 - 4.10 To be preceptor for student nurses in varying courses
 - 4.11 Project of providing nursing knowledge to general people
5. To enrol in educational courses or nursing training short courses within at least four weeks of receiving a certificate

The Hospital in which the current study is located is a general hospital under the supervision of the Ministry of Public Health of Thailand. The researcher, who has been working as a professional nurse for this hospital for 20 years, found that most nurses haven't attended any specific training since their graduation. They do attend general training in accordance with the hospital's policy. In the immediate future, the hospital must reform the personnel development system as required by the Ministry's self-development policy. The hospital's current personnel development program emphasizes self-development in meeting the goal of lifelong learning. At present in our society, in-patients are more severely ill and have multifaceted and complex health problems that undoubtedly create the need for on-going high-quality nursing education and development. The hospital needs to empower nurses, their largest group of personnel who work closely with patients, to become lifelong learners. Self-directed learning is a method to attain this goal. With nurses engaged in lifelong learning, the hospital's goal of continuous improvement of patient care may be achieved.

1.4 Overview of this study

There have been several studies on nurses' self-directed learning in western countries (O'Shea, 2003; D'A Slevin and Lavery, 1991; Dixon, 1991; Emblen and Gray, 1990; Fisher, King, and Tague, 2001; Guglielmino, 1977; Hammond and Collin, 1991; Jenkins, Carlson and Herrick, 1998). Many of these studies are in the area of self-directed learning of nursing students. An exception is the study by Emblen and Gray (1990) who investigated the self-directed learning practices of 80 Registered Nurses. The data collected showed that the study sample spent an average of 313 hours per year on self-directed learning projects, with 217 of those hours spent on professional topics and the remaining 96 hours on topics of a non-professional nature. However, due to the small size of the sample group, the results may not be characteristic of all nurses. The

applicability of the study's findings may also have been compromised by differences in memory as research participants were asked to recall and relate their prior learning experiences as part of the research. Dixon (1991) conducted a similar study to Emblen and Gray (1990) and found similar results. The participants were 99 Registered Nurses who completed a questionnaire about their learning activities. The findings showed that an average of 309 hours per year was spent on self-directed learning by the participants, with 152 of those hours on professional subjects. Both studies attribute the small amount of time spent on self-directed learning to the external responsibilities of the participants. Neither study explicitly states the nature of the self-directed learning activities that nurses identified as participating in. However, self-directed learning activities have been defined in the literature as including reading, discussions, self-guided study, talks, guided study, group work, computer-assisted learning, audiovisual learning packages, distance education and teleconferencing (Hamilton & Gregor, 1986; Iwasiw, 1987; Weinberg & Stone-Griffith, 1992).

Whilst western studies have addressed self-directed learning of nurses and nursing students and the self-directed learning of students nurses in Thailand has been the subject of some research (Boonchoo, 1989; Boonyanuluck, 1993), there has not been a study of the self-directed learning of nurses who practice in wards in Thailand. The aim of this study, therefore, is to investigate how professional nurses in Thailand learn through self-direction while working in the wards.

This research will be of particular interest to nurse educators as the results can then be used as a guide for nurses' potential development and for encouraging nurses to have and use self-directed learning skills. Nurses could then apply the knowledge obtained through self-directed learning to more effectively deal with the constant technological and societal changes of the modern health care environment. If nurse educators know what and how professional nurses learn through self-directed learning, which factors influence their learning, and which roles of nurse educators encourage their learning while practicing in wards, then nurse educators could use such knowledge to develop their roles and to promote self-directed learning among nurses. Additionally, they could plan to support nurses in becoming self-directed learners and lifelong learners.

In order to understand the factors outlined above, the researcher applied the qualitative research method of phenomenology to investigate the process of self-directed learning of nurses in clinical practice. This research method focuses upon how human beings perceive their own world (McMillan, 2004). It acknowledges the stories and details of self-directed learning by nurses in clinical practice in regards to what they learned, how they learned, which factors influenced their self-directed learning, and how the nurse educators' roles promoted nurses to do self-directed learning.

The particular research questions for the study were as follows:

1. To what extent did the nurses see themselves as self-directed learners? What did self-directed learning mean to them?
2. What did professional nurses working in the wards learn by self-directed learning?
3. How did professional nurses working in wards learn by self-directed learning ?
4. What factors influenced the nurses' self-directed learning ? How did those factors influence their learning?
5. What were the nurse educators' roles in supporting the self-directed learning of nurses working in wards?

As asserted by experiential learning theorist, Kolb (1984), adults can learn effectively from their work experiences as well as from others. In undertaking this research, a thorough understanding of the historical context and contemporary theories of learning was necessary in order to investigate and apply the information gathered from the research questions. In particular, knowledge of the principles of adult learning, experiential learning and self-directed learning as they relate to the workplace were critical to this research and these are further explored in chapter two.

1.5 Conclusion

This initial chapter has identified the rationale for developing nurses in clinical practice by self-directed learning and has presented the research questions formulated to investigate the self-directed learning process of nurses. The study has sought to explore how nurses used the processes of self-directed learning while working in clinical practice. In the next chapter, a review of the literature, which is relevant to learning, adult learning, self-directed learning, learning at work and experiential learning, and nurses' professional development is presented. Chapter 3 outlines the application of phenomenology as a methodology for this research, the reasons for choosing phenomenology in addition to understanding the educational process of this form of inquiry. The method of phenomenology as discussed in this chapter also includes an outline of the steps of data collection and the method of data analysis. Chapter 4 reports the findings of this research into self-directed learning of nurses in clinical practice. Chapter 5 presents a discussion of the findings from the research and also proposes recommendations for further development, including new ideas and knowledge of the process of self-directed learning of nurses.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

A review of the literature that is relevant to self-directed learning of nurses in clinical practice is included in this chapter. The purpose of reviewing the literature was to use the material to analyse current understandings of the process of self-directed learning and to find out what was known about the learning methods of nurses in clinical practice. As a result the researcher confirmed the research questions for the current study. The literature review also provided a mechanism to explain the phenomenon of self-directed learning as it was described by the participant. The following areas of study are reviewed in this chapter:

1. Learning and learning theory
2. Experiential learning
3. Adult learning
4. Work-based learning
5. Self-directed learning
6. Continuing professional nurses' development

2.2 Learning and learning theory

Merriam and Caffarella (1999, p. 45) stated:

Learning, so central to human behavior yet so elusive to understanding, has fascinated thinkers as far back as Plato and Aristotle.

To understand a learning theory one must look at the context in which it has developed. Much of the current thinking about learning has its origins in philosophy and in particular within the frameworks of Plato and Aristotle. Merriam and Caffarella (1999) link Plato's "rationalism" with Gestalt and cognitive psychology, and Aristotle's "empiricism" with early behavioral psychology. The study of learning made the transition from philosophical inquiry to scientific

investigation in the nineteenth century. Since that time significant research in the fields of psychology and education has led to the development of multiple theories of learning. Included in this section is an overview of learning and learning theories, followed by a more in-depth discussion of five different approaches to learning theory – behaviorist, cognitive, humanist, social, and constructivist – and how they relate to and inform self-directed learning. Key literature from the last three decades of the 20th century is cited in reporting these theories.

2.2.1 Definitions of learning

Learning has been defined in several ways. The basis of most modern definitions is that learning is a change in behavior resulting from experience. A simple definition is provided by Webster (1990, p. 1), “Learning can be thought of as a process by which behavior changes as a result of experiences”. A more comprehensive definition is offered by Hergenhahn (1988, p. 7), who defines learning as “a relatively permanent change in behavior or in behavioral potentiality that results from experience and cannot be attributed to temporary body states such as those induced by illness, fatigue, or drugs.” The inclusion of the potential of new behavior as indicative of learning is important to note in this definition. Shuell (1990) and Schunk (1996) also incorporate behavioral potentiality in their definition of learning. Shuell (1990) said that learning is an enduring change in behavior, or in the capacity to behave in a given fashion, which results from practice or other forms of experience. According to Schunk (1996), learning is behavioral change or change in the capacity for behavior. Furthermore, Omrod (1995, p. 6) defined learning as a “*relative permanent change in behavior due to experience, and a relative permanent change in mental associations due to experience.*” The concept of the capacity or potential for change is an important addition to the definition of learning when considering self-directed learning, as it provides a further framework for understanding motivation.

Isarawatana (1987) defined learning as consisting of three aspects:

1. Learning is an outcome, and can be viewed as
 - growing,
 - understanding,

- changing,
- the world as a learning mechanism,
- acquiring information,
- gathering information, and/or
- discovering information

2. Learning is applying knowledge

When a learner learns new knowledge, he/she will take that knowledge and usefully apply it in a new situation.

3. Learning is a process

Learning is to commit to memory, make observations, and practice skills by using a process of trial and error.

Moreover, from the research of Isarawatana (1999, p.79-80), who, using qualitative research methodology, interviewed 30 Thai people deemed successful in their work, it was found that when people were asked about the meaning of learning, they each would explain the meaning of learning differently as illustrated in the following examples:

- *Learning is to learn what is not known before.*
- *Learning is to listen to gurus' information that leads to knowledge and understanding.*
- *Learning is to listen to classroom lectures.*
- *Learning is to search for new information so that the information can be applied.*
- *Learning is to memorize good things and bring them to practice.*
- *Learning is to commit information to memory.*
- *Learning is changing behavior.*
- *Learning is searching for information.*
- *Learning is the need for knowledge or skills.*
- *Learning is a human's instinct for self-development.*
- *Learning is an activity that people learn. Learning may take place intentionally or by accident. Learning may involve searching for information, skills, new attitudes, understanding, or culture norms. Learning leads to changes in behavior. It can happen throughout our lives. Learning can be both a process and an outcome.*
- *Learning is a complicated process involving the mind, the emotions and the body.*

From the above examples, it is clear that each person explained the meaning of learning in a different way. Each person explains the meaning of learning differently because the concepts and beliefs of each person vary. Marton and Saljo (1976) indicated that people “do” the same as they

“think”. Therefore, if educators can know what and how learners are thinking, they can anticipate what learners will do (Marton and Saljo, 1976).

Attempts to understand what and how people think and what occurs in the process of learning have been the subject of much research. Rationalizations arising from this research are called learning theories and are as diverse as the various definitions of learning itself. The approaches to learning theories presented in this section – behaviorist, cognitive, humanist, social, and constructivist – have been chosen for their relevance to adult and more specifically self-directed learning. Two main values of the range of learning theories are described by Hill (1977, cited in Merriam and Caffarella, 1999, p. 250) as follows,

One is in providing us with a vocabulary and a conceptual framework for interpreting the examples of learning that we observe. These are valuable for anyone who is alert to the world. The other, closely related, is in suggesting where to look for solutions to practical problems. The theories do not give us solutions, but they do direct our attention to those variables that are crucial in finding solutions.

2.2.2 Behaviorist approaches to learning

According to Merriam and Caffarella (1999), there are three core beliefs that inform behaviorist approaches to the process of learning as can be seen in the work of behaviorists such as Thorndike, Skinner, and Gagne:

1. The focus of study needs to be on observable behavior.
2. The environment directs learning and shapes consequent behavior.
3. The closeness in time and reinforcement of events are central in explaining and understanding the learning process.

It was Thorndike (as cited in Merriam and Caffarella, 1999) who contributed the stimulus-response theory to the field of learning, further explained by his shaping of three laws of learning:

1. The Law of Effect – the more fulfilling the result of an event is, the more likely new behaviors will be acquired and remembered.
2. The Law of Exercise – repetition allows for considerable learning to take place.

3. The Law of Readiness – learning is improved by a learner’s willingness to learn.

Skinner (1974) further developed this theory and introduced the concept of operant conditioning, the idea of reinforcing behavior you want the learner to continue producing whilst paying no attention to behavior that you do not want the learner to repeat. Fundamental to Skinner’s (1974) understanding of learning is that the environment controls behavior and that a teacher’s key contribution to education is in providing an environment conducive to learning taking place.

Another major contributor to the behaviorist approach to learning is Gagne. Through controlled experiments and predicting certain learning behavior, Gagne (1977) aimed to distinguish the conditions that support and enhance learning. To begin with, Gagne (1977) outlined five important learning skills—motor skills, verbal information, intellectual skills, cognitive strategies, and attitudes toward learning. Gagne also holds that learning is hierarchical and progresses from simple to more complex levels of learning.

Critiques of behaviorist approaches to learning center around the belief that behaviorism doesn’t take into consideration the whole person which in turn leads to the development of inappropriate educational methods founded on two dimensional principles (Novak and Gowin, 1984).

2.2.3 Cognitive approaches to learning

Cognitive approaches to learning developed in response to what was deemed as the too narrow focus of behaviorism (Merriam and Caffarella, 1999). Theories of cognitivism focus on the internal mental processes of the mind – the memory, the cognitive systems, and the way information is stored and retrieved. Early cognitivist approaches to learning were informed by Gestalt psychology that proposed looking at the whole pattern rather than at isolated individual events. Gestaltism contributed the ideas of perception, insight and meaning to cognitivism with the underlying assumption that the mind is more complex than stimulus-response theory suggests. As outlined in Merriam and Cafarella (1999), the major distinction between behaviorist and cognitive theories of learning is the central point of control in the learning process. Behaviorists

contend that the central point of control in learning is the environment, whereas cognitivists suggest that control lies within the individual learner.

Piaget (1966) incorporated both Gestalt and behaviorist perspectives of learning into his own theory of cognitive development that, in turn, informed Kolb's theory of experiential learning (as outlined in section 2.3) that has since had a profound impact on theories of adult learning (as outlined in section 2.4).

Ausubel (1967, cited in Merriam and Caffarella, 1999) introduced the concept of meaningful learning proposing that learning will only be significant if it can be related to beliefs that are already a part of a person's cognitive structure. He contrasts this with rote learning, which he suggests cannot easily be retained due to the fact that knowledge being memorized has no prior concepts in a person's cognitive structure to connect with. In relation to educational practices, whether the learning that takes place is meaningful or rote, depends on the learning context (how knowledge is presented to students) and on the learning strategies employed by students (Entwistle 1998; Gibbs 1995; Candy 1991). Ausubel expanded his theory of meaningful learning to develop the idea of reception learning that proposes a learner is more open to learning if they already have related concepts within their cognition to support that learning. More recently, the idea of reception learning that assumes learning takes place through direct teaching has been contrasted with discovery learning where learners are able to develop and produce their own understanding (Entwistle 1998, Marton, Hounsell and Entwistle, 1984). Discovery learning is an important development in relation to self-directed learning (as outlined in section 4).

2.2.4 Humanist approaches to learning

According to Taweessin (1996), humanist approaches to learning incorporate an emphasis on cognitive and affective domains of a person. Similar to the cognitive approaches to learning, humanist approaches place the central point of learning with the individual. Taweessin (1996) outlines the importance of directing learners through instruction and the learning environment toward self-development and growth.

The idea of self-actualization as the primary goal of learning was first introduced by Maslow (1970) who proposed that humans were motivated through a hierarchy of needs towards self-fulfillment. These are as follows (as cited in Wiwitsiri, 1998, p. 41):

- 1. Physiological needs or survival needs*
- 2. Safety needs*
- 3. Love and the need to belong*
- 4. Self-esteem needs*
- 5. Self-actualization or self-fulfillment needs*

As described by Wiwitsiri (1998), the theories of Maslow have an important relationship to learning. The most important and perhaps most obvious connection is that learning will produce the best results when it directly relates to and fits with the needs of the learner. In addition, positive outcomes of learning result in a greater motivation to learn. When learning is meaningful and relevant to the learner, it results in continual desire to learn.

Sahakian (1984) outlined ten goals of learning in addition to self-actualization:

1. To find a vocation or pursue a destiny
2. To acquire or seek knowledge of a set of values
3. To understand that life has inherent value
4. To achieve peak experiences
5. To gain a sense of fulfillment
6. To meet psychological needs
7. To expand consciousness
8. To control unwanted urges
9. To make sense of philosophical questions
10. To help in making better decisions

Carl Rogers's humanistic approach to learning was founded upon the idea that every human has natural learning potential and that meaningful learning leads to an individual's growth

development (Rogers, 1983). He outlined the following five characteristics of meaningful learning:

1. Personal involvement – both cognitive and affective
2. Self-initiated
3. Pervasive – resulting in change in behavior, attitude and personality of the learner
4. Self-evaluated
5. The core of the experience is meaning

Rogers (1969) saw that distinguishing between meaningless and significant learning had profound implications for education. In contrast to “direct-teaching”, Rogers introduced the concept of “facilitation” as being more conducive to meaningful learning leading to higher levels of confidence, creativity and independence in learners.

As discussed in section 2.4, Rogers and Maslow’s theories have had a significant impact on the development of adult learning theory. Humanistic approaches to learning provided the foundation to both adult and self-directed learning theories (Merriam and Caffarella, 1999).

2.2.5 Social approaches to learning

Social learning theories merged behaviorist and cognitivist approaches to learning. The underlying assumption of social approaches to learning is that people learn from observing others and therefore learning must take place in a social environment.

As outlined in Hergenhahn (1988), Miller and Dollard’s (1941) theory of learning was founded upon the behaviorist Stimuli-Response theory. They believed however that observation alone was not enough for learning to occur. They suggested that an imitative response must be made to reinforce what the learner has seen and for learning to take place.

It was Bandura (1976) who first integrated a cognitivist approach to his theory of learning focusing on the internal mental processes happening in observation. He believed that imitation

did not need to happen in order for learning to take place, that it could be vicarious. Further developments of this idea led to his concept of self-regulation which contends that people can change their behavior by imagining the consequences.

According to Hergenhahn (1988), four processes affect learning through observation:

1. Attention – whether the model is being observed
2. Retention or memory – whether the information is being stored for future use
3. Behavioral rehearsal – whether the learner is able to effectively compare their own behavior with the modeled behavior
4. Motivation – whether the motivation to act upon the learning takes place

2.2.6 Constructivist approaches to learning

The shared belief of constructivist approaches to learning is that learning is a process in which individuals create meaning and attempt to understand their experiences. According to Savery and Duffy (1995), the motivation to learn is born out of inconsistencies or a sense of confusion in an individual's perception of their experiences. Consequently, learning is seen as the ongoing reconstruction of what an individual already knows through further experience. In addition, it presupposes an interrelationship between people and their socio-cultural circumstances. Knowledge is gained within the socio-cultural context in which learning occurs, resulting from collective points of view and having negotiated personal perspectives with others.

How individuals create meaning and attempt to understand their experiences is where constructivists often diverge in their approaches. Whilst there are differing theories of constructivism, the common focus is on individual creation of meaning through experience and active, independent inquiry which is compatible with the theories of adult, work-based and self-directed learning (Candy, 1991).

2.2.7 Motivation and learning

Motivation is widely considered to be a fundamental psychological concept in education and is often raised in various approaches to learning such as those outlined in the previous sections (Vellerand, Pelletier, Blais, Briere, Senecel, and Vallieres, 1992). As stated by Dweck (1986), research into motivation seeks to understand the purpose of goal-oriented activity. She outlines two types of goals involved in achievement-based motivation – learning goals and performance goals. Dweck's research indicates that within these goals adaptive and maladaptive motivational patterns can arise. Adaptive motivational patterns are identified by the pursuit of challenges in learning and extremely competent perseverance when faced with learning obstacles. However, those exhibiting maladaptive motivational patterns tend to avoid challenges and are hindered by difficult or complex tasks. According to Dweck (1986), these motivational patterns arise irrespective of intellectual ability. The research indicates that individual learning goals within a given situation result in one of the two patterns arising. This would indicate that learners themselves have a profound impact on the outcome of their learning. They are able to create behavior for highly effective learning through the selection of meaningful and appropriate learning goals. As individual learning goals play such an important role in motivation, it is important for educators to be aware of the variety of goals, needs and styles of learners in helping to foster motivation in learners for their continuing development.

2.2.8 Methods of learning

Whilst formal education often takes place in a classroom or educational institution, learning is not restricted to these domains. Learning can happen in many ways and in a variety of settings (Burman, 1969). Burman (1969) outlined four methods of learning as follows:

1. Formal learning

Formal learning takes place in educational institutions where there is a formal curriculum and various forms of official assessment. In addition, learners must meet specific admission requirements and adhere to the rules and regulations set by the institution. Once learners have

fulfilled these requirements and completed their course of study they receive a degree or a certificate in recognition of their work.

2. Random or incidental learning

This kind of learning happens by accident rather than from intention and is often referred to as “*learning by accident*”.

3. Self-directed learning

Self-directed learning is learning that takes place due the intention of learners wanting to acquire new knowledge. Self-directed learners try to learn by many methods. The learner then evaluates the experience. This method of learning is often without supervision or encouragement from other people. Self-directed learning has important implications in this era of globalization and technological development. For example, people who can continually acquire new technological skills will then be able to use new equipment successfully.

4. Collaborative learning

In collaborative learning, learners come together in groups in order to learn such as in seminar groups in which learners invite experts to lead seminars and give talks and afterwards, the group discusses the information introduced by the expert. This style of learning is often done in informal group meetings without formal assessment or recognition. In this method of learning, participants want to learn in order to expand their knowledge base. Learning takes place through the assistance that group members give to one another.

In contrast, Cross (1981) divided different methods of learning for adults or employees into three groups:

1. Learning from Learning Activities Organized by Departments/Sections

Similar to Burman's (1969) 'formal learning' method, this category of learning is structured so that learners may receive credit or a certificate. The differences being that the organizers are typically divisions within local universities, colleges, or industrial companies instead of the entire institution. The intention of the curriculum is to enhance the knowledge, skills and abilities of those participating.

2. Learning alone

In this learning method, the learners are adults who voluntarily learn by themselves and tend to be lifelong learners. They exhibit enthusiasm for learning and are extremely motivated to continually increase their knowledge-base.

3. Learning from an educational institution

In this method of learning, participants attend educational institutions which have a curriculum, several forms of assessment, as well as rules and regulations that learners have to follow. There are several methods of learning available to learners. Certain learning methods are more conducive to learning for different people. In order to foster self-directed learning among nurses, individuals should be able to select each method of learning by themselves to their own interest, liking and convenience.

2.2.9 Sources of learning

From the research paper of Penland (1979), books were found to be the most significant learning resource in the United States. The research showed that participants make use of books more often than other resources such as friends or relatives. However, when the US national probability sample population had problems, it was found that 75.2% would talk to experts, 71.2% would search for information in books, and 58.7% would talk to their friends or relatives. A contributing variable to these statistics was the level of education that participants had received. According to Penland's research, people who had received a moderate to high level of education tended to rate books as their most important learning source, whereas less-educated people who were less

skilled at reading reported that they relied upon electronic media such as radio and television as their sources of information. In relation to level of education, Brookfield's research (1984) showed that those with less education would depend upon their friends, recognized professionals, and other learners as their sources of information as opposed to libraries, electronic media, or formal courses.

According to the research of Isarawatana (1995), the main learning sources of Thai people are experts, teachers, friends, books, and study tours. Issarawatana's research also showed that Thai people living in rural areas have more faith in live media than print media. This is due to several contributing factors. To begin with, rural areas do not have enough textbooks and books. In addition, many Thai people either don't enjoy reading books or have difficulty reading, particularly those with lower levels of education. Also, their remote location often makes it inconvenient for people in rural areas to make use of libraries. Finally, and perhaps most significantly, many people in rural areas are lead to believe, by their families and their way of thinking, that experts are the sole source of knowledge (Isarawatana 1995). Therefore, it is important for educators to be aware of the significance placed upon them by those who live or grew up in rural Thailand. "Teachers or other people who are successful in their work as a result of self-directed learning are called "local wisdom" and are looked upon as important sources of knowledge" (Isarawatana, 1995, p. 77). Isarawatana's research into sources of learning considered important by people in urban settings found that most people identify recognized professionals, experts and community leaders as their primary sources of information, more so than books (Isarawatana 1995).

2.3 Experiential learning

2.3.1 Foundations of experiential learning

Experiential learning, which is central to many approaches of education, has its foundation in the humanistic approaches to learning of Dewey (1938), Maslow (1968) and Rogers (1961) who each recognized the value of experience in the learning process. According to Zuber-Skerrit (1992), experiential learning theorists believe that every part of a person is bound up in the process of

learning, encompassing an individual's cognitive ability, emotions, personal values and ways of inter-relating.

Learning is a process that results in changes of behavior due to experience (Hergenhahn, 1982) as shown in Figure 1.

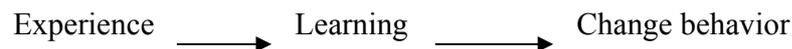


Figure 1: Learning Process

Steinaker and Bell (1979) explained the concept of the process of experience by emphasizing the interrelationship of every part of a person as they participate in activities. The steps of the process were described as:

1. Exposure – that is, the conscious perception of facing real situations with full awareness of the experience.
2. Participation – to co-work/operate by performing existing activities focussing on the physical experience.
3. Identification or self-searching – the learners' participation in making the decision about "what should be learned". This needs skills of intelligence, emotion, and management according to the objectives of learning.
4. Internalization – to begin to apply the ideas gathered to other situations.
5. Distribution – to extend experience outwards, informing others of the experience.

Kolb (1984) was the first to develop a clear structure of the experiential learning process based on the models of Lewin and Dewey, and on Piaget's theories of learning and cognitive development. According to Kolb (1984, p. 18), the underlying themes from which he developed his theory of experiential learning "suggest guiding principles for current and emerging applications of experiential learning theory." These themes and their applications are outlined as follows in Figure 2.

change and the reality of lifelong learning. Lifelong development is also emphasized in Piaget's work on the cognitive development processes of assimilation and accommodation and how knowledge is structured and learned. Each of the themes outlined is consistent with the constructivist idea that individuals create meaning through their experiences. From these themes, the practical applications summarized in Figure 2 have evolved, creating a shift from a traditional lecture-based education system to the use of experience-based methods and a focus on self-directed learning. As individuals create meaning through their individual experiences, their ability and opportunity to direct their own learning is essential. This has particular relevance to professional development where the fostering of self-directed learning characteristics in professionals can have a significant impact on how individuals perform and develop in the workplace.

2.3.2 Kolb's experiential learning theory

Kolb (1984) understands the key task of learning as the process through which knowledge is acquired through the grasping (prehension) and subsequent transformation of experience. These two fundamental aspects of the learning process are illustrated below in Figure 3.

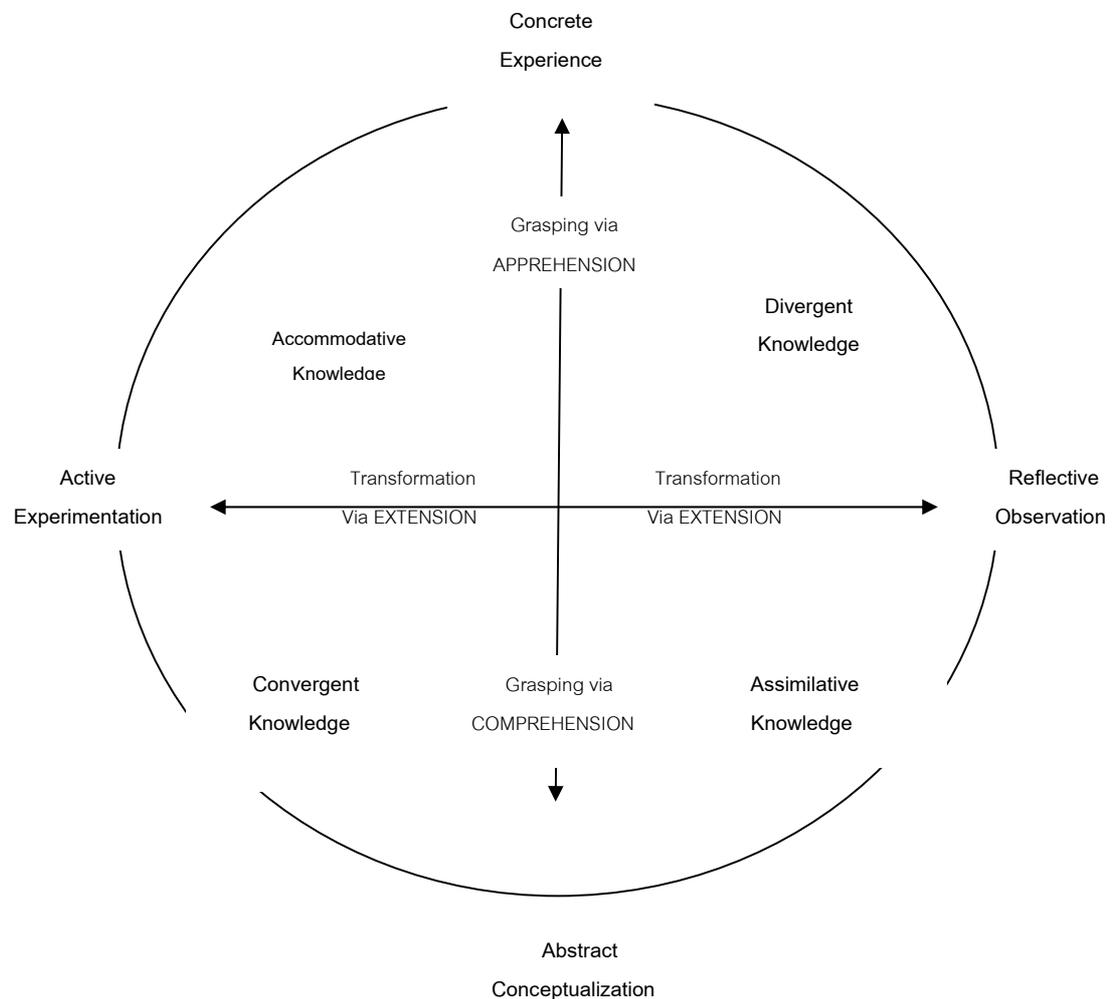


Figure 3: Structural dimensions underlying the process of experiential learning and the resulting basic knowledge forms (Kolb, 1984, p.82)

According to Kolb (1984), the first aspect (prehension) includes two differing methods of grasping, the first through direct apprehension of concrete experience and the second through indirect comprehension of abstract conceptualization. The second aspect (transformation) includes two differing methods of transforming experience, one through reflective observation and the other through active experimentation. The outcomes of these aspects were first introduced as the components of the four-stage cycle that is the basis of Kolb and Fry's (1975) experiential learning model simplified in Figure 4:

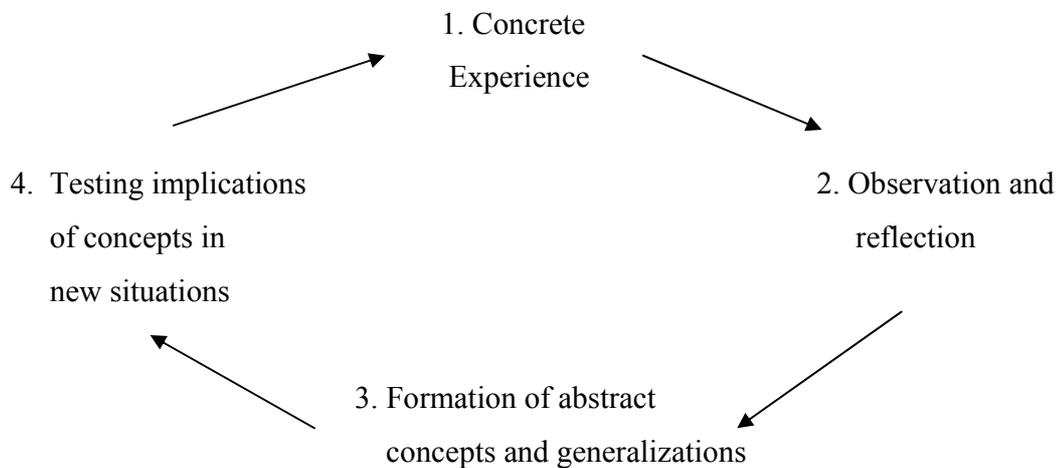


Figure 4: An experiential learning cycle (Kolb and Fry, 1975)

Through this model Kolb and Fry (1975) propose that effective learning is both cyclical and holistic, incorporating four processes of learning. In addition, they observed that the learning process constantly recurs and is shaped by the individual learner. As a result each individual adopts different methods for and goals of learning.

Kolb's theory of learning differed from the behaviourist views because Kolb (1984) believed that learning should be viewed as a process rather than a set of outcomes. His perspective described learning as a constant process rooted in the learner's experience. According to Kolb, the process of learning necessitates the assimilation of the diverse ways of adapting to the world. He also believed that learning is a holistic, lifelong process linking life experience and learning resulting in the creation of knowledge. In this way, Kolb's theory has particular relevance to the learning of adults. Adult learning theories are founded on the belief that learning is a continual and life long process (Kolb, 1984). Furthermore, Kolb's theory of learning defines learning as active, interactive and self-directed, implying that all learners are self-directed.

2.3.3 Characteristics of experiential learning

According to Boud, Cohen and Walker (1993), learning is a holistic process involving the whole of a person, their cognition, senses and emotions. Experiential learning recognizes and supports the active application of all of an individual's pertinent life and learning experiences to the learning process. It can be characterized by ongoing reflection upon and reconstruction of previous experiences to enhance, transform and develop further knowledge.

Andersen, Boud and Cohen (2000) suggest that how experiential learning occurs in practice is dependent upon three possible factors – whether and/or how it is planned, whether and/or how it is facilitated, and whether and/or how it is assessed. Planned learning and incidental learning activities often result in a different focus for the learner, with incidental learning activities being much more learner-centered and/or driven (Marsick and Watkins, 1990). If a facilitator is involved in the learning process, experiential learning presupposes mutuality and equality between the facilitator and learner. The focus on process in experiential learning necessitates assessment that reflects this notion, enabling the characteristics outlined above to be properly evaluated.

Experiential learning represents an alternative to more traditional, didactic, teacher-centered methods, centering instead on a learner-centered approach which is both highly participatory in nature and meaningful in content (Andersen, Boud and Cohen, 2000). This approach to learning is particularly significant in adult education as it can be applied to various structured and unstructured learning activities and settings.

2.4 Adult learning

2.4.1 Definition of adult learning

Knowles (1984) introduced several concepts about andragogy defining it as both the science and art of assisting adults in learning. It is also a process that continually takes place throughout a person's lifetime assisting adults in developing self-directed learning characteristics that enable

them to mature. Knowles' early work helped to establish our current understanding of lifelong learning. Andragogy is an important aspect of nursing. Health care organizations assert the need for strategic, sensitive individuals to effectively deliver health care services to the consumer. It is extremely important to maximize these behaviors among nurses and nursing leadership.

2.4.2 Characteristics of adults and adult learners

The critical aspects of adulthood, which set learning in this life stage apart from that of children, are the roles and responsibilities prescribed by society to adults - such as the role of worker, spouse or family provider - in addition to the characteristics of self-understanding, independence, self-reliance and an ability to take responsibility for him or her self (Wiwitsiri, 1990).

Wiwitsiri (1990) outlined the following characteristics of adults which are relevant to thinking about their approach to learning:

1. Self-reliance and independence in problem solving utilizing previous experiences.
2. Ability to respond appropriately to their environment and new situations using intellect, learning, and previous experience.
3. Other-centeredness, showing an ability to assist each other, making compromises where and when necessary.
4. Adaptability in social situations, enthusiastically joining group activities and maintaining good relationships with people.
5. Ability to face reality in order to successfully deal with change.
6. Patience and concern for other people's requirements.
7. Utilization of their abilities in order to enhance benefits.
8. Skill in problem solving and an ability to endure disappointment until new opportunities present themselves
9. Ability to make long-term plans in order to create a successful life
10. Emotional and behavioural control according to societal acceptability
11. A sense of public responsibility and an understanding of the need to make sacrifices for learning

Knowles (1970 cited in Tight, 1996) mentioned four distinguishing characteristics of adult learners: self-direction, accumulated experiences, readiness to learn and problem-centred focus. The self-concept of individuals will change from dependence on other people to a more self-directed condition. As children, people must rely on others more than they do upon themselves. As they grow older and they desire more autonomy, they rely less and less on others.

Experiences are continually accrued as people move toward adulthood. In adulthood, people have a significant knowledge base with which to steer their lives, becoming their own person and developing their own way of living. Readiness to learn develops in adults who have had numerous life experiences and who have fulfilled several roles in their families and society (Knowles, 1984). As a result they are adaptable, progress in their career and develop in their societal roles.

According to Knowles (1984), over time an adult's orientation to learning shifts from one of delayed participation to one of immediacy. Recognizing the importance of time, adults tend to want to spend their time in the most effective way so as to maximize what they can achieve. An adult's learning becomes problem-centered as opposed to subject-centered (Knowles, 1984).

2.4.3 Concepts of adult learning

Knowles (1984) outlined the basic concepts of adult learning theory as follows:

1. Adults are motivated to learn from their experience and show interest in their learning
2. Adults learn what is necessary or relevant to their lives
3. Previous experiences provide the key to adult learning
4. Adults are comfortable with themselves, striving to be independent in their thinking and work
5. As people age, differences between people become more prominent. This is particularly relevant for adult educators who need to be aware of the differences in people's learning styles when planning for learning to take place.

Knowles (1984) outlined key differences between educational theories of adults and children. These included the need to know, the self-concept of learners, the role of their experiences, their readiness to learn, their orientation to learning and their motivation. It is not enough for learning opportunities to be presented to adults; they need to have a reason for why they need to learn something in order for the learning to take place. Tough (1979 cited in Knowles, 1984:55) found that adults would first think about what they can achieve from learning and then decide to learn what will be of most use to them. In addition, if learning opportunities are convenient and easily accessible, learning then becomes more significant to the learner, increasing their motivation and helping them to become more effective in their learning. In this way, learning is an integral part of successful living. As asserted by Mast and Van Atta (1986), the success of adults in the pursuit of self-directed learning directly relates to their childhood learning experiences. They contend that if adults have been exposed to self-directed learning during their childhood, their skills as self-directed learners in adulthood will be greater, contributing to the attainment of life long learning.

Due to the myriad of experiences adults have acquired throughout their lives they are able to perform a wider variety of activities compared to children. As a person grows older, they acquire more and more experience. This experience allows a person to learn the skills necessary to engage in more and more activities. Also, as they grow older, an adult's experiences result in a greater readiness to learn (Knowles, 1984). Adults are ready to learn whatever they consider necessary to cope effectively with life situations.

Much of a child's learning is content-centered and appropriately designed for the learner's age. Adult learning, however, is primarily centered on problems, either in their life or work. Because adult learning is more applicable and useful to everyday life, adults tend to have a higher motivation to learn.

Due to an adult's orientation to learning, motivation becomes more central to the learning experience. Adults may be motivated externally, and/or internally. The research of Tough (1979 cited in Knowles, 1984) found that these internal and external motivating factors have a significant impact on the on-going improvement of an adult's learning, helping to reduce

obstacles to learning that can result in diminished interest and a reduced attention span. In addition, Wlodkowski (1985), supported by numerous psychological theories, suggested that six major factors have an impact on learner motivation: attitude, need, stimulation, affect, competence, and reinforcement.

Adult learning does not happen only through the experiences of listening to a lecture or by doing what a teacher says, but may happen in a range of situations, as described in section 2.2.8 (see pages 10-12). The type of learning that takes place for adults is less formal. Therefore, self-directed learning skills are particularly important for adult learners to gain. Characteristics of self-directed learning may not be developed or encouraged in childhood because learning is formal, school based and often teacher directed (Isarawatana, 1989). This presents a challenge for adult learners who, as a result of their earlier learning experiences, may have difficulty in developing self-directed learning traits. Paradoxically, learning as an adult allows for greater self-development and enhanced problem-solving ability due to the scope of experience they have acquired throughout their lives.

Kolb's theory of experiential learning explains how an adult's experiences contribute to his or her learning and create a learning process that is self-directed. An adult's apprehension and comprehension of his or her experiences leads to the extension of those ideas to other experiences where self-directed reflection, observation and active experimentation take place.

Isarawatana (1989) found that when learners in Thailand learn within an area of their interest, either learning by themselves or in the school system, their resulting feelings and behaviors tend to be good or positive. Learners are challenged, excited, and interested. However, when learners are forced to learn material that is of little interest to them, the feelings and behaviors that occur tend to be negative. Learners are bored, confused, unsatisfied, stressed, and/or discouraged.

Learning is a process that happens throughout a person's life. It is important to our living in society. While theories of adult learning have been applied to formal learning programs in institutions and workplaces, for this study, the relevance of adult learning theory is in its application to non-formal programs in workplaces in Thailand and in understanding how adults

can direct their own learning and be supported in that process. In the next section theories of work-based learning are discussed before reviewing studies of self-directed learning.

2.5 Work-based learning

2.5.1 Definition of work-based learning

Levy (1987) defined work-based learning as the correlation of an employee's learning to their roles and responsibilities in the work place. In addition, Levy identified three inter-relating components that underlie work-based learning – learning is structured into the workplace, relevant training and learning opportunities are provided in the workplace, and pertinent off-site learning opportunities are identified and made available.

Boud and Garrick (1999) refer to work-based learning as an approach to meeting both the needs of the employee as learner and the organization looking to develop their staff, stipulating that a) organizations have outlined specific competencies they require employees to meet, and b) the staff is adequately prepared to participate in the learning required to develop the specific competencies. In their opinion work-based learning is a holistic organizational approach, which is generally part of an organization's Human Resource Department Training and Development strategy resulting in individual development plans for employees with the intention of maximizing employee potential and preparing the organization for change.

2.5.2 Work-based learning and contemporary training practices

Work-based learning is becoming increasingly more recognized as significant in the contemporary workplace as organizations begin to understand that their performance capability is directly related to their employees' learning aptitude. As a result, learning is now seen as an essential and integral part of everyday work (Boud and Garrick, 1999). In the past, work-based learning took the form of training programs that were designed in response to perceived needs in the workplace. The shift in contemporary training practices has been toward the achievement of competencies deemed necessary for employee and organizational development. As outlined by

Edwards and Usher (1994), the paradox of a competency-based viewpoint is that employees are having power wielded over them by their employer while simultaneously being empowered to take responsibility for their position within and contribution to their organization.

Healthcare practitioners, as a requirement of their professions, are expected to continually update and add to their knowledge in their respective fields. However, the application of that knowledge and the subsequent development of their professional skills take place in clinical practice (Cole, 2004). Due to the complex and constantly changing nature of healthcare, traditional methods of learning and working in healthcare are rapidly becoming obsolete (O'Shea, 2003). Learning in practice not only allows for the use of professional experiences in practice, but also empowers practitioners to take responsibility for their learning.

2.5.3 The worker as learner

Work-based learning is one of several learning and teaching approaches which considers active participation in learning essential and, furthermore, maintains the notion that learning must be seen as meaningful and constructive by learners in order for them to relate to and gain from that learning (Clarke and Copeland, 2004).

The fusion of learning with working has resulted in several new learning opportunities. Higher education is taking place in the workplace with the development of work-based degrees that aim to connect learning needs and goals of individuals with their organizations' strategic plan (Boud, Solomon and Symes, 2001). As proposed by Boud, Solomon and Symes (2001), these study courses connect learning to the performance needs of the workplace in addition to personal career development goals. Usher and Solomon (1998) propose that whilst these learning opportunities result in the potential of the workplace as a place of self-actualization, they can also mean that the workplace may be seen as a place of "regulated subjectivity".

The value of work-based learning is in recognizing the learning opportunities that are present in practice. In order for nurse practitioners to benefit from the learning opportunities that exist in the workplace, there needs to be a shift from functional practice to reflective practice (Debrezeny,

2003). Reflective practice facilitates an individual's development through examination of their own actions in practice, dialogue with others, and learning from the experiences of others as well as from other sources (Debrecezeny, 2003).

2.5.4 Workplace activities and learning

The interrelationship of learning and work is such that we continually learn, consciously participating in purposeful everyday workplace activities (Boud and Garrick, 1999). Yet, the significance of workplace learning is shaped by several factors – the types of activities that employees engage in, their contact with support, guidance and other contributors, and how they connect with, relate to and make sense of information from these contributors. Therefore, it is important to reflect on the workplace as a context for learning and how it might be best structured towards the enhancement of learning. How a workplace is organized can either hinder or motivate an individual toward learning. The hospital as a workplace needs to be an environment conducive to learning and must cater to the needs of health professionals by preparing and providing resources for learning as well as opportunities for reflection and the sharing of experiences and knowledge.

According to Seifert and Simmons (1997), activities that take place in the workplace can be routine or non-routine in nature and require persons to continually think and act resulting in the construction, reinforcement and organization of acquired knowledge. By their definition, participation in workplace activities results in learning. The effectiveness of the learning that takes place can be enhanced by the creation of a supportive climate through which encouragement of an individual's learning can occur (Debrecezeny, 2003). In clinical practice, nurses should be motivated to identify and follow up learning opportunities, to seek support from their peers and to make use of available resources. Nurse educators, in particular, should have a plan to provide nurses with encouragement and rewards for their learning, acting as facilitator of nurses' learning, which in turn motivates continuing education (Cooper, 1980).

2.5.5 Theoretical foundations of work-based learning

The idea that learning occurs through everyday activity is supported by several theories of learning, most significantly by the humanistic and constructivist theories. These theories contend that individuals are fundamental to the process of learning, actively seeking to understand their world. In addition, they suggest that an individual builds their understanding on previous knowledge and experience, that learning is ongoing and inevitable as we continue to think and work. Piaget (1966) made reference to the concept of stability (equilibrium) in an individual's participation in everyday activities and the importance of enduring and conquering uncertainty (disequilibrium). Glasersfeld (1987) suggested that equilibrium requires the incorporation of new information into an individual's existing knowledge base testing the viability of their experience. In seeking equilibrium, an individual attempts to balance what they already know with their lived experience. Everyday work activities provide opportunities for individuals to find balance.

2.5.6 Individual influences on learning

According to multiple approaches to learning, experiential learning and adult learning theory external factors do not determine all of what and how an individual learns. As outlined above, an individual is the primary influence in his or her own learning. As described by Werrsch (1998), individuals make sense of knowledge and then identify what knowledge they will take on board, what they will ignore and what they simply superficially learn. As a result, individual learning and working styles are inevitable. People are a product of their personal experiences, which they then use to inform future learning, transforming experiences and reconstructing old ideas. Both the experience and the learner are transformed in the learning process. In this way, considerable exertion is required in the learning of new knowledge especially as a person acquires more and more experiences with which to assimilate new knowledge.

2.6 Self-directed learning

Self-directed learning is a skill that is essential for individuals to develop in this age of information and technology in order to keep pace with the rapid progress of science. Formal

educational settings don't allow for all necessary knowledge to be learned and as has been discussed above, experiences play an important role in learning, especially for adults and learning in the workplace. Self-directed learning is crucial to lifelong learning (Woods, 1994).

Self-directed learning has a significant use for nurses in clinical practice both due to the technological and scientific advances that are continually being made in the medical and nursing fields and the specific nature of the work nurses do everyday. It is impossible for educational institutions alone to cover the knowledge that is necessary for nurses to acquire in order to perform their specific roles effectively.

2.6.1 Meaning of self-directed learning

Self-directed learning has been referred to in various ways, such as “learning by oneself” (Isarawatana, 1995) or “learning by self-leading” (Wiboonphol, 1996; Komsan, 1997). Throughout this paper, the term “self-directed learning” is generally used. Educators have defined self-directed learning in several ways as outlined below.

Self-directed learning has its foundations in humanist and constructivist theories of learning, as well as experiential learning theory and contemporary adult learning theory (Candy, 1991). Common to these perspectives is a learner-centered approach where individual self-development and responsibility for learning is emphasized (Knowles, 1975; Tough, 1979; Kolb, 1984). Garrison (1992, p 19) describes self-directed learning as being “viewed from a collaborative constructivist perspective”, combining an individual's personal responsibility for learning with the involvement of others in the validation of meaningful learning, suggesting that the construction of meaning and knowledge is both individual and social.

Knowles (1975) described self-directed learning as a learning process where individuals initiate learning by themselves, considering their own learning needs, specifying goals, identifying personnel sources and other learning sources, choosing an appropriate learning strategy, and evaluating the learning either with or without the assistance of others. A similar definition was provided by Hongeladrom (1988) who said that self-directed learning is a learning process where

learners initiate a search for the various elements of learning by themselves. These elements of learning include learning needs, learning goals, learning sources, learning strategies, and methods of evaluation. Learners search for these elements of learning either with or without assistance from other people.

Likewise, Isarawatana (1995) stated that self-directed learning means learners explore ideas from the outset, with or without assistance from other people. Learners analyze their own learning needs, set their own learning goals, are able to distinguish or specify learning sources, and select appropriate learning methods, and then evaluate the result of such learning.

According to Brookfield (1984), self-directed learners intend to seek knowledge by setting clear goals of learning and that they control their learning activities in both content and method. In addition, learners consult with relevant persons to request assistance in ways they need. For example, they select relevant textbooks as a part of learning, or activities included in learning, choosing the method of evaluating the result of learning.

Whilst each of these definitions has some variations, there appears to be agreement with respect to most aspects of the meaning of self-directed learning. That is, self-directed learning is a process initiated by individuals themselves, taking into consideration their own learning needs, setting goals appropriate to those needs, detailing personnel and other learning sources necessary for the learning to take place, choosing a suitable strategy for learning, and employing the help of others when needed.

The most important distinguishing characteristic of self-directed learning is the learner's personal responsibility for all elements of the learning process. According to Williams (2001, p 88), "personal responsibility has been described as the willingness to assume ownership of thoughts and actions, and is considered the cornerstone of self-direction in learning". Whilst personal responsibility is central to self-directed learning it doesn't, as illustrated by the above definitions, preclude the involvement of others in the learning process or its social significance.

In exploring the various dimensions that underpin the process of self-directed learning, Long (1989) asserted that self-directed learning comprises of sociological, pedagogical and psychological elements. Furthermore, he suggested that the psychological component has been largely disregarded in contemporary self-directed learning theory, resulting in self-directed learning being primarily characterized in terms of social relationships and external direction and facilitation, as opposed to internal mental processing and learning. More recently, however, the links between self-directed learning and cognitive processes have been examined. Hammond and Collins (1991) incorporated the critical thinking elements of awareness and reflection into their description of self-directed learning. In addition, Garrison (1992) provided a self-directed learning model with three interconnecting components – self management, self-monitoring and motivation – addressing both cognitive and meta-cognitive processes. However, Garrison (1992) contended that there is still a significant amount of work to be done in seeking to understand the cognitive and motivational components of self-directed learning.

2.6.2 Significance of self-directed learning

In the past, much of the theory and research about self-directed learning was involved with adult education. However self-directed learning is now becoming an approach to learning generally accepted by learners both in and out of the school system. Learners show an eagerness to learn and try to learn things that are of interest to them. Learners who are self-directed are able to learn better than those who learn by external direction (Marker and Nelson, 1995). Educators referred to the importance of self-directed learning as follows.

Knowles (1975) stated that self-directed learning is important, as learners who take initiative in seeking knowledge on their own will have greater motivation to learn and learn with greater meaning. As a result, they are able to learn more effectively, retain information they learn for longer periods of time, and apply new knowledge more readily than learners who simply wait to receive knowledge from external sources. Self-directed learning is crucial for humans' survival in a constantly changing world as it is a process that supports and results in lifelong learning.

Few people are aware of the significance of self-directed learning as teachers rarely mention or promote this kind of learning in classrooms (Larisey, 1994). In the future, learners will have to take greater responsibility for their learning than in the past. Therefore, it is necessary to have practices in place to assist learners to understand their own pattern of learning, as well as to evaluate their readiness to take responsibility for their learning. Learners will be more motivated and they will learn more effectively if they participate in their own learning and learn what they choose to learn (Marker and Nelson, 1995).

Hmelo and Lin (2000, p. 229) stated that self-directed learning is a skill that can help humans in their intellectual development, in adjusting to and applying knowledge to unfamiliar situations, incorporating new knowledge into higher levels of understanding. The experience that self-directed learners gain is essential to their operational success and ability to problem solve.

In conclusion, self-directed learning is very influential to learning. Learners who are self-directed in their learning will be able to learn better than learners who passively wait for knowledge to be imparted by teachers or other external sources (Marker and Nelson, 1995). Learners who have the capacity to facilitate their own learning will be more purposeful and motivated in their learning. It is hypothesised that they can remember what they learn more effectively, apply it to new situations, and are able to continue learning throughout their lives.

2.6.3 Procedures for self-directed learning

The procedures for self-directed learning have been outlined by various educators (Rujikiatkamjorn, 1997-1998; Knowles, 1975; Candy, 1991; Hmelo and Lin, 2000; Garrison, 1997). Rujikiatkamjorn (1997) presented the procedures for self-directed learning as a cycle that leads to further learning in future learning goals. This cycle is illustrated in Figure 5. The components included in the cycle are a) specification of the learning need, b) setting the learning goal, c) choosing activities to achieve those goals, d) acting and interacting within activities, and finally e) evaluation of self-directed learning. This model gives emphasis to on-going learning through the recurrence of cycles.

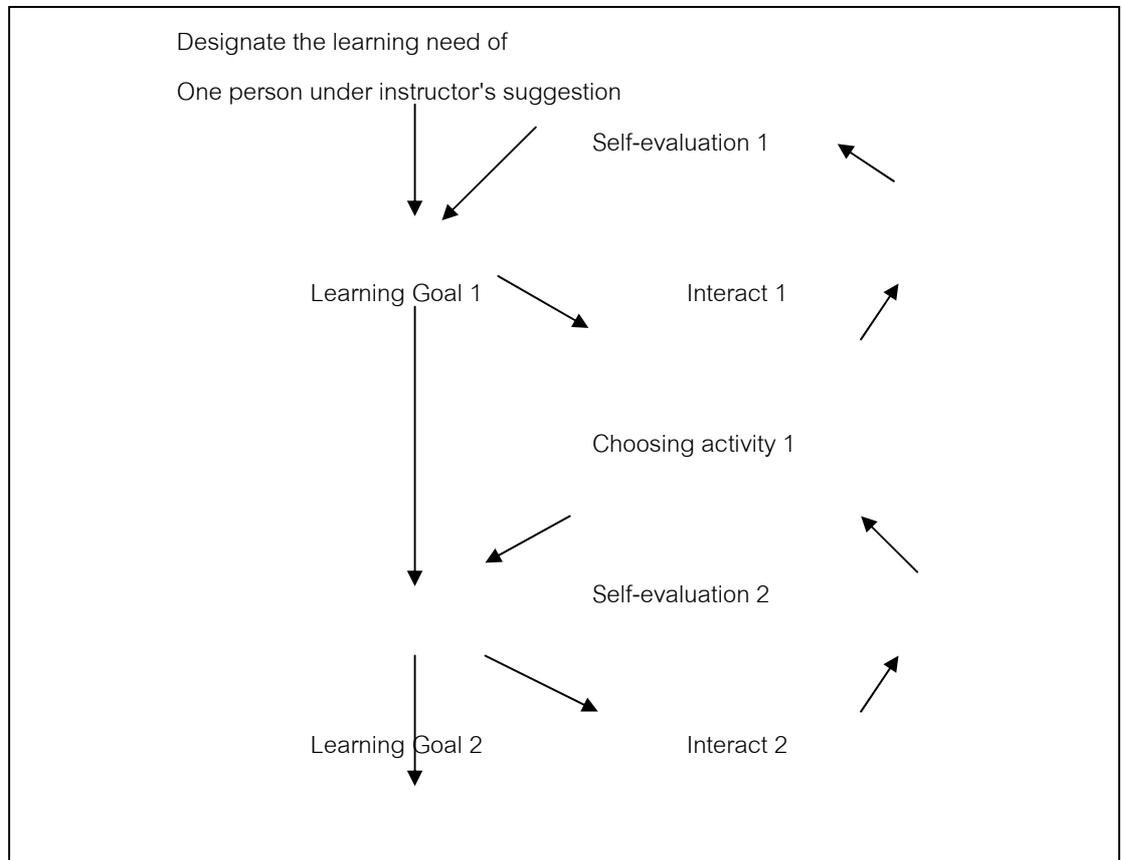


Figure 5: Procedures of self-directed learning (Rujikiatkamjorn, 1997-1998, p. 66)

Knowles (1975) specified the following seven procedures for self-directed learning:

1. Have an atmosphere conducive to learning, one of freedom, trust, and mutual respect, obeying the regulations of the place supporting the learning
2. The instructor and learners plan their lessons together
3. Together they consider the learning needs
4. They then set the goals or objectives of learning
5. They set and select strategies that achieve those goals
6. They participate in activities according to the outlined plan
7. The learner and instructor then evaluate the learning activities.

Both of these models have clearly included an instructor or facilitator in the learning process. A similar set of procedures were provided by Candy (1991) but these are not dependent upon an instructor:

1. Outline what is to be learned
2. Specify the learning needs
3. Create the learning purpose
4. Set a learning plan
5. Implement the learning plan in order to achieve success
6. Evaluate the effectiveness of the learning.

Very similar procedures for self-directed learning were presented by Hmelo and Lin (2000). These authors presented self-directed learning procedures as follows:

1. Evaluate the information relating to problems being faced.
2. Create learning points.
3. Develop and put into action a plan for additional learning points.
4. Apply new knowledge to the problem-solving process.
5. Consider when and if the target is found.

These procedures are illustrated in Figure 6 and show that Hmelo and Lin perceived that self-directed learners persevere with their learning in order to be able to solve the problems that confront them in their work or life.

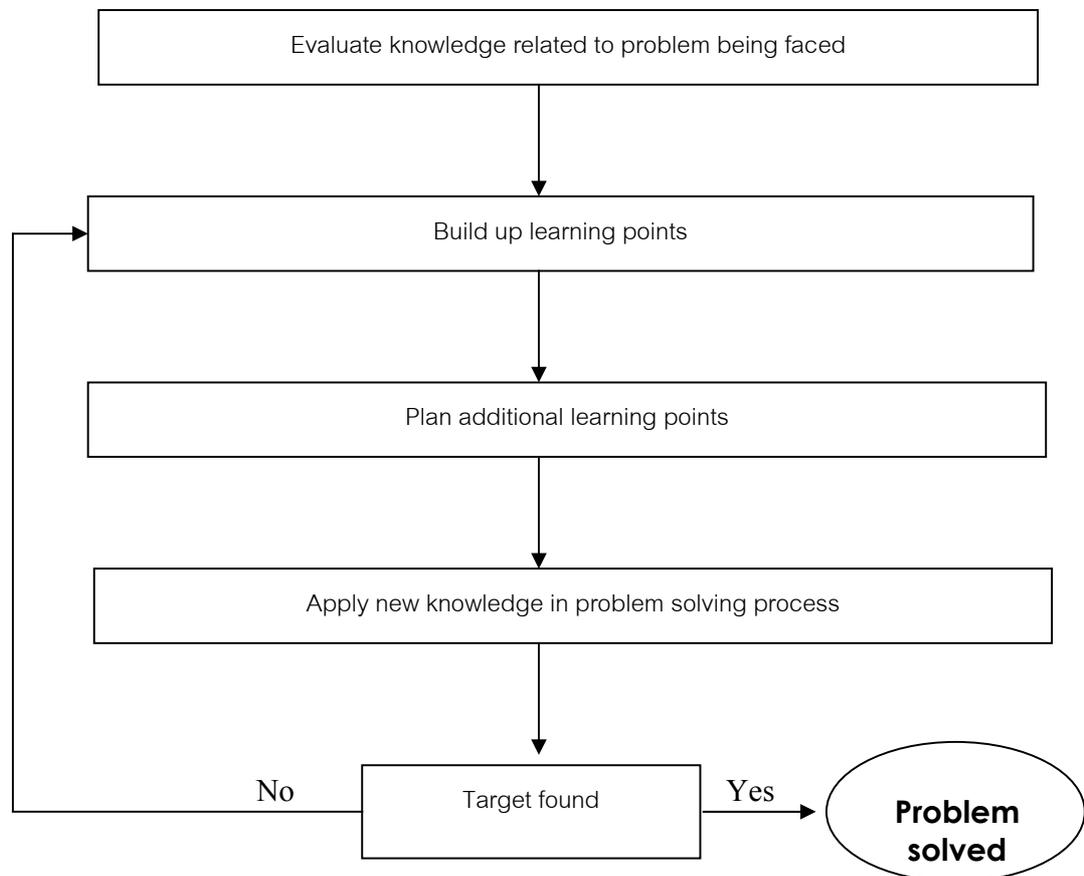


Figure 6: Procedures of self-directed learning (Hmelo and Lin, 2000, p. 229).

The elements of the self-directed learning process that these models have in common are setting a learning goal, establishing a learning plan, learning, and evaluating the learning result.

An alternative perspective is presented in Garrison's (1992) model of self-directed learning which comprises of three interconnecting components:

1. Self-management – this component focuses on the control of external activities related to the learning process and encompasses the activation and application of learning goals, the managing of learning resources and support, and the evaluation of learning outcomes.

2. Self-monitoring – this component concentrates on the cognitive and meta-cognitive processes involved in taking responsibility for individual construction of meaning including examining possible learning approaches, and having an awareness of and an ability to plan and adapt thinking as it relates to the goals and tasks of learning.
3. Motivation – this component encompasses both the motivation to initiate and participate in learning and the exertion necessary for sustaining that motivation and persevering in the learning process.

Whilst Rujikiatkamjorn (1997), Hmelo and Lin (2000) and Garrison (1997) present self-directed learning models that place the individual at the center of the learning process, Garrison's (1997) self-directed learning model and Kolb's (1984) model of experiential learning (see Figure 4, page 17) give greater emphasis to the thinking processes inherent in learning. The cognitive processes involved in learning are assumed in Rujikiatkamjorn (1997) and Hmelo and Lin's (2000) models.

Application of new knowledge and the subsequent evaluation of its effectiveness are articulated in all four models. However, only Rujikiatkamjorn (1997) illustrates the importance of the on-going nature of learning as Kolb (1984) has done. Whilst self-directed learning is, by definition, considered a progressive approach to education, the procedures presented do not explicitly outline methods of acquiring knowledge other than the traditional approach of searching for information. In this way, Kolb's experience-based model in addition to Garrison's self-directed learning model is useful in considering the process of self-directed learning.

2.6.4 Characteristics of self-directed learners

There are several educators who have provided their opinion about characteristics of self-directed learners (Chickering, 1964; Knowles, 1975; Skager, 1978; Oddi, 1987; Blumberg, 2000).

Chickering (1964) characterised self-directed learners as helpful, friendly with everybody, peaceful, having good relationships with other people, but not depending on other people. They are naturally responsible. They dare to take risks and face problems with willingness, are open-minded to new experiences, show initiative and can express their disagreement. They know

information sources and show skilled planning in using these sources in their learning. They realize if they need assistance, are competent in using a variety of equipment, and are able to collect information. They are constant and stable, committed to one thing. They enjoy working for their own satisfaction, have enough ability to do and sustain jobs, and are self-confident. They are thoughtful, can distinguish the important things, have a certain direction, realize their own weak points and strong points, find out by searching, try doing, and are flexible in new situations. Chickering added that self-directed learners not only have intellectual characteristics or ability in academic aspects but they are also social and have good attitudes and emotions, are motivated and open-minded. These attributes make them successful in self-directed learning.

Knowles (1975) stated that self-directed learners understand there are different ideas about a learners' nature and different skills that are needed in learning for teacher-directed learning and self-directed learning. They know that they can direct themselves and have a high level of self-confidence. In addition, they can make friends and keep good relationships with friends as those people help in reflecting learning needs, and in planning. They learn to help and receive assistance from others and are able to analyze their learning needs with other people's assistance. They can then set up a learning purpose that can be evaluated from their learning needs. Also, they can build up relationships with and learn from instructors. This can help in making difficult things easier by thinking of the instructor as an assistant or consultant in their learning. Additionally, they are able to find persons and academic document sources that fit for different learning objectives. They can choose a learning plan that is efficient by benefiting from academic sources in initiating planning and they can collect data and apply the results of their findings to appropriate situations.

Skager (1978) explained the characteristics of self-directed learners as having seven aspects. They exhibit self-acceptance and also think positively about themselves. They learn by following their plan. They are organized in their planning. They know their learning needs and set goals that fit with and are agreeable to their needs. They plan their learning to efficiently achieve their goals. They have intrinsic motivation. That is, they focus on their own learning without paying attention to external motivation such as reward or punishment. They can manage internalized evaluation of themselves or they ask other people to help in evaluating them instead. Such evaluators must be

free and conduct the evaluation in as natural an environment as possible. They show openness to experience by applying experience to new activities. They are eager to know more and more and also endure confusion. They have flexibility in learning, are able to change the goal or learning method willingly. They can face problems by analysis and using trial and error. If they fail, they will correct their mistakes or improve, but they will not give in or quit. They show autonomy, are self-confident and able to take care of themselves. They choose a method of learning after considering what best fits their time and place.

Oddi (1987) stated that the attributes important in recurrent self-directed learners can be divided into 3 parts:

1. Proactive drive versus reactive drive

Learners that learn by 'proactive drive' have important characteristics. They are proficient in controlling themselves, are confident and view themselves in a high profile. Additionally, they show initiative and learn for high level purposes. Learners that learn by 'reactive drive' tend to quit learning when they face problems in the learning process. They normally have a low level of self-confidence.

2. Cognitive openness versus defensiveness

Learners who are open to learning opportunities are open to conduct new activities or accept new concepts. They have a good ability to adapt themselves to change and can endure vagueness. Learners who are closed to learning opportunities are not adaptable. They are often afraid of failure and avoid doing new activities or do not accept new ideas.

3. Commitment to learning versus apathy or aversion to learning

Learners who commit to learning have positive attitudes toward learning activities, whereas those who are apathetic or have an aversion to learning generally have a negative attitude toward learning activities.

Blumberg (2000) stated that self-directed learners have an ability in specifying what is to be learned, in planning learning that involves action through time management, in searching, using and evaluating efficiency of learning sources, and in evaluating the skill of learning by oneself.

Researchers have provided empirical evidence to further develop these theories of self-directed learners (Guglielmino, 1977; Guglielmino and Roberts, 1992; Boonchoo, 1989; Isarawatana, 1995).

Guglielmino (1977) studied self-directed learning by using the Delphi technique in surveying 14 experts who had knowledge and ability in self-directed learning resulting in samples that identified the important elements that influence self-directed learning - ability, attitude, and personality. She then brought together the elements from the survey to produce a self-directed learning readiness scale. The questionnaire was a weighted scaled with 41 questions. After improvement, the tool was applied to a sample of 307 people in Georgia, Canada, and Virginia. The responses were used in a factor analysis in order to further improve the scale. The reliability value was 0.87. From this process, Guglielmino noted the characteristics of self-directed learners as follows:

1. Openness to learning opportunities

This means self-directed learners are more interested in learning than other people.

They like to initiate ideas and love to learn and want to learn ceaselessly. They like to search from sources of knowledge and possess great effort in trying to understand unclear problems, accept criticism of their mistakes and are responsible for their learning.

2. Conceive self as an effective learner

This means self-directed learners believe they can learn by themselves, being able to spare their time to learn. In addition, they are disciplined, know clearly about their needs of learning, can find suitable learning methods, and believe they will always want to learn.

3. Initiative and independence in learning

This means they apply effort in trying to understand difficult problems, know their learning needs, like to participate in learning management and are confident to work alone. Additionally they love learning, have good reading skills, and know the sources for the information they want, can plan their work and show initiative in starting new projects.

4. Acceptance of responsibility for one's own learning

This means that they realize their ability in learning and whether they have moderate or high efficiency in learning. In general, they are ready to learn what they are interested in even it is very difficult. They like to research and manage their own learning. They are responsible for their learning and realize their progress in learning too.

5. Love of learning

They appreciate people who always learn new things who want to know more and more, and always enjoy their research.

6. Creativity

They can endure lack of clarity, always want to learn and enjoy challenging learning. They like to try new ways of learning.

7. Positive orientation to the future

Self-directed learners want to be learners throughout their lives. They like to think of the future and think of problems as challenging, not reasons to quit or give up.

8. Ability to use basic study skills and problem solving skills

Self-directed learners have basic learning skills in learning and problem solving.

Guglielmino and Roberts (1992) did a comparison study of self-directed learning readiness and work capability in the USA and Hong Kong. The sample groups were personnel working in communications in the USA (753 participants) and in Hong Kong (655 participants). It was found that self-directed learning readiness and work capability had a positive relationship and that the sample group from the USA exhibited higher self-directed learning readiness than the sample group from Hong Kong.

Boonchoo (1989) surveyed the self-directed learning of Ramkamhaeng University students using a modification of Gugulielmino's self-directed learning readiness scale (SDLRS). The purpose of this study was to compare the self-directed learning attributes and compare for the variables of gender, majors of study, reasons to study, learning methods, learning results and careers of students while they were studying. The questionnaire was factor analyzed and distributed to the students. Its validity value was 0.84. The sample group consisted of students from seven faculties who were due to graduate within the first semester of 1987, a total of 1,050 students. It was found that the students of Ramkamhaeng University had a high level of self-directed learning readiness in two aspects – openness to opportunities to learn, and responsibility for their learning. A moderate level was exhibited for six aspects - a vision of themselves as efficient learners, loving to learn, responsibility for their study, open-mindedness towards learning, optimism toward the future, and creative thinking.

Isarawatana (1995) studied the self-directed learning traits of Thai people. It was a qualitative research. The sample group consisted of people who were successful in their careers without education or study in any educational institution. They were accepted by locals as having the knowledge and skills required in their careers. There were a total of 30 samples selected randomly through a draw. The research tool was interview questions. It was found in the research that the self-directed learning characteristics of Thai people are:

- (1) they read, participate in study tours, tend to be friendly, are good listeners and observers
- (2) they think and analyze
- (3) they try doing
- (4) they evaluate.

The starting point of each person varies, before the traits (2) to (4) followed. The traits of self-directed learners are that they like to observe, think, analyze, and be both doers and evaluators. All of them are diligent and don't give up easily and commit to their mission. The sources of learning are the experiences by themselves, experts, books, friends, and study tours. The factors facilitating self-directed learning were the personalities of the parents or other people close to the learner, the environmental arrangement of caring for the children by their parents, and the teaching method. Isarawatana found that self-directed learners are willing to learn, are not forced, and intend to learn with eagerness. They are their own sources of learning and know what they are

learning. They realize the skills or information that are important to their learning and are able to specify their goals for collecting data and the method of evaluating their self-directed learning. In addition, they are the controllers of change, are able to make decisions on their own, realize their ability and are responsible for their duties and roles as good learners.

Isarawatana (1999) studied the up bringing of children of rural Thai people and how it affects self-directed learning. The objectives were to study how rural Thai people bring up children and whether they are able or unable to develop skills in self-directed learning. The sample group was high school students in Saraburi Province and Rajaburi Province and included their parents, friends, teachers, and school administrators, a total of 232 persons. As the result of this research, it was found that the method of bringing up children that resulted in self-directed learning readiness was moderate, not too tense and not too loose. The children received love and care in reasonable ways and could express their own ideas and ability, and at home they had their own responsibilities. On the other hand, the child-rearing method of parents whose children had no self-directed learning readiness included spoiling the child and in addition the children didn't have chances to make their own decisions but had to follow what their parents expected. Their parents were either too stressful or forceful or spoiled their children too much. The students who had self-directed learning readiness would get chances to train themselves both in activities in and out of classrooms more than the students who had no self-directed learning readiness.

There is a great deal of similarity in the findings of these studies. It can be concluded that self-directed learners will accept themselves as they are, are interested in learning, are generally responsible and have a proactive drive to learn. They can plan their own learning and are flexible in learning. They will analyze their learning, set up objectives, choose appropriate learning methods, find sources of information, and evaluate their learning by themselves. The research cited in this section of the literature confirms Candy's (1991) view that the central characteristic of self-directed learners can be described as autonomy, with such learners showing independence, an ability to make rational, informed decisions, and exhibiting strong personal values and ideas.

2.6.5 Resources for self-directed learners

Learning resources are important in stimulating learners to effectively and efficiently learn on their own. The research of Tough (1979) showed that learners utilized four to five learning resources per one self-directed learning activity. Resources available to self-directed learners need to appeal to multiple learning styles and fit with multiple learning methods. As outlined by Cavanagh, Hogan, and Rampogal (1995), learning resources for individuals should include materials that appeal to visual, auditory and experiential learners including lectures, handouts, self-learning packets, slides, videos, role-plays, and hands-on skill practice. Varying the presentation of educational material ensures that all domains of learning are being met informing the theoretical and practical learning needs of the individual.

In relation to nurses, Cooper (1980) stated that resources are available in two major forms: human and material. The following resources are self-designed or other-designed for independent study:

- Staff development department
- Libraries
- Nurse colleagues
- Patients, Families, and Records
- Patient rounds
- Brochures
- Other health professionals
- Newsletters
- Schools of Nursing
- Self-study packages

As mentioned previously, Tough (1979, cited in Cooper, 1980) found most self-directed learners sought assistance from four or five learning resources. Others sought help from as many as ten or twenty resources. Whilst his research suggested that learners seek assistance from a variety of people – colleagues, peers, friends, members of the family, or other mentors– he proposed that a

competent “learning consultant” be made available to people who want help in setting their life goals or learning objectives.

Tough (1979) emphasized that learners themselves are the primary resources in self-directed learning. It is they who decide every aspect of an independent learning project. They control and make decisions about the content, consultants in their learning, the location and time of learning, the reasons behind the learning taking place, and the individual steps of the learning project. Tough considers this a key advantage in self-directed learning.

The individual has control over every aspect of independent study including which learning resources to use. Therefore, it is important to consider the impact this can have on the outcomes of learning. In order for learners to achieve the best possible outcomes in their learning, they must have up-to-date knowledge about the resources available or be able to connect with those who do.

2.6.6 Motivation and self-directed learning

Due to the nature of self-directed learning, the connection between motivation, learning and learning outcomes requires careful consideration. A student-centered approach such as self-directed learning necessitates understanding the fundamental role that motivation plays in the initiation of and ongoing effort toward the learning process and the ultimate realization of learning goals (Garrison, 1992).

Garrison’s (1992, p 26) model of self-directed learning contends that it’s important “to distinguish between the process of deciding to participate (entering motivation) and the effort required to stay on task and persist (task motivation)”. Garrison defines ‘entering motivation’ as committing to a specific learning goal and planning to take action toward it, and ‘task motivation’ as the predisposition toward ongoing concentration on learning tasks and goals. ‘Entering motivation’ has the most significant impact on the learning process as ‘task motivation’ is shaped by how motivated an individual is when initiating the self-directed learning process. These motivational circumstances are the outcome of an individual’s reasoning in developing their learning goals. According to Garrison (1992), the motivational state that arises will be higher if the development

of the learning goals meets with the individual's values and needs, and if the resulting goals are deemed achievable. Perceived achievability is in turn impacted by how much control an individual believes they will have within the learning process (Garrison, 1992). The greater the control and choice given to the learner in initiating learning, the higher the motivation will be throughout the learning process.

The level of motivation learners maintains throughout the self-directed learning process is dependent upon their ability to control tasks and be self-directed, and, furthermore, be persistent in their efforts. An individual's motivational state has external and internal influencing factors. External influences must serve to bring about and further develop intrinsic motivation for learning so that a commitment to learning can be sustained long term. According to Tough (1979), who interviewed more than 200 participants in order to study motivation toward self-directed learning in adults, found that how people are viewed by others, or perceive that they will be, impacts their motivation in learning. Isarawatana (1999) concurs and also suggests that the creation of a relaxed and pleasant learning environment that stimulates the interests of learners helps to bring about higher levels of motivation. The availability of appropriate and useful resources for learning is an additional motivating factor. Just as the presence of these factors positively effect learner motivation, their absence can have a negative effect, resulting in decreased motivation levels. Carp, Peterson and Roelfs (1974) outline further hindrances to learning including cost, lack of time, family responsibilities in addition to emotional barriers. If continuing education is to occur effectively and life long learning is to become a reality, every effort must be made in maximizing positive external factors to motivation and minimizing or removing those which are negative.

2.6.7 Facilitating self-directed learning: The role of the nurse educator

Many studies discuss the relationship between instructors and learners in the process of creating the experience of learning, searching, seeking and explaining. A shift toward student-centered methods of learning, such as activities that are self-directed, challenges the more conventional understanding of a teacher's role in learning. Bloom (1956), Meyers (1986), Reilly and Oermann (1985) and Schon (1987) defined the role of instructors as "coaches", that is the role of instructors

is to facilitate self-development and encourage participation of learners in all aspects of learning, stressing facilitation as opposed to teaching. Reilly and Oermann (1985) take this perspective further in contending that learning happens inside every person without anybody teaching them. It can be said, however, as illustrated in the previous section, that external environmental factors have a significant effect on learners' senses and can help to bring about learning through encouragement and creative action in learning.

Townsend (1990) suggests that a facilitator needs to be able to let go of control in the learning process and instead must equip learners with the skills necessary to initiate and manage their own learning, assisting in the identification of learning needs and evaluating learning outcomes. In addition, one of the best ways the facilitator can assist the learner is to know the learner well. Facilitators should understand and relate to the learner and the learner's special interests in order to provide positive reinforcement. Assessing the learner and knowing his or her needs and environmental influences are essential to preparing for learning. Ruddock (1980) identified these roles for facilitators:

- resources person
- expositor
- demonstrator
- promulgator of values
- taskmaster
- assessor
- helper and group manager

Most importantly, facilitators of self-directed learning help individuals learn how to learn (O'Shea, 2003). For students of nursing this is considered essential to develop if self-directed learning is to be effectively carried out in clinical practice. This is supported by Iwasiw (1987) who contends that nursing students need to gain an intellectual understanding of the self-directed learning process before they are able to put it into practice. It is this intellectual understanding of the self-directed learning process that will then assist nurses in being more effective self-directed learners.

According to Cooper (1980), nurse educators have an important role in the motivation, support and encouragement of self-directed learning amongst nurses in clinical practice. Some nurses already have the skills needed for self-directed learning and do not require assistance from others, whilst others need assistance, guidance, and extrinsic motivation to build their confidence and ability in self-directed learning. Therefore, nurse educators need to plan how best to provide assistance to individual learners, creating an environment conducive to learning and mentoring nurses to develop their skills in self-directed learning.

2.7 Continuing professional nurses' development

Continuing professional development and a commitment to lifelong learning are integral components in enhancing the ability and proficiency of organizations and individuals to engage in sustained development of their services. Continuing professional nurse development programs take place in a constantly changing environment and are required to address both the workplaces' organizational and professional needs as well as the individual and collective learning needs of nurses in clinical practice. The continuing learning of nurse professionals is dependent upon the availability of effective continuing professional development programs, ones that are capable of addressing multifaceted needs and orienting nurses toward lifelong learning.

2.7.1 Continuing learning of nurse professionals

The nurse professional's main work is in caring for people, both with and without health problems. Their work provides an extensive array of experiences that necessitate learning. They have to understand people, health, illness, and the experience of having diseases and how they all relate to each other and relate to nursing behaviors in a specific environment. Additionally, changes can happen at any time due to varying factors. Therefore, learning is very important in improving nurses' abilities to address and solve problems. Problems are also good stimulators for learning. "Learning by problems" is becoming widely utilized around the world in educational institutions, especially in the medical and nursing fields (Majumdar and Boonyanuluck, 2001). Majumdar and Boonyanuluck (2001) claimed that institutions of nursing education in Thailand

have become more interested in problem-based learning. “Learning by oneself” or self-directed learning is an important component of problem-based learning (Williams, 2004). Contract learning and self-learning assessment are the current trends of teaching strategies of Thailand’s nursing science schools. Therefore, continuous research, analytical study, and the creation of learning techniques for Thai learners and nurses are needed in the next decade of education and nurse professional development.

The interesting point here is to discern which experiences will cause effective learning and self-learning of Thai nurses. Majumdar and Boonyanuluck (2001) studied the learning of learners in nursing science using a qualitative research methodology through interviews. They found that the impact of learning by memorizing only assists learners in passing examinations and results in no creative analytical concepts, no searching for knowledge, and no lifelong learning. As a consequence, people in the nursing profession do not focus on self-development in general. In addition, there is less and less academic achievement in the profession that then impacts the profession’s development overall.

According to Conway and McMillan (2005), it is important for nurses to be able to integrate theory and practice as opposed to viewing them as separate components if they are to become reflective and effective practitioners. Given the complexity of the nurses’ role and the changing nature of the environment in which nurses work,

“students of nursing need to be encouraged to develop skills in reflective practice and situation analysis, not for the purpose of intellectualizing or rationalizing nursing practice, but for the purpose of identifying and maintaining excellence in clinical practice and meeting the goals of nursing.” (Conway and McMillan, 2005, p341)

As Conway and McMillan (2005) assert, in order for professional development to occur in nursing clinical practice, proficiency in lifelong learning and the ability to reflect on every aspect of nursing practice are essential. Lifelong learning and reflective practice are skills central to the self-directed learning process and therefore, self-directed learning is an effective professional development tool.

When and how will self-directed learning of nurses happen efficiently and seriously? This question needs answers from every sector involved with this mission such as hospital nursing departments, the Ministry of Public Health, management boards of hospitals, and nurses engaged in the process of learning. Who will initiate the self-directed learning of nurses and how? These questions also need to be addressed. Ultimately, there should be guidelines for self-directed learning for every nurse. According to the research of Barriball and While (1996), the opportunities for continuing professional education are not distributed equitably amongst all nursing staff. Barriball and While (1996) conducted a study of 491 qualified and unqualified nurse practitioners in order to determine their participation in continuing professional education. Semi-structured interviews were used to collect data and the chi-square test was employed to analyze differences amongst the data collected. The findings show that participants under 35, employed in more senior positions, with a professional nursing qualification, and who work full, day-time hours participate in significantly more continuing professional education than other participants. These findings suggest continuing professional education programs are neither readily accessible nor appropriate for all nursing staff. Therefore, it's important to consider the unique characteristics of nursing groups and individuals in the planning of continuing professional education if it is to be successful and effective and result in higher quality nursing care.

Gibson (1998) conducted a qualitative study of 28 nurses using a Delphi survey in order to identify nurses' continuing professional development needs. The findings showed that nurses' professional development needs included skills in general clinical nursing practice, specialist areas of nursing, expanding roles in the nursing profession, management of patient care, and continuing research and development. The findings also showed that nurses saw these needs as taking place in a constantly changing environment where lack of time, resources and recognition restricted their ability to participate in professional development activities. This suggests the need for an organizational environment oriented toward development of all staff with the aim of providing quality patient care.

Kosowski (1995) conducted a research study, the purpose of which was to discover, describe, and analyze how nursing students learn professional nurse caring in the clinical context of

nursing education. She interviewed 18 female baccalaureate nurse students, 17 of them were European American and one of them was African American. Participants in this study narrated their stories about learning to care by first describing their understanding of how they created caring with patients. From the descriptions of their patient care interactions, the nursing students were then able to answer the research question of how they learned caring in clinical practice. Because participants' interactions with patients were the context for the development of their understanding of caring, Kosowski identified the relational theme of caring and interacting with patients as the central focal point for narrating stories about caring. From the data analysis, she reported two constitutive patterns: the first, creative caring which contains seven themes, and the second, learning caring which contains five themes. The findings from this research were that an understanding of "creative caring" and "learning caring" could be summarized as "embodied caring knowledge". This research has important implications for nursing faculties, students, and practitioners who are interested in enhancing their understanding of living and learning caring within nursing. Moreover, it also recognizes the importance of the nurse as a learner in a constantly changing, interactive environment.

Nurse professionals are expected as part of their responsibilities to continually expand their competencies and performance within their practice area through ongoing education and learning. Majumdar (1999) asserts that the role of nursing education in making sure that nurses can both adapt and respond to these challenges is crucial. In the past, primarily instructive teaching methods have been the basis of nursing education. Because of the intricate nature of clinical practice, new methods of teaching need to be embraced. In contemporary nursing education, adult educational methods, such as self-directed learning, are being utilized more and more in order to give individuals the skills necessary to proficiently look for, critically examine and apply new knowledge (Lunyk-Child, Crooks, Ellis, O'Mara and Rideout, 2001). In the clinical practice setting, the nurse educator's role is in ensuring that nurses have acquired and are capable of utilizing these skills effectively.

In general, adult learners have greater motivation, self-discipline, and self-direction than younger learners (Knowles, 1990). How effective learning is amongst adults varies with ability but is also influenced by the facilitator's learning approach. Adults conceptualize learning activities in light

of prior experiences and education. Many expect to achieve something from the new learning, either new knowledge or new skills. The learning environment often influences achievement and persistence in learning.

With this in mind, the nurse professional needs to be recognized as an adult learner with a history of learning experiences. Their existing learning abilities need to be acknowledged, guided and assisted in their development in order to encourage active participation in ongoing learning. The nurse facilitator can encourage and promote active participation through sparking new thinking, looking for new ideas, studying emerging theories and ideas, and encouraging discovery. Their role is also to guide nurses in self-evaluation irrespective of the learning skills needed. Even the most independent learner needs assistance in the learning process and also benefits from permission to be a learner. A nurse facilitator's role is to promote and assist nurses in their learning and their positions may encompass but are not limited to nurse educators, heads of wards, nursing supervisors, or other health professionals.

2.7.2 Readiness of nurse professionals for continuing professional learning

Whilst continuing professional development is necessary for and a formal requirement of nurse professionals, research indicates that nurses are not always prepared or able to participate in continuing professional learning activities (Barriball and While, 1995; Majumdar and Boonyanuluck, 2001; Gibson, 1998).

Majumdar and Boonyanuluck (2001) study of nursing students showed that the use of rote learning as an educational technique in formal nursing education programs resulted in nurses having no ability to creatively analyze ideas, little to no interest in searching for new knowledge, and no orientation toward lifelong learning. As a result, nursing students are not prepared academically or as individuals for continuing professional learning as nurse practitioners.

According to Conway and McMillan (2005), in order for nurses to continually develop their practice, they need to be able to cultivate skills in reflective practice. More specifically, nurses need to be able to reflect upon the activities they engage in during clinical practice and how they

responded in those situations, and then determine how they would act again in similar situations. The key here is in the action that takes place as a result of reflection. As identified by Conway and McMillan (2005), the ability to effectively incorporate theory into practice would ideally result in higher quality patient-centered care giving and facilitation. They go on to say that the linking of theory and practice needs to be intrinsic to every learning experience in order for continuous professional and self-development to occur.

Barriball and While's (1996) research into the participation of nurses' in continuing professional education showed that nurses with an orientation toward learning, occupying more senior full-time positions engaged in more continuing professional education than those without professional qualifications or those who worked part-time or night duty shifts. Whilst this does not speak specifically to readiness, it does suggest that accessibility or appropriacy of current continuing professional education is limited to a particular subgroup of nurse professionals.

Furthermore, as the research of Gibson (1998) suggests, multiple factors hinder the nurse professional's ability to participate in continuing professional education. Lack of time, lack of resources and lacks of recognition were cited as restrictions to engaging in continuing professional learning. Whilst nursing professionals are required to participate in continuing professional education, the environment within which they practice isn't always conducive and in fact is seen as a hindrance toward professional development.

2.7.3 Self-directed learning in clinical practice

Whilst studies have indicated that nurses benefit from self-directed learning in clinical practice (Considine and Hood, 2000; Bird and Wallis, 2002; Considine, Botti and Thomas, 2005; Mayer, Andrusyszyn and Iwasiw, 2005), studies into the amount of time spent by nurses on self-directed learning activities indicate that a comparatively small amount of time is spent engaged in them (Dixon, 1991, 1993; Emblen and Gray, 1990). Mayer, Andrusyszyn and Iwasiw (2005) conducted a study of 23 neuroscience nurses employing a quasi-experimental methodology in order to research the effectiveness of using a self-directed learning manual. The results indicated that

nurses' self-efficacy increased considerably ($p < 0.01$) upon completion of the manual demonstrating the effectiveness of self-directed learning in clinical practice.

In an American study by Emblen and Gray (1990), the self-directed learning practices of 80 Registered Nurses were explored using structured interviews. The results show that individual nurses spent an average of 313 hours per year on self-directed learning projects. 217 hours of these hours were on professional topics and 96 hours on non-professional topics.

Research conducted by Dixon (1991) resulted in similar findings. The participants in the study were 99 Registered Nurses. A questionnaire about learning activities completed by the participants was used to collect the data. The findings showed that nurses spent an average of 309 hours per year on self-directed learning activities. Though, only 152 of the 309 were dedicated to professional development. The research of Dixon (1991) and Emblen and Gray (1990) indicate that the amount of time spent on self-directed learning is small. Both Dixon and Emblen and Gray suggest that this may be due to the participants' commitments outside of the workplace.

Dixon (1993) conducted a study of registered nurses in order to observe the characteristics of 88 self-directed learning projects undertaken by them within a six month period. Each project related to learning for professional development. The characteristics of the self-directed learning projects that were studied included where they took place, who planned the projects, their benefits, the resources that were used, the obstacles to learning, the organization of the projects, and what was gained in knowledge and skill as a result. The home and the work place were stated by the participants as the places most frequently used by them for self-directed learning projects. Seventy percent (70%) of the planning was undertaken by the learners themselves in addition to professionally led groups. The results of the study also showed that peer coworkers and conference handouts were the two most commonly used resources for self-directed learning. Furthermore, the most commonly reported motivation for completing self-directed learning projects was in knowing or expecting to be able to apply the knowledge or skill gained during learning. The major obstacle reported by participants was finding time to do the learning. The majority of participants also reported that they organized their projects by goals and planned

activities and evaluation strategies. Most of the participants stated that they had learned a great deal from the projects and that others had also benefited from their learning.

2.8 Conclusion

Theories of self-directed learning most commonly reflect the definition introduced by Knowles (1975) which asserts that self-directed learning is a learner-initiated process in which the learner takes personal responsibility for all aspects of the learning process with or without the assistance of others. Marker and Nelson (1995) argued that self-directed learners are able to learn more effectively than those who are not self-directed. The key characteristic exhibited by self-directed learners is autonomy, with learners showing strong personal values and the ability to think critically and independently (Candy, 1991). Whilst considerable progress has been made in understanding the advantages of self-directed learning, and the application of self-directed learning to nursing students and formal nursing education has been researched and discussed, further research is necessary in order to understand and apply self-directed learning to clinical practice.

Working in wards, nurses face various situations and the needs of patients. As a result, they need to develop themselves in order to meet, with required competency, the specific needs of their patients. According to Dearing (1997), practitioners are expected to develop strategies for lifelong learning in order to respond creatively to patients and the situations that arise in their clinical practice. Through self-directed learning, nurses are provided with a strategy that enables them to choose personalized, creative learning experiences (Hegge, 1985).

Furthermore, the skills developed through self-directed learning appear to contribute directly to lifelong learning, enhancing learner confidence and autonomy (Lunyk-Child, Crooks, Ellis, O'Mara and Rideout, 2001).

The literature on work-based learning and professional development broadens the idea of self directed learning to be explored in this study by placing it in a context in which the workplace and profession share responsibility with learners for providing them with the tools to become self-directed in their learning. However, the most recent research on self-directed learning of

Thai nurses has concerned nursing students. The current study will build knowledge of self-directed learning of nurses while in wards. Necessary information for decision-making about professional nurse development and planning of nurses' potential development will be the outcome of this project. To plan a program of self-directed learning support for nurses, it is essential to know what and how professional nurses learn by self-directed learning, which factors influence their learning, and which roles for nurse educators will encourage their learning while working in wards. If these questions can be answered clearly, then nurse educators can use such answers to appropriately, economically, and effectively plan and support nurses in becoming self-directed learners, and nurses can become lifelong learners.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the rationale for the selection of phenomenology as a methodology for the current study is explained. Phenomenology is both an appropriate and useful method for examining the process of self-directed learning of nurses in clinical practice. By using a phenomenological qualitative research approach, the nurses' experiences of self-directed learning on-the-job can be discovered and understood. As Mc Millan (2004, p 273) states:

Phenomenological research describes real direct experiences that happen daily and can interpret the experience of participants in order to understand the essence of the experience as perceived by the participants.

Phenomenological study was chosen for this research because it is a method that can be used to identify the meaning of the experiences that the participants have of self-directed learning and their perceptions of the process. The objective of phenomenology is to describe the full structure of what an experience means to those who live it. According to Marton (1988, p. 147) the aim of phenomenology is:

to discover the structural framework within which various categories of understanding exist. Such structures (a complex of categories of description) should prove useful in understanding other people's understanding.

3.2 Objective of the study

The objective of the current research study was to search for an understanding of the process of self-directed learning of nurses according to the perception and experience of nurse learners. The particular research questions for the study were as follows:

1. To what extent did the nurses see themselves as self-directed learners? What did self-directed learning mean to them?
2. What did professional nurses working in wards learn by self-directed learning?

3. How did professional nurses working in wards learn by self-directed learning ?
4. What factors influenced nurses' self-directed learning ? How did those factors influence their learning?
5. What were the nurse educators' roles in supporting the self-directed learning of nurses who were working in wards?

In this chapter the reason for selecting the research method of phenomenology, the participants and sampling method, the procedure for gaining informed consent, the protection of rights for the participants, the role of the researcher and the methods of data collection and data analysis will be described.

3.3 Phenomenological study

Phenomenology as a qualitative research method has its source in social philosophy and psychology. It arose in the late 19th century in response to positivism which, as a scientific approach, could not adequately address the problems being presented to the humanities (Sadala and Adorno, 2002). It was initially developed by and is most often associated with Husserl (1962). According to Bernstein (1983), it was Husserl's belief that subjectivity underpins scientific understanding and the life-world of daily experience seeing a phenomenon and the being that experiences that phenomenon as inextricably linked. Husserl (2000) contends that phenomenology allows the researcher to revisit the world as it is lived and experienced, describing phenomena as they reveal themselves rather than explaining or reasoning their cause.

Martins and Bicudo (1989) describe phenomenology as a distinct approach to scientific investigation, replacing statistical relationships with individual descriptions and interpretations that result from lived experience. A phenomenon can be defined as a situation or condition experienced in daily life (Giorgi, 1985). Therefore, when using phenomenology as a research method, the researcher starts with the lived experiences of the participants, uncovering their own understandings of their experience. In this way, phenomenology allows the researcher to see the personal meaning participants attach to their experiences and how the participants create their own personal reality (Lawler, 1998). As stated by Martins (1992), phenomenology is about the

understanding of phenomena as opposed to the explanation of them. It sees phenomena as qualitatively different and attempts to understand how they are experienced, conceptualized, understood and ultimately perceived (Marton, 1994).

Two approaches to phenomenological research have emerged – descriptive and interpretive. Descriptive phenomenology is rooted in Husserlian philosophy which focused on describing human experience as it is, as opposed to employing predetermined theories of scientific thought (Martins and Bicudo, 1989). In undertaking a descriptive phenomenological methodology, the researcher attempts to put aside their preconceived ideas about the phenomenon being researched, checking with the participants as to whether their interpretation of the account given is a true expression of the participant's intention (Paley, 1997; Porter, 1998). Underlying this approach is the notion that the fundamental nature of a phenomenon can be seen through “the principle of intentionality: consciousness understood as consciousness of something” (Sadala and Adorno, 2002). Interpretive phenomenology developed from the philosophy of Heidegger (1962), a student of Husserl, who contended that it's neither possible nor necessary to attempt to separate one's experience from the phenomenon being observed and interpreted. Therefore, the aim of interpretive phenomenological research is to create a mutually meaningful account, from both the participants and the researcher, of the phenomenon under research (Price, 2003). According to Kleiman (1995), the purpose of descriptive phenomenological research is to create a structure of the phenomenon observed whilst interpretive phenomenology seeks to create an account, in text or story, that provides insights into the phenomenon observed.

Adopting the Husserlian understanding that the essence of a phenomenon arises through the conscious awareness and intention toward it (Sadala and Adorno, 2002), this research used the descriptive phenomenological approach in order to provide a structure for understanding the phenomenon of self-directed learning among nurses. In this research, the researcher sought to realize the perspective of nurses about the process of self-directed learning in clinical practice. Phenomenology was selected as the method for this research in order to understand how nurses lived their experience of self-directed learning in clinical practice. Nurses are seen as unique, holistic beings with their own historical, sociocultural backgrounds that direct the ways they interpret and understand the world. The researcher attempted to understand what nurses

experienced during self-directed learning in situations where they related to an existing world in which there are on-going situations they have to face. Central to the study, was the aim of understanding the phenomenon of self-directed learning. Self-directed learning is by definition concerned with “self” and the perspectives and experiences of “self” as learner. Phenomenology is therefore particularly suitable as a method of discovering how nurses perceive and understand their learning process.

Phenomenological research has become a prominent method of research amongst nursing researchers. Specifically, researchers have previously used a phenomenological approach to study ward-learning climates (Lee and French, 1997). According to Sjoström and Dahlgren (2002), phenomenological research, in describing both the structure and substance of how phenomena are experienced in clinical practice, provides the fields of nursing and nursing education with an increased awareness of the phenomena being researched and can then inform the basic and continuing education of nursing staff.

Phenomenology is a useful method for researchers who are interested in researching how nurses and nurse educators give meaning to the self-directed learning of nurses in clinical practice, what and how nurses do self-directed learning, and what the problems, barriers, and supports are to their self-directed learning. It also enables the researcher to explore how nurse educators encouraged and facilitated the self-directed learning of nurses from the perspectives of nurses and nurse educators. Through interpersonal communication and interaction, these aspects of the phenomenon of self-directed learning and individual examples are able to be explored. From the subsequent findings, categories can then be constructed and, through a process of inductive analysis, the researcher is able to develop an understanding and description of the essence of the phenomenon (Sjoström and Dahlgren, 2002). Uljens (1988, p. 134) outlines the process of phenomenological study as follows:

1. Selection of a phenomenon in the existing world
2. Selection of an approach to look at the phenomenon
3. Discovery (by a process of tape-recorded interviews) of the participants' ideas about the selected phenomenon
4. Transcription of the tape-recorded interviews
5. Analysis of the written statements and description of constructed categories

To achieve the aims of this study the researcher chose two methods of data collection to investigate the phenomenon of self-directed learning of nurses. The first involved semi-structured interviews to explore and discuss the participants' experiences of self-directed learning, the mode of learning that they had used and the situations in nursing practice which motivated self-directed learning as well as how the process happened. Secondly the researcher used participant observation to observe phenomenon of self-directed learning as it really unfolded during nursing practice in the wards and the progression of learning as it happened.

3.4 Participants

To select participants for the study, purposive sampling was conducted. McMillan (2004) defines purposive sampling as a method in which the researcher chooses participants because of their specific knowledge of the research topic. To research self-directed learning of nurses in clinical practice, the researcher chose professional nurses as participants for their particular knowledge of the phenomenon of self-directed learning as they perceived it in their practice. Random sampling was then conducted to select the final participants from those who had volunteered and met the criteria of being in their position for one year.

The study involved eleven participants who were professional nurses. Each of these nurses worked at a hospital which is categorized as secondary care level with over 500 beds. The hospital is located in a large agricultural province in Thailand. The hospital's mission is to provide services of health care promotion, disease prevention, treatment and rehabilitation by a holistic health care service team that emphasizes patient-centered care to maximize the satisfaction of the service-acceptors. The sample included seven professional nurses who had practiced nursing for at least one year and four nurse educators who had been in their position for at least one year. The researcher chose participants who had volunteered to be part of the study after the project was advertised among nurses at the hospital. The participants were selected in order to represent the following areas of clinical practice:

1. Medical Department. The researcher randomly selected one participant from each ward (Male Medical Ward and the Female Medical Ward). There were two participants from this department.
2. Surgical Department. The researcher randomly chose one participant from each ward (Male Surgical ward and Female Surgical ward). There were two participants from this department.
3. Obstetrics-Gynecology Department (one ward). The researcher randomly selected one participant from this department.
4. Pediatric Department (one ward). The researcher randomly chose one participant from this department.
5. Intensive care unit (one ward for admitting severe patients from the four departments listed above). The researcher randomly chose one participant from this ward.

There was one nurse educator for each of the main departments. The researcher invited nurse educators who had been in their positions for at least one year to participate in the study. Four nurse educators and the researcher, who was a nurse educator in the surgical department, participated in the study.

3.5 Selection of the participants

Following approval from the Human Research Ethics Committee at Victoria University and the hospital director, nurses from the hospital were recruited to participate in the research study through posters placed on notice boards and announcements made in the monthly nurses' meeting of the hospital. Both encouraged nurses who had the required criteria (at least one year work experience) and who were interested in participating in this research to list their names and their sections onto a blank card. The researcher collected the completed cards with the names of nurses who were volunteering for this research project and sorted them by workplace in the hospital, that is, the ward in which they were nursing. Then, the researcher put their cards in separate boxes with one box for each ward. After that, the researcher randomly selected one card with a nurse's name from each box. As a result, the researcher randomly selected one nurse as a participant from

each ward. The researcher then wrote letters informing each participant who was selected individually.

3.6 The procedure for gaining informed consent was as follows:

1. A letter of request together with information for participants and the Consent Form for the participants involved in this research were sent for the approval of each participant.
2. The researcher also sent letters to the Head Nurse and the Director of the Hospital in order to request permission to conduct research about the self-directed learning of nurses while practicing on the wards in the hospital before the researcher could begin the research project. In particular, permission to observe nurses while working on the wards was sought.
3. It was made clear in the Information to Participants and on the Consent Form that participating in this research would not affect the performance appraisal of the professional nurses.
4. They had a week to study the form before signing it.
5. The researcher gathered all the completed forms.

3.7 The protection of the participants' rights

1. Prior to the commencement of the project, a meeting was held so that the researcher could give details of the study to the participants. They had an opportunity to ask questions during the meeting.
2. They were asked to sign the informed consent. They were allowed to select appropriate times to be interviewed and observed. Interviews and observations were scheduled within the normal clinical practice in the ward.
3. Confidentiality was ensured. No names have been used in reporting the results of this study. Each participant's name was replaced with an encoded number.
4. The transcript of the interviews was returned to the participants in order to check for accuracy. Also the participants were involved in checking the findings from the analysis before the results were reported.

5. Participation in this research did not affect the participants' work appraisal or promotion.
6. As a colleague, the researcher took responsibility in promoting nurse education in the surgical department, and had no authority over them in terms of work appraisal, assessment or evaluation. Moreover, neither was the budget allocation or its approval the responsibility of the researcher.
7. The researcher provided considerable support to the professional nurses from every ward who were involved in the project. The researcher was available during meeting times and at other times for the professional nurses to discuss any concerns that they had regarding the conduct of the project.
8. The counselling service was a consultation service for any participants who may have felt worried and/or insecure about providing personnel information both in individual and group settings.
9. The participants were reminded that they could withdraw from the project at any time.

3.8 Role of the researcher

As a nurse educator in the surgical department, I play the role of planning for nurses' continuous development, supporting them and promoting the areas of their knowledge and skills, especially in self-development. My responsibilities as a nurse educator are to:

1. Study the training and development needs of nursing personnel in the surgical division of the hospital.
2. Analyze the needs of personnel development in nursing for the surgical division of the hospital.
3. Prepare the nursing personnel development plan for the surgical division of the hospital.
4. Conduct projects to develop, promote and support the knowledge, capabilities, and potential of the nursing personnel in the surgical division.
5. Evaluate the development of nursing personnel for the surgical division in both the female and male surgical wards of the hospital.

6. Develop and improve plans and projects for nursing personnel's development in the surgical division in order to efficiently meet the standards as outlined by the hospital's policies and requirements. Moreover, the budget for personnel development must be economically and effectively used according to the hospital's policies regarding budgeting allocation.

Apart from being a nurse educator of the surgical department, I am responsible for nursing practice in the female surgical ward two days of every week because the hospital is facing a shortage of nurses.

I have been aware of and concerned about my professional nursing role while I was conducting this qualitative research. Heidegger (1962) stated that the researcher is part of the social world of participants and as such necessarily use his/her own experiences in order to interpret those of the research participants. In addition, Kellett (1997), Van der Salm and Bergum (2000) argued that the role of the researcher was to work with the participant in order to construct an account of the phenomenon that had mutual meaning. For this research, as researcher my role was to describe, rather than to construct, an account of what the participant has told me. However, it is possible that I might have influenced the finding of this research because I did play the dual roles at the same time, as the researcher and participant. I am the nurse educator of the Surgical Department and already had basic knowledge about self-directed learning before conducting this research. With these mentioned facts, in the status of a researcher, I realized the bias that may be happening in the process. So, I have been very careful to reduce the problems of bias by collecting the data of this research with the assistance of one of the participants and submitting it to the Principal Supervisor and Co-Supervisor for comments from them before proceeding to the next data collection until completed. In addition, I consulted with both of them periodically and continuously in setting codes and identifying categories of the findings.

There was also a review of my roles and responsibilities as a nurse educator of the Surgical Department. It was found that the researcher, as an educator, had the main function of encouraging and supporting nurses to develop their knowledge and skills in performing their nursing practices and in furthering their career development. The researcher did not have

authority in giving results of performance appraisal, promotion, interest, or benefit to the nurses. In addition, the researcher also reduced the bias by randomly selecting the participants from four departments and one unit: Surgical Department, Medical Department, Pediatric Department, Obstetric-Gynaecology Department, and Intensive care unit.

3.9 Methods of data collection

The researcher spent a total of seven months (July 2003 to January 2004) collecting data. The researcher collected qualitative data by conducting semi-structured interviews with nurses about their ideas, their opinions, and their experiences and through participant observation, observing nurses as they worked. Interviews can provide information about people's attitudes, their values, and what they think they do (Patton, 1990). Observing can provide information about what people actually do (Fraenkel and Wallen, 2003).

3.9.1 The semi-structured interview as a method of data collection

In this research, semi-structured interviews using open-ended questions were one of two methods used to collect data. According to Marton and Booth (1997), the semi-structured interview is the favored method of data collection in phenomenological research. Furthermore, interviewing has been widely used in nursing research and is considered a sound method for studying nurses' insights and experiences (Davis, 1984; Windsor, 1987; French, 1989; Nelms, 1990; Beck, 1993; Shields, 1995; Baillie, 1995). Patton (1990, p. 45) noted that:

We interview people to find out from them those things we cannot directly observe. The issue is not whether observational data is more desirable, valid, or meaningful than self-report data. The fact of the matter is that we cannot observe everything. We cannot observe feelings, thoughts and intentions. We cannot observe behaviors that took place at some previous point in time. We cannot observe situations that preclude the presence of an observer. We cannot observe how people have organized the world and the meanings they attach to what goes on in the world. We have to ask people questions about those things

Patton (1990) also noted that two important issues arise with respect to interviewing as a phenomenological research method. Firstly, the participant's motivation for taking part in the

research may positively or negatively influence the interview and the data generated. Secondly, the researcher's ability to understand and correctly interpret the participant's responses has a significant impact on the researcher's ability to decide further lines of questioning, in turn effecting the quality of the data produced.

Johnson (2000) described the interview, including its analysis, as an *engaged* conversation between two people. In the interview, the researcher puts him or herself in the participant's situation to try and understand that person's point of view (Gadamer, 1989). The researcher needs to listen and pay constant attention to the participants as they are responding, repeatedly attempting to understand the meaning of what is being said and how the person has shaped his or her perspective. In this way, interviewing is more than 'collecting data'. Interviewing allows the researcher and the participant to connect in a profound way, reducing the distance between them. The distance is further reduced as the researcher analyses the text, effectively carrying out a conversation with the text of the interview. To be able to understand the perspective of the participant as clearly as possible, it is important for the researcher to be open and inquisitive in both the process of interviewing as well as analysis (Gadamer, 1989).

3.9.2 Participant observation as a method of data collection

In this research, the researcher also collected data using the technique of participant observation, observing the atmosphere, surroundings and behaviors of the participants and how these related to the process of self-directed learning while working on wards. According to Patton (1990), observational data are appealing as they give the researcher the means to gather "live" data from "live" situations. Patton (1990) goes on to suggest that observational data allows the researcher to both enter into and comprehend the situation being described. Morrison (1993) elaborates, stating that observation enables the researcher to gather data on the following settings:

- the physical setting (i.e. the physical environment and its organization)
- the human setting (i.e. the organization of people, the characteristics of the groups or individuals being observed, such as gender or class)

- the interactional setting (i.e. the interactions that are taking place: formal, informal, planned, unplanned, verbal, non-verbal etc.)
- the programme setting (i.e. the resources and their organization, pedagogic styles, curricula and their organization)

In participant observation studies, the researcher takes part in the situation or setting that he or she is observing. The researcher works together with those in the observation situation, assuming as natural a role as possible and engaging in the activities of the setting as a member of the group. Whilst the researcher is engaging in activities, he or she records information. The role of participant observer necessitates seeking permission to participate in activities whilst taking on a relaxed role as observer in the setting.

As Creswell (2002) notes, one of the disadvantages of participant observation is the difficulty of taking notes while engaging in activities within the observation situation. Some researchers wait to write down observations until after they have left the research site which may impact the quality of the data produced. However, Creswell also notes that observation has the important advantages of providing the opportunity to record information as it happens in a setting, to study actual behavior, and to study individuals who have difficulty putting their ideas into words.

3.10 Data collection procedure

There were two interviews for the participants in this research. The first interview began the research. Following the first interview, the researcher conducted participant observations. After the observations were completed, the second interview was conducted in order to gather further details and to clarify issues that arose while interpreting and analysing the data.

3.10.1 The first semi-structured interview

The first interview was conducted when the data collection began in July 2003. It was a semi-structured interview with 12 questions designed by the researcher about the self-directed learning

of nurses in clinical practice. The interview questions investigated the self-directed learning process of the participants; what and how participants learned, why they wanted to learn, how they went about learning, who and what helped and supported their learning, how they felt when they were learning, and how the nurse educator encouraged or did not encourage them. The interview questions for the first interview of nurses are in Appendix A. Eleven questions, relating to the encouragement of nurses in undertaking self-directed learning, were designed for the interviews of the nurse educators. The interview questions for the first interview of the nurse educators are in Appendix B. Each participant was interviewed for 60 minutes. Each interview took place in a private room on the participant's ward and was conducted in the Thai language.

The researcher was the interviewer. A tape-recorder was used to record the interview. Before interviewing, each participant was asked permission for the interview to be recorded. The researcher interviewed the nurse participants one by one until all seven participants had been interviewed. After that the researcher started interviewing nurse educators one by one until all four of them had been interviewed using the same interview process as for nurse participants. After each participant was interviewed, the researcher transcribed the tape of that interview into Thai. The researcher then summarized, in English, the answers to each research question and submitted them to the principal supervisor in order to receive comments that were later used as information to further develop the interview method for the second interview. When the first semi-structured interview for all eleven participants was finished, the researcher analysed and synthesized the data in order to write a summary, in English, of the findings from each interviewee's responses to each research question.

3.10.2 Participant observation

The researcher conducted participant observations and witnessed the conditions and situations of the self-directed learning process that happened to each participant as she worked in one of seven different wards. The researcher observed the participants (who were the researcher's colleagues) from Monday to Friday, 8 am – 4 p.m., from August 2003 to January 2004. During the observation period, the researcher observed the participants by working with them and

watching them while they were working. As a member of the nursing team, the researcher worked collaboratively with participants during the period of observation.

As a colleague, the researcher takes responsibility in promoting and facilitating nurses' education for two participants of this research. The researcher has no authority over her colleagues in terms of work appraisal, assessment or evaluation. In addition, neither the budget allocation or approval is within the researcher's responsibility. The researcher has held the position of nurse educator of the Surgical Department for about 10 years. Consequently, the researcher has gained knowledge and experience about the self-development of nurses. The researcher was therefore in a unique situation to understand more clearly what and how learning occurred in nurses in clinical practice.

When undertaking participant observation, the researcher recorded the important data of social phenomenon in field notes. The following social phenomenon types guided the researcher's observation and writing of field notes (Lofland, 1971; Chantavanich, 2000, pp. 134-138):

1. Actions were defined as incidents, situations or behaviors that happened within a period of time, but did not continue for a long period of time.
2. Activities were defined as incidents, situations or behaviors that continually happened and related to some people or some groups.
3. Meaning was defined as what a person explained, communicated or interpreted about their actions or activities, where meaning involved vision, belief, definition, and culture.
4. Relationships which defined the links among the many people in the hospital were viewed as either harmonious or conflicting. Specifically, the kind of relationship nurses had with their colleagues and head of the ward was noted.
5. Participation in activities was defined as how well a person became involved with and joined in an activity or how the participant adjusted to and coped with a situation or incident that happened. In particular, it was noted how much and how often the nurses participated in activities of the ward.

6. The setting was defined as the working conditions and environment inside the ward that was routine and happened each day.

The researcher used these categories as a framework for writing field notes during data collection and later on for analysing these data.

The researcher conducted the participant observation of the first participant of the first ward for a period of one week from Monday to Friday, 8 a.m. to 4 p.m. at the beginning of August 2003. All the incidents, situations, behaviors, and statements of people and participants in the ward, and the working conditions and environment inside the ward were recorded in field notes. Later these data were screened and the data that related to self-directed learning of nurses were then coded in the memos of the field notes. The field notes were submitted to the principal supervisor for comments that were later used to further develop the method of conducting participant observation in other wards. The researcher conducted the participant observation in the wards with each participant of each ward until all seven participants of all seven wards had been observed using the same method.

To compile the field notes the researcher jotted down brief, important data that had been observed so that information would not be lost through forgetfulness. The data were recorded later in detail. (See an example of field notes for the first ward observed shown in Appendix E.) This helped the researcher arrange the descriptions for data analysis, make further plans, and draw conclusions during each period of time.

3.10.3 The second semi-structured interview

The second interview was conducted after the participant observation was completed. In February 2004, the second interview was conducted using semi-structured questions. The researcher used selected questions from the first interview that would give additional details or clarify the initial responses of each participant. Four questions were used to interview the nurses a second time (see Appendix C). Three questions were used in the second interview of the nurse educators (see Appendix D).

3.11 Data checking

The researcher checked the data after data collection to ensure the data was valid and reliable according to the real conditions of the phenomenon. The validity of the data was maintained by transcribing the recorded tape of the interview word by word. Listening to the tape a number of times, especially the unclear parts, enabled the accuracy of the transcription to be checked. The method of checking the reliability of the data was methodological triangulation. To ensure methodological triangulation of the data, multiple data sources were used (Patton, 1987). The researcher used interviews from two different sources, nurses and nurse educators. The participant observations and second interviews of participants provided improved reliability for the study.

3.12 Data analysis

The data were analysed using an inductive approach allowing the prevailing pattern, themes and categories of the research findings to emerge from the data rather than be controlled by factors predetermined prior to their collection and analysis (Patton, 1987). The procedure for analytic induction undertaken in this research followed that used by French (1989) and Burnard (1991). For this research, there were two sources of data that were analysed inductively: the data from the interviews and the data from the participant observations. The analysis of the transcripts and field notes comprised of labeling the data, creating a data index, sorting the content of the data into meaningful categories, and determining a list of themes. The constant comparative method was used in conducting the analysis. Goetz and LeCompte (1981) describe this method as a continuous process in which inductive category coding is simultaneously merged with a comparison of observed phenomena. In constant comparative analysis, data are recorded, categorized and compared across categories. Patton (1990) describes the process of categorization as one of constantly revisiting the logical explanation and the concrete data whilst looking for significant relationships. Lincoln and Guba (1985) suggest that the main task of categorization is to organize those data that appear to relate to the same content into temporary categories. The details of the data analysis process are outlined below.

3.12.1 Analysis of data from the interviews

1. The researcher transcribed the tapes recorded during two interviews of the nurses and nurse educators into the Thai language one by one in accordance with each interview question.
2. The researcher repeatedly read the transcripts of the tapes and reviewed literature relevant to self-directed learning of nurses.
3. The transcribed interview was typed on the left-hand side of each page. The right hand side of the page was used to code the data by finding the keywords related to self-directed learning of nurses in clinical practice as they applied to each interview question.
4. The researcher grouped the codes that were developed in the previous step by re-reading the data using the constant comparative method along with a review of the relevant literature of self-directed learning of nurses to form categories. (See an example of categories and the codes in Appendix F.)
5. The researcher wrote a summary of the findings from the interview questions based upon the categories derived from data analysis.

3.12.2 Analysis of the data gathered from the participant observations

The researcher conducted the participant observation by working with each participant in each ward, for a period of days per ward. The researcher noted the important data of the social phenomenon in the field notes according to Lofland (1971) and Chantavanich (2000) of each participant on self-directed learning of nurses in clinical practices in Thai until the data of all eleven participants was gathered. The process of analyzing data gathered through participant observation was as follows:

1. The researcher used data from the field notes of participant observation to write accounts of what happened in the ward in Thai. These accounts were summaries about activities, behaviors and incidents of participants. An example of the field notes are in Appendix E. The incidents recorded happened while nurses were practicing on the ward and they

illustrate the way that the self-directed learning actually happened. The accounts described the nurses' relationships and the participation of nurses' colleagues as well as the condition of the nurses' workplace environment as they practiced each day.

2. After that all the accounts were typed on the left hand side of each page. The researcher used the right hand side of the page to code the data by finding the keywords related to the self-directed learning of nurses in clinical practice.
3. The codes were grouped to form categories by re-reading the data from the field notes and the accounts using the constant comparative method along with reviewing the relevant literature of self-directed learning of nurses.
4. A summary of the data analysis for participant observation was written based upon the categories developed from data analysis was prepared.

3.12.3 Triangulating data and drawing conclusions

In the third stage of the data analysis, the researcher identified the themes that related to each research question by comparing the data from the different data sources. The researcher studied all of the data of self-directed learning of nurses in each category and compared the categories from each source of data – nurse interviews, nurse educator interviews and participant observations – in order to identify themes according to each research question. This resulted in the merging of codes and sub-categories from the different data sources into categories for each research question. These categories were the preliminary findings of this research. The codes, categories are shown in Appendix F. Each category was thought to be particular to the phenomenon of self-directed learning in clinical practice nursing. The data analysis concluded by documenting the emergence of a singular primary pattern, found in each of the data texts and representing the most essential data (Diekelmann and Allen, 1989).

3.13 Reliability and Trustworthiness

Several features in the design and conduct of the study were included to ensure reliability. These were the use of multiple sources of information (nurses and nurse educators), the use of multiple sites within the hospital (different wards) as well as the use of multiple methods of data collection

(interviews and observations). The setting and participants of the study have been described so that the findings can be understood in this context and applied to other settings where appropriate.

Additionally, there were features in the design and conduct of the study to ensure trustworthiness. Firstly, the findings are reported in the next chapter using many quotes from participants and conclusions are drawn using the terms of the participants. Secondly, the findings have been checked by conducting a second interview. Thirdly, the roles and responsibilities of the researcher within the hospital have been described in this chapter so that the researcher's knowledge and experience could be seen as related to, but separate from the findings of this research.

3.14 Conclusion

This chapter has provided the reasons for selecting the chosen methodology and how the researcher implemented this methodology. Phenomenology was chosen to conduct this research because it was determined to be a useful method for researching the perceptions and experiences of nurses as they relate to self-directed learning. Given that self-directed learning is learning from the perspective of the learner, it was important to use a research method that could access those perspectives. The data were collected from two sources using two methods: interviewing nurses and nurse educators and conducting participant observation about self-directed learning of nurses in clinical practice. Data were analysed inductively by interpreting the meaning of participants' perceptions as they arose. In order to make the findings of this research correct and reliable, the researcher checked and confirmed the validity of the findings with the research participants in the second interview. The following chapter will present the findings from the semi-structured interviews and the participant observations.

Chapter 4

Findings

4.1 Introduction

The objective of this study is to describe the experiences of self-directed learning by nurses who have been working in a clinical setting by applying phenomenology in conducting the research. Semi-structured interviews, participant observations, and field notes were used in collecting this data. It was intended that this phenomenological study would help the researcher and participants reveal what nurses learned, how they learned it, which factors influenced their learning, and what roles the nurse educators could play in encouraging self-directed learning in clinical practice. Five research questions were specified:

1. To what extent did the nurses see themselves as self-directed learners? What did this mean to them?
2. What did nurses working in wards learn by self-directed learning?
3. How did nurses working in wards learn by self-directed learning?
4. What factors influenced nurses' self-directed learning? How did those factors influence their learning?
5. What were the nurse educators' roles in supporting the self-directed learning of nurses working in wards?

As described in the previous chapter, nurses from seven wards were interviewed. By adopting the role of a participant observer, the researcher observed the incidents, situations, behaviors, statements of people and participants and how these related to the process of self-directed learning while working on wards. The researcher kept field-notes of these observations.

For data analysis, the data were re-read repeatedly and the researcher used analytic induction to identify phenomena. This process produced an index of the data by finding words and phrases and sentences involved with the self-directed learning of nurses in

clinical practice. Then, the researcher clustered the data by grouping the words or sentences that were similar to each other and placing these data in the same sub-category. After that, these sub-categories were reviewed many times and grouped with reference to the literature where applicable, into categories. The meaning of each category is described in detail in this chapter with representative quotations from the semi-structured interview data and descriptions of the incidents, situations, behaviors, statements of people and participants and how these related to the process of self-directed learning while working on wards as participant observations data. These categories are the themes relating to each of the five research questions of this research.

4.2 How nurses considered themselves as self-directed learners

The meanings of a self-directed learner from the nurses' perspective and the nurse educators' viewpoint in clinic settings have been derived from analysis of semi-structured interviews and participant observation. It has been possible to identify the meanings of a self-directed learner in clinical practice. By comparing the data for similarities and differences four main categories emerged as the meanings that nurses and nurse educators have of a self-directed learner. These were:

- independence in learning,
- the effective learner,
- the acceptance of responsibility for learning, and
- the ability to use problem solving skills.

4.2.1 Independence in learning

Independence in learning was described in two aspects by nurses and nurse educators – the independent learner and the self-learner.

4.2.1.1 The independent learner

Some nurses perceived self-directed learning as independent learning. The following responses are typical of the different points of view on independence.

“If I (nurse) wanted to know an aspect, I would be happy as I found books to read. Sometimes I would ask senior nurses or doctors to find an answer for that aspect.”

“When I am off (holiday), I like to attend an academic meeting on a topic I am interested in such as nursing patients after modern surgery and other topics. I think these meetings are beneficial to my work and self-development.”

“I (nurse) have confidence in maintaining relationships with other people such as fellow nurses, colleagues, doctors, pharmacists, and therapists who are caring for patients together. I was courageous in expressing my opinions and in exchanging learning experiences in the review meeting of caring for patients.”

“I do not think learning in (a) classroom or going out to attend training is convenient I am always sleepy with these activities. I would rather learn by myself by going to the library and finding books to read and talking to my professional colleagues. I feel independent when I can learn anytime and anywhere that is convenient for me.”

Three of the nurse educators also expressed a view of self-directed learning that could be interpreted as independence in learning.

“[Self-directed learning] is discovering that nurses can plan and manage their learning process to find answers that can help them solve problems at work.”

“Nurses had a chance to choose the topics they were interested in and the learning methods they wanted to use to search for additional knowledge. Besides, they could choose the place, day, and time for their learning with regard to their convenience and readiness.”

“Well, it is independent to learn from ourselves; reading, sharing opinions, discussing with the others on the health team, and it is convenient to be able to learn at anytime and anywhere as we wish”

4.2.1.2 The self-learner

While practicing on the ward nurses face several, varying incidents due to the diversity of illnesses and injuries that patients have. The demand for qualified help from patients is the major motivation for nurses to continuously utilize self-directed learning. The meaning of a self-learner was an explanation that nurses and nurse educators perceived for self-directed learners as the nurses could develop themselves at anytime they needed and there was a motivation for them to do so. This idea could be interpreted as autonomous learning as illustrated in the following responses from nurses and nurse educators:

The condition of the patients is my responsibility and is the important motivation that causes me to think of self-development. By searching for additional knowledge I can apply it in my work.”

“Our world changes so fast at present, and it makes me have to learn things by myself in order to gain modern knowledge and to keep up with it.”

“Progress in the nursing profession leads to the “Expert” nurse. This is the motivation for my learning towards continuous self-development.”

“I (nurse) love to read and always follow the nursing information in academic documents and journals.”

Two in four nurse educators also perceived self-directed learners as the nurses who could develop themselves at anytime they needed.

“Um...They are learning by their experiences in the midst of everything changing around them, including changes in medical and public health operation. Nurses have to adjust and learn to work with the other professionals in caring for patients in a team smoothly and efficiently.”

“Nurses had many opportunities to learn at work by themselves. From nursing practices and operations each day they were participating all the time and were involved with people. This process led to plenty of learning”

The responses in the sub-categories concerning independence in learning indicate that nurses perceived they were self-directed learners because they were able to learn what they wanted to, and were able to choose learning methods that fit the topics they were interested in and liked. Furthermore, they were free to learn anywhere and anytime, at their convenience. The concept of independence was in accordance with nurse educators' perceptions who also perceived nurses were self-directed learners. This was because nurses could plan and arrange their own learning process. They also had chances to choose learning topics that interested them as well as suitable learning methods, and they could choose the day, time, and place for their study.

4.2.2 The effective learner

A second meaning of a self-directed learner emerged from the explanations. It concerned the perception of themselves as “effective learners”. Nurses believed they could learn by themselves without depending on other people and could manage time for learning. They believed they were disciplined and could find appropriate learning methods for themselves too.

“I am diligent, serious, and committed. I like to read, write, and learn important things.”

“I am always ready to learn what I am interested in by myself. When the management encourages every nurse to self-develop constantly, I am absolutely inspired in studying, researching, and attending training sessions to develop my knowledge and skills.”

“It is characteristic of me to like to read, research and be enthusiastic in effectively achieving my self-directed learning process. If I want to know something, I will search for the knowledge by myself. Usually, my families are wealthy and they are close to each other. Whenever problems happen, everybody in these families will help each other. They often have a lot of time to work and learn new things.”

“I have a character that is fascinated by learning, especially self-directed learning. Generally, I am eager to learn new things and search for knowledge on topics I am interested in. I like to ask and listen to experts and attend training. I love to read and I commit myself to learning and I can learn successfully even though there are barriers or problems in my learning. Besides, these experts are friendly to their colleagues and patients.”

“I love nursing as a career and do not have family to give my time to. So, I can spend all of my time working and learning new things. I can search for methods to develop my work and do work of higher quality.”

“I am always committed to learning new things about myself and am serious about it.”

These extracts from interviews of nurses indicate that the nurses perceived themselves as efficient learners because they had the qualities of diligence, mindfulness, commitment, and patience. Also, they loved to read, search for knowledge and continually develop themselves. In addition, their families and other people around them gave them opportunities and support. They served as the inspiration in self-directed learning process. Moreover, nurse educators perceived that the nurses worked together as a team in general:

“Nurses are a part of the multidisciplinary health professional team that has been meeting to review patient care each week.”

The nurses could discuss and share experiences with colleagues and members of the multidisciplinary health care team that provided them with opportunities for self-directed learning while practicing.

4.2.3 Acceptance of responsibility for learning

Nurses accepted that they were responsible for their learning. They were ready to learn whatever they were interested in, even though it was very difficult. They liked to do

research and manage their learning by themselves. They were solely responsible for their own learning and realized the progress of their learning as explained below:

“I (nurse) am myself. I have the ability to analyse my needs and what I want to learn. Most of all, I am interested in solving problems in nursing practice. I can choose learning methods that are appropriate for me and can search for data and apply the results of my learning.”

“I (nurse) am a thoughtful person and am committed to doing things for self-directed learning. It is the learning method I prefer because I can set goals and plan and choose the learning method myself. I assume it is my duty and that I should do it by myself, too.”

“I like to plan my learning by myself when I want to learn something. For example, I want to learn how to care for patients after they have received chemotherapy. Then, I will schedule the learning time and choose the learning method at a time that does not conflict with operating on a shift. With this learning method I can search for the knowledge and understand it easily.”

“When I (nurse) only have a little time, I will choose to read for my learning. But if I have a lot of time, I like to discuss ideas and exchange opinions with my colleagues (nurses) and the other people on the multidisciplinary health professional team. So, I feel happy and enjoy my learning. I can learn at anytime, anywhere, and with anyone.”

Most participants of this research perceived and accepted that nurse learners had a responsibility to manage and own their learning processes and procedures. They would analyze their learning needs including their duty to create learning processes for self-study. This was suitable in the nurse educators’ opinions:

“Some nurses practice on the ward and choose reading as their leaning method in the afternoon when they are free from work. Some attend the meetings to review patient care held by the multidisciplinary health professional team in the conference room, and others go to the library.”

“It is learning that nurses aim to achieve by themselves. Sometimes they do not intend to learn, but there are some interesting incidents that stimulate their eagerness to learn by accident.”

These comments from nurse educators indicate that they perceived that nurses who could direct their own learning had the ability to be responsible for choosing the learning methods that fit to the day, time, and place that were convenient to learn and also the topics that interested them. In addition, they felt that the nurses had a duty to self-directed learn immediately during emergency incidents. So, nurses had opportunities to gain fruitful wisdom from their duties and responsibilities.

4.2.4 Ability to use problem-solving skills

Most of the nurses perceived they were learners by using problems as the starting point of learning. Nurses took their problems found at work and made them into questions to be answered in their learning process. They chose the learning method themselves and learned what they wanted to know to help them solve problems. Barrow and Tamblyn (1980) state that problem-based learning is the process of working towards understanding or resolving a problem when a problem is encountered in the learning process. The problems were indicators for the nurses to search for information and find answers for solving the problems as explained below:

“Nurses have derived skills using problems often found at work and observing patients’ varying illnesses. The diversity of many professionals and the many problems that arise from working together has also helped the learning process.”

“I learned the roles that I had to perform when I joined an exercise focused upon preventing fire duty and handling group accidents occurring as a simulation which was directed by the hospital management team.”

“Nurses learned from the simulation and took a test about solving problems from the simulation. The head nurse designed the test for all nurses that practiced and checked the scores of the test. If the result was a low score, the nurse had to attend training or had to relearn that aspect of the process.”

“If I experienced problems while practicing, I would find a way to solve them. I might ask my colleagues, doctors, nurse supervisors, or people in other professions involved with caring for patients holistically. Usually we discussed solutions for these problems together.”

“I (nurse) am brave in the face of problems and learn to solve them at work by myself. Many times I have been successful and received good results.”

“Many times I have had to apply my former experiences to solve some problems at my work. I lacked confidence because I could not find information from other sources to confirm if it was truly the best method for saving patients’ lives.”

During observation in the female surgical ward the nurses demonstrated that they dared to consider and make decisions to solve problems quickly. They walked and worked faster than usual when patients stopped breathing abruptly or when there were patients with severe conditions newly admitted to the ward. Generally, doctors and nurses do their activities to help patients with little talking. Sometimes, doctors ordered treatments by speaking to nurses and they discussed with each other only the situation they are facing.

The conclusive result from interviewing the nurses was that about five in seven nurses perceived that in their routine work they learned and used problem-solving skills as a result of events that happened in clinical practice quite often. Nurses had opportunities to learn to solve problems from simulations as well as asking colleagues, doctors, nurse supervisor, and other personnel in health care team. These ideas were in agreement with the nurse educators' opinions. They perceived nurses often used problems as the centre of learning for solving problems in work:

“It is good when a person wants to develop him or her self, to gain knowledge and skills in working, and to solve problems by him or her self.”

“Most nurses used problems found in nursing practice as their basis for learning how to solve problems.”

4.3 Summary

Overall, there were four main ideas that described nurses' perceptions of themselves as self-directed learners in this study.

4.3.1. The first meaning concerned independence. Nurses perceived they were independent in choosing topics they wanted to learn, and that they could plan and choose their own learning methods and conduct their learning anywhere and at anytime by themselves.

4.3.2. The second meaning was the effective learner. The nurses perceived themselves as effective learners because they had the qualities of self-directed learners such as diligence, patience, mindfulness, commitment and seriousness. Also they loved to continually read and learn. In addition, they received support from people in their families and other involved people around them. They also had the ability to plan and proceed with their learning by themselves.

4.3.3. A third meaning involved the acceptance of responsibility for learning. The nurses accepted the duty of analysing their learning needs and planning and implementing their learning process absolutely by themselves.

4.3.4 A fourth meaning of the self-directed learner concerned the ability to use problem-solving skills. The nurses used problems as the initial impetus for learning and finding guidelines to solve problems that happened while practicing.

4.4 What nurses learned through self-direction in clinical practice

The data gathered from the interviews of nurses and through observation of nurses during clinical practice provided evidence of the content of their learning while working on the wards. In this section data are presented to show that nurses reported that the content of their learning included the patients, their health problems and dysfunction, nursing practice, and nursing communication. Each of these areas of learning is discussed in the following sections of this chapter.

4.4.1 Patients

The contents of the nurses' learning about patients are organized by sub-category, concepts and evidence gathered from the nurses and presented in Table 1. The data reveal that nurses learned the signs and symptoms of patients' health problems and the dysfunctions caused by different illnesses. They expanded their own understanding by focusing on "new cases" and by relating health problems to the therapies.

They also learned by focusing their attention on patients as individuals who had different backgrounds, experiences, feelings and behaviors. Developing an understanding of the different backgrounds of their patients was necessary for nurses to have the knowledge and ability to adjust their care for patients in accordance with the individual requirements of each patient. Knowledge about the different personal experiences of patients, which included positive and negative life experiences, was learned while working on the ward and contributed to developing knowledge about how to care for these patients. The patients who were served in the ward also had different emotions and feelings. Nurses reported that they learned that most of these were negative emotions and feelings about themselves, their families, and the people that surrounded them. Finally, patients'

behaviors were also important factors in the efficient treatment process and nurses reported that they learned how to use this knowledge to improve their practice.

Table 1: Learning about patients: sub-categories, concepts, and quotes.

Sub-categories	Concepts	Data gathered from nurses
1. Patients' health problems and dysfunction	Signs and symptoms	<p>- "I learned the difference in degrees of pressure sores, and the techniques used in caring for patients' pressure sores as a result of being in bed for a long time."</p> <p>- "I learned how to care for patients with head injuries when their conditions worsened. I checked the coma score and if I found it was lower than 6 out of 15 points, I would have to report this to the doctors and prepare resuscitation for the patient by inserting an ET-tube and putting the patient on a bird's respirator in order to immediately help their breathing."</p> <p>- "From the experience of caring for patients after bladder operations, I learned that if there was bleeding in the Foley's catheter which was attached to the urinary tract and bladder, especially when the quantity of blood was high and the red color did not gradually fade, the patient needed to receive blood and be examined for re-operation so that their problem would be resolved."</p>
2. Patients as individuals	As individuals with different backgrounds.	<p>- "I (nurse) learned from work that it was important for me to know the background of the patients I cared for in order to adjust my caring methods to fit each patient."</p> <p>- "I learned that some patients had headaches, but when they were examined by doctors, there was nothing wrong with them physically. We (doctors and nurses) then asked about their medical history and their home environment. It was later found that patients had headaches resulting from the stresses of their family's problems and their own economic problems."</p>
	Experience.	<p>"I learned when patients could not do something it was because they (patients) were very worried and confused"</p>

Table 1 continued: Learning about patients: sub-categories, concepts, and quotes

Sub-categories	Concepts	Data gathered from nurses
		<p>- During observation in the obstetric and gynecology ward, the researcher observed that a pregnant woman had been admitted to the labor room and was waiting to give birth. She was anxious and afraid that she would lose her life in labor because her first labor caused her a post-partum haemorrhagic that was so severe that she almost lost her life. The nurses had to learn how to cope with the emotions of this patient in order to make the labor safe.</p>
	Feelings.	<p>- <i>"I learned something very valuable; stress is what a patient says it is."</i></p> <p>- During observation in the female medical ward, it was found that patients are lonely and bored in the hospital and enjoy having company. Nurses often suggest that other patients, who have the same illness, should stay close, take care of and talk to each other.</p>
	Behaviors.	<p>- <i>"Some patients helped me (nurse) a lot. They told me how they had reduced chronic pain when they had experienced it before and what types of medicine they had used when they had symptoms."</i></p> <p>- During the researcher's observation in the female surgical ward, it was found that a patient did not like to talk about the cancer that she had and did not want anyone to know. Every time someone mentioned the disease, she would exhibit depressive behavior and would not talk to anyone. The nurse told me that she had to learn how to approach this case to help the patient to feel better.</p>

4.4.2 Nursing practice

The details of nurses' learning about nursing practice are organized into sub-categories, concepts, and the evidence gathered is presented in Table 2. The sub-categories are nursing activities for patient care, teaching and giving suggestions, assessment and managing. The data collected through interview and participant observation reveals that nurses learned how to practice nursing to care for patients by applying holistic nursing principles in their nursing practice suitable to the individual situations and the physical and psychological conditions of patients and according to the type and severity of the patient's disease or injuries for the highest quality nursing result.

Caring for patients in accordance with the principles of holistic care in nursing requires considering and understanding the patients' physical, psychological, emotional, and economical needs when providing nursing care. Nurses have to learn how to holistically care for patients so that the patients will rehabilitate from their injuries or illnesses as fast as possible.

Furthermore, when nurses received a promotion or a new position or had a new role added that required knowledge at a more advanced level, such as being assigned to be the Chief of Nursing Information Development, or a case manager, or were promoted to be the head of a ward, or were acting as a leader in providing quality nursing service to patients, these nurses had to learn and review knowledge about nursing practice for their self-development and so that they could instruct, give advice, and supervise other nurses.

Nurses also had important roles as instructors and advisors in health care, disease prevention, treatment, and physical rehabilitation for patients and their relatives. So, they needed to learn how to produce teaching plans for patients in accordance with teaching steps and content, details of knowledge in disease prevention, treatment, and the correct way of taking care of oneself. They also had to learn diverse teaching methods and how to simplify their instructions and advice for health care and about diseases so that patients and their relatives could understand more easily.

In addition, nurses also reported that they had to learn self-evaluation techniques in order to identify learning needs in order to be able to practice with quality. Moreover, it was essential for them to learn how to assess patients' conditions and the severity of patients' injuries so as to help patients correctly and quickly regarding their safety.

Finally, nursing administration was an important aspect of learning. Nurses reported that they had to learn how to administer all resources used in nursing services in wards, not only the preparation of equipment and materials, manpower, and the internal environment, but also administration of the systems for the security of life and the property.

Table 2: Learning about nursing practice: sub-categories, concepts, and quotes

Sub-categories	Concepts	Data gathered from nurses
1. Nursing activities for patient care	Following the nursing principles	<p>- <i>"It was a bit hard for me to let them (patients) to do things by themselves and not to do things for them. It was hurtful to just stand there and not to help."</i></p> <p>- <i>"I consider honoring a patient's privacy as a challenging experience when I prepare, for instance, my patient for an operation."</i></p>
	Constructing a holistic view	<p>- <i>"So far I have truly concentrated on honing my skills in surgical nursing."</i></p> <p>- <i>"I have not only learned the basic nursing skills but I've also learned to interact with and to respect patients of different ages and with different personalities."</i></p> <p>- <i>"I care for and nurse patients in my responsibility both physically and mentally in order to reduce their anxiety."</i></p> <p>- During observation in the female surgical ward, the researcher found that encouraging and sharing information with the patient is very important.</p>

Table 2 continued: Learning about nursing practice: sub-categories, concepts, and quotes

Sub-categories	Concepts	Data gathered from nurses
	Adapting to a new role at a more advanced level.	<p>- <i>"This month I have headed a team that reviews caring for and nursing patients after a craniotomy. I found this to be very useful. We gained a lot of knowledge from researching in documents and having discussions with the team that has cared for this group of patients."</i></p> <p>- <i>"I was assigned to be the assistant to the head of the ward. The head of the ward taught me about many jobs she has to perform. They include managing the manpower, resources management, and human resource planning as well as developing the quality of service of the ward. As a result, I have gained knowledge and am confident to perform in my position."</i></p>
2. Teaching and giving suggestions	Teaching plan	<p><i>"I had to prepare teaching plans to show them (patients) how to care for themselves. I taught exercises to 4-5 patients in the ward who had mastectomies due to breast cancer."</i></p> <p><i>"I taught them how to care for themselves after surgery. These were patients who had an Exploratory-laparoscopy and hadn't had any plan written for them."</i></p> <p><i>"I planned to teach (patients) wound care from their operations and how to take the medicines that doctors had prescribed including diet and daily exercise."</i></p> <p>- During observation in the female surgical ward, it was found that nurses produced a teaching plan of health care for patients about the prevention of traffic accidents.</p>
	Teaching methods	<p>- <i>"I know how to teach patients whose legs have been broken by lecturing and demonstrating how to practice walking by using crutches."</i></p> <p>- <i>"I played a video about caring for patients who can not turn themselves in bed and cannot help themselves."</i></p> <p>- While conducting the participant observation in the female medical ward, it was found that nurses taught patients who had diabetes in a group therapy setting. They had discussions and gave suggestions to one another.</p>

Table 2 continued: Learning about nursing practice: sub-categories, concepts, and quotes

Sub-categories	Concepts	Data gathered from nurses
3. Assessment	Self-assessment	<p><i>“I assessed the needs of attending conferences, trainings, and seminars in nursing twice a year. This was in accordance with the hospital’s policy and my own needs to develop my knowledge.”</i></p> <p><i>“I assessed myself and my needs for additional knowledge in order to develop my work, to know my weak points and to explore the issues of my further learning.”</i></p> <p>- During observation in the obstetric-gynecology ward, the researcher found that every nurse has to join in the assessment in order to find out what is needed for the quality service development of the wards. They eventually learned the conditions and problems of the ward and the opportunities for the development of the ward.</p>
	Assessment	<p><i>- “I learned to assess the condition of patients who have multiple injuries carefully and thoroughly.”</i></p> <p><i>- “I had to decide when to call the doctor to come and see the patient each time the patient’s condition had worsened.”</i></p> <p>- During observation in the male surgical ward, it was found that nurses learned how to assess the patients’ changing conditions and injuries. Nurses had to assess many conditions of patients such as vital signs, coma score, measuring of consciousness level, cyanosis, paleness etc. If it was found that patients with the above symptoms had evaluation/assessment scores that were different from the standard scores, nurses had to decide if they should report this to the doctor, who would in turn examine the patients and adjust their treatment plan to fit their changing symptoms. Nurses told the researcher that the assessment of patients’ conditions and the decision to report changes to the doctor required that they learn what happened to each patient in their daily work and how to report to doctors immediately when patients had abnormal symptoms.</p>

Table 2 continued: Learning about nursing practice: sub-categories, concepts, and quotes

Sub-categories	Concepts	Data gathered from nurses
4. Managing	Nursing management	<p>- <i>“I have to administer all oral and injectable medication to every patient in the ward. I have to learn how to prepare and provide medication for each patient with accuracy, in a timely manner and by the right method.”</i></p> <p>- <i>“I had to decide when to call the doctor to come and see the patient when the patient’s condition had worsened.”</i></p> <p>- While conducting participant observation in the male medical ward, it was found that when an elderly patient who had acute condition was admitted in the ward, the in-charge nurse would tell the member nurse to put up the bar of the bed after nursing practices finished in order to prevent the patient from falling. She told that 2 months ago when she was on night shift at 2.00 a.m., there was an elderly patient falling from the bed because of bad sight. So, she thought the nurses should prevent the same kind of accident not to happen again.</p>
	Patients’ safety	<p>- During observation in the obstetric-gynecology ward, it was found that nurses advised every patient not to keep valued things and much money with themselves while staying in the hospital because patients’ property had been lost. She told patients that from her work experience she found that mothers after giving birth were naturally exhausted and dozed off very easily and when they fell asleep, they slept deeply, then, they often lost their valued things and money without any clue about who did that. Nurses are very busy with their responsibilities and they cannot take care of any patients’ belongings.</p>

4.4.3 Nursing communication

The content of nurses’ learning about nursing communication are organized by sub-category, concepts and evidence collected from nurses and nurse educators and presented in Table 3. Nurses learned systems for communication and coordination among nurses and with other health professionals, between wards/units and between hospitals to coordinate information about patients, information about treatment, nursing service arrangement of

are not comprehensive. The results of this research were written by describing the findings with examples for the readers to be able to understand what nurses learned while practicing on the ward. In this way, the research illustrates what *can be* learned through self-direction by nurses during clinical practice as opposed to providing a complete list of what *is* learned. The findings of the research suggest that the content of nurses' learning involved three main themes.

4.5.1. The patients are an important topic of nurses' learning in clinical practice. Nurses learned about the conditions and abnormalities of illnesses and diseases that patients have. Nurses learned about the differences of backgrounds, experiences, emotions, feelings, and behaviors and the varying needs of each patient so that they could plan for the high performance and quality caring of patients.

4.5.2. Nurses learned to continuously develop their knowledge and ability to conduct nursing activities for patient care, instruct and give advice to patients and relatives about health promotion, disease prevention, treatment, and rehabilitation and learning how to work when given new roles or promotion. Nurses also learned self-evaluation and how to assess the condition of patients correctly and quickly to help patients with urgency and efficiency.

4.5.3. Nursing communication is another aspect of practice that nurses learned in order to enhance coordination among the nursing profession, coordination among the health professions and contact between wards/units and between hospitals. They also learned about coordination of the referral and acceptance of patients for continuing care efficiently. In addition, nurses learned from meeting, conferences, and seminars in a ward on nursing topics they were interested in. Some events were organized at the department and hospital.

4.6 How nurses learned from self-directed learning in clinical practice

In seeking findings with respect to research question three, I analyzed how nurses used self-directed learning in clinical practice. In this study, the nurses described the learning methods that they used in developing their knowledge and ability. These included diverse

self-directed methods relating to topics that they were interested in learning. Secondly, they described the sources used for learning and the strategies for searching for information for self-directed learning. The results of this research show that nurses used multiple learning methods and drew from various sources in their self-directed learning. For each self-directed learning activity, the research indicated that nurses used more than one method of learning and more than one resource for their learning depending on the situation, environment, and requirements of the individual nurses as learners. From the interviews and participant observation of this research, it was found that nurses were motivated to learn what interested them and that they often selected the learning methods they preferred and that fitted with the topics they wanted to learn. In searching for additional information and knowledge, they would use familiar, easy to search sources that were convenient to their situation.

All participants of this research applied diverse learning methods in their self-directed learning in clinical practice and each selected learning methods to use independently with regard to their preference and the appropriateness for the topics they were interested in learning.

4.6.1 Learning by observation

Nurses learned by observing their own nursing practices and those of their colleagues and other personnel on the health care team. They recorded the incidents and noted the working behaviors that happened.

“Once while we were working, the patient’s condition worsened. The in-charge nurse called me to help her in caring for the patient. We had many nursing activities to do such as check vital signs, watch Neurosigns, quickly give intravenous (IV) fluid, call the doctor, give injections, and other things the doctor assigned. When we worked together, I learned that facing patients in critical condition there are many activities to do and we should do them in order, both before and after, to be able to help patients.”

“I often observed senior nurses and doctors while they were helping patients. For example, during cardio-pulmonary resuscitation (CPR), I observed how they massaged the patient’s heart at the patient’s breast for a good result. I tried to memorize this scenario in case I am on shift next time and that kind of problem happens. Then I could help the patient by using the method I had learned.”

“When I had to assist a doctor to dress a patient’s burn wounds which were nearly all over his body, I asked the doctor how to care for the wounds. I asked if they could be healed more quickly and what materials could be used to cover the wounds so that they did not stick to the patient’s flesh and cause pain when removed. Sometimes nurses discussed this with each other. They searched for additional data from other hospitals and brought this knowledge to help us and help our patients.”

“I observed other people while they were practicing and learned how they did it. If it was a good method that I had never seen before, I would observe them closely and try doing it by myself later.”

One of the nurse educators also expressed that nurses learned by observing their own nursing practices and those of their colleagues and other personnel on the health care team.

“Nurses learned from the incidents that happened in practices by noticing and recording the important incidents for solving problems and by finding the appropriate actions to be used next time.”

4.6.2 Learning by reading

Learning by reading was a learning method that nurses had to use often as their practice involved plenty of documents that they must learn and use in their work. Nurses learned by reading medical records, notes, books, texts, nursing journals, manuals and work instructions, including other health care documents while practicing in order to search for additional knowledge.

“I will read nursing journals and work instructions and academic books on health kept on the ward when I have free time”.

“I have to read every monthly meeting report of the ward in order to follow up changes and get necessary information to give to all nurses from nursing administrators noted in the report. So I acknowledge new information and sometimes that information has become our work instruction”.

“I have familiarized myself more with the urological patient group and the medical care they get in the hospital. I have gone through some of the memos and literature that I have concerning urology.”

“Nurses also had as chance to read articles and studies concerning management and leadership in nursing.”

4.6.3 Learning by listening

Listening was the method that most nurses of this research used for learning information and knowledge from patients and their colleagues in clinical practice. Nurses listened to get information from patients, relatives, colleagues, doctors' discussions and treatment orders, others as well as from members of the multidisciplinary health care team and their discussions on treatment guidelines. Thus, nurses got additional information and knowledge on caring for patients. Also, they spent days off or holidays attending lectures and training, and joining seminars on nursing topics that interested them.

"I had chances to listen to doctors and senior nurses teaching about health care and how to care for ourselves daily while being ill."

"In general, I am glad to receive suggestions and feedback from nurse colleagues and nurse supervisors."

"On the morning shift I attended a lecture about the cognitive development of a premature baby."

"There was so much information given in a short lecture that I could only grasp the main ideas."

"Whenever I have days off, I join meetings, training, and seminars in nursing organized by the hospital."

One nurse educator highlighted listening as an important way of learning from patients:

"She (nurse) would listen carefully to patients and their relatives talking about the symptoms of the illness and how relatives could help in the healing process."

During observation in the ICU ward the nurses demonstrated the ability to listen to the patients' relatives express their unhappiness and to request that doctors and nurses who care for the patients who have severe conditions to treat these patients with their maximum capability.

4.6.4 Learning by asking

Learning by imitating others was a method often used in clinical practice because nurse learners had to work as a health care team in which many different professionals

cooperated in caring for each patient every day. Nurses had chances to ask questions and pose curious problems. They were suspicious of whatever they wanted to know all the time. Nurses would ask questions when there was something they were curious about or did not understand regarding the care of some patients. Most of them asked doctors, senior nurses, nurse supervisor, head ward, and other colleagues in order to get the answers they wanted and use this information to care for patients and give quality care.

“Every time I found a doctor who had ordered some medications with a quantity calculation of medicine that I’d never seen before, I would ask the doctor. This was to confirm that the data of medication was correct before I provided it to the patient.”

“Engaging in discussions, asking questions, exchanging opinions with nurses, doctors, and other professionals on the health team are my favorite activities. I do enjoy learning activities together like that and I am committed to expressing my opinions and sharing what I learn fruitfully. I try to apply what I have learned to develop my job.”

“Participating in nursing activities, we have to ask questions and jot down the important things about these activities in order to find good practices.”

From observation in the Obstetric-Gynecology ward, it was found that doctors and nurses had rounds for checking patients’ conditions once a day. While performing the rounds, they discussed and checked changes in patients and nurses asked about treatment plans, especially the parts they did not clearly understand. Doctors would explain to all the nurses together for their better understanding.

4.6.5 Learning by study tour

To do a study tour of hospitals or wards that have better nursing practices with nurses who have more expertise is another kind of learning method that nurses used in their self-directed learning. Nurses in clinical practice wanted to learn how to practice nursing activities that they often did not have experience in doing. They also wanted to learn how to care for patients with diseases they had never cared for before. They wanted to learn by doing a “study tour” and requested to operate in the ward / hospital in which these nursing activities were performed. Sometimes they had chances to practice the nursing activities as they wanted.

“When I got information that a patient who had received a large burn was cared for successfully and without infection in a hospital, three nurse colleagues and I proposed to

go on a study tour. We wanted to visit the hospital that cared for the patient with a large burn in order to learn the techniques of caring for burn patients in our ward with efficiency.”

“I work in the male medical Ward and do not have to do wound dressing as a main job. Now there is a patient with a stroke who cannot help himself. He has a very deep bedsore and I have to do wound dressing every day. So, I asked for permission from the head nurse to do a study tour on wound dressing at the Female Surgical Ward to learn techniques of dressing chronic wounds from nurses on the ward.”

During the researcher’s observation in the male medical ward, it was found that there was a nurse from another ward doing a study tour in nursing practice of this ward. This nurse stated that she was a nurse practicing in the special medical ward that rarely had severe-conditioned patients who needed complex care. However, sometimes patients staying in special rooms had severe conditions. So, she had to care for those patients once in a while and she lacked confidence. Therefore, she requested to do a study tour in this ward, which had many patients with severe conditions, in order to learn how the nurses there worked and to bring and apply this knowledge to the ward in which she was working.

4.6.6 Learning by case studies / case conferences

Case studies and case conferences are the methods that nurses used to learn from the health care team. They joined in this activity together whenever there was an interesting case for the team. Nurses used case studies and case conferences to learn about caring for and nursing patients with rare diseases, interesting diseases and how to deal with patients who died unexpectedly. These cases were studied in detail - the diseases, treatment methods, and patient’s care - in order to share knowledge together as a team.

“My ward used to have a patient with diabetes who had a wound on her feet. Some days she was well, but other days she had low sugar levels and had to intake Insulin. My colleagues and I conducted a case study of this patient with doctors to share knowledge in giving quality care to diabetic patients.”

“Nurses and doctors cooperate in the Dead Case Conference when a patient has died after being admitted and treated at the hospital. This activity is performed in order to study the nature of the disease or injury that patient had and to determine whether the nursing care was appropriate according to scientific and nursing principles or not. Also, we look to see what can be improved.”

On one of the days that the researcher observed in the male medical ward the nurses had a “case conference” on how to care for the patients who had a condition of chronic vascular disease (CVD) during the nurses’ hand-over in the morning shift. Each nurse in this team shared experiences while performing the case conference. In addition, the senior nurse who was the leader in the activity concluded the conference by summarizing what they had learned together.

4.6.7 Problem-based learning

Most participants in this research used problem-based learning methods. Nurses learned from solving real problems that happened while practicing. The problems were directly related to their work. They used the problems that happened at work to determine what they needed to learn in order to be able to solve these problems, including the problem solving methods that can be applied to other problems that may arise. Their learning happened on the job. The learning process was directly linked to their work process. So, they needed to learn processes and strategies for solving problems in their work.

“In my work (nurse), on each shift there were many varying problems that happened that I had to solve all at once in order to operate smoothly. Some problems were critical for patients and needed to be solved urgently. So, it is necessary for me to learn how to solve many kinds of problems.”

“Some problems at work are involved with many people who work together. Most of the time, I (nurse) must be the main coordinator for problem solving in order for us to be successful in our job.”

“I (nurse) gathered problems often found in nursing practice and presented them in the monthly meeting of the ward. Every nurse assisted in solving these problems and set the guidelines for problem solving. Everyone cooperated well.”

“After an important incident happens, for example, when we must do cardio-pulmonary resuscitation (CPR) for a severe patient who stops breathing, after practicing nursing activities, a few (3 - 4) nurses on that shift will discuss and confirm what we have learned from the incident and activities. Then we can record it as a benefit of learning for all colleagues in the ward.”

During observation in the male medical ward, nurses did the activity of “root cause analysis” to find out the cause of the problem in giving an over quantity of IV fluid to a patient. The patient had severe conditions and became unable to help himself. Every nurse

in the team joined in finding the causes and how to solve the problem and they also set guidelines for giving IV fluid to patients more efficiently for all nurses to follow.

4.6.8 Learning by doing and nursing practice

From the interviews and observations by the researcher, it was found that learning happened in clinical practice with colleagues on the same shift. Nurses in clinical practice learned from their peers or supervisors through following instructions, sharing roles, working as a team and discussing nursing activities while caring for patients.

“Senior nurses taught me and gave me chances to try changing the chest drainage bottle of a patient who was wearing inter-costal drainage (ICD). This was done under a senior nurses’ control who had experience doing it, so I was more interested in my work.”

“I used to be stressed and afraid of providing chemotherapy to patients with cancer because of the side effects that might happen to the patients. But when I had many chances to provide chemotherapy, I knew the techniques better. So, now I am not afraid. I have no stress, and can do it better and better.”

One nurse educator perceived that the nurses learned from their nursing practices and the health care team while caring for patients.

“After doing nursing activities together, we will discuss ideas and exchange our opinions. For example, after resuscitating a patient, we will discuss our opinions on what is correct and what can be done to improve the next resuscitation.”

“In evaluating the work we join in the activities that are important to improve quality.”

When observing in the male medical ward, the researcher found that members of the nursing team learned how to control the number of IV fluid drops by using the infusion pump from the in-charged nurse and also through their real practice.

4.6.9 Learning from experience

Some nurses perceived that they had learned from past work experience. Nurses learned from the experiences that they had seen and from the nursing activities they had performed. When they had to do it again, under similar situations, nurses could perform such activities successfully.

“I used to perform cardio-pulmonary resuscitation (CPR) for patients who had arrested. I found that the preparation of the tools for putting in the endo-tracheal (ET)-tube was incomplete. This caused delay in rescuing the patient and finally he was brought to Intensive care unit (ICU). Such experiences always taught me and now I check the rescue tools on the emergency cart to make sure they are ready every time I am on.”

“I used to control the injury assessment of patients who had multiple injuries. Later I found the patients had injuries on their backs that were not found in the first assessment. So, I learned that if patients have severe wounds, I should focus on investigating them more carefully and thoroughly in order to assist doctors in curing patients efficiently and with quality.”

4.6.10 Learning by reflection on one’s own experience

Before starting work each day or after nursing practice for caring patients, nurses reviewed knowledge and procedures for performing activities in caring for patients by sharing opinions and through discussions. Nurses learned from reflective thinking. Nurses, who practiced in nursing activities, evaluated themselves by reflection and shared their experiences with other members of the nursing team regarding patient care.

“So far I have gained so many nursing skills and have developed as a nurse. Now adaptation goes quickly. I am able to see. I find out things that need to be done, which had been difficult for me earlier.”

“Every morning the nurses have a meeting in which each primary nurse talks about her own patients, the purpose of their stay, the goals and the plan for the day. There is time to consult one’s colleagues, and to share feelings and information. I feel I can learn a lot by listening to how the nurses take care of their patients. I can learn much more than by sitting in a normal report.”

“The discussions (between nurses) really gave a lot to me... I did discuss it (the death) with the nurse afterwards and I felt good that my first experience with death was as beautiful and peaceful as this.”

4.6.11. Learning by attending conferences, training, and academic nursing seminars

Attending training, academic conferences and seminars in nursing is a learning method that nurses paid attention to. They always sacrificed their own days off in order to be able to attend them. Nurses learned from spending their free time on holidays on and some work days (those who were not on morning shift) to attend conferences, trainings, and

seminars on nursing topics they were interested in. Some events were organized at the hospital and others at other institutes. The nurses stated they preferred to gain new knowledge and skills about their profession and the nature of jobs they perform because they could apply what they learned. Even though the hospital could not pay the expenses because the budget planned for each nurse's development had been spent, the nurses were willing to pay for the expenses themselves.

“When the departments of the hospital organize conferences, trainings, or seminars in academic nursing and there is a topic I am interested in, I will apply to attend in order to gain new knowledge in nursing for myself.”

“I prefer to follow up new progress nursing care for patients who have head injuries. Therefore, I attend a conference, training, or seminar on this topic that is organized by another hospital at least two times a year.”

“Each year she (nurse) will apply to attend an academic training in nursing neurosurgery at the Neurology Institute in order to refresh her knowledge of caring for patients with neurological injuries.”

4.6.12 Learning and co-working as a network

Some nurses learned from a learning network of nurse colleagues who are interested in the same subjects. They gathered in groups and shared their learning. Nurses learned and worked together as a network more often in horizontal relationships than in vertical relationships. They learned from each other's experiences and voluntarily shared ideas and /or resources among themselves. This included assisting and communicating with each other constantly. There were no commanding manners, so that the central focus of the people in this network could be about learning concepts and sharing interests or the same type of work. There was shared learning, contact, and cooperation.

“I am a member of the R&D club which is a group that share and discuss nursing research.”

“Our activities on the development of nursing service quality are my favorite because we have to work as a team in continuously developing our tasks and applying the wheel of PDCA: Plan-Do-Check-Act over and over again. As a result, every nurse has a chance to learn by participating in the quality development.”

During observation in each ward, the researcher found that nurses of each ward informally gathered in groups, about 3-4 nurses per group. Some groups had nurses from another

ward join them. One group studied infection control while another group studied how to prevent risk in treatment and one other one studied patient safety. They brought the results from the study to set guidelines for their practice in order to develop the quality of nursing service, and also presented it in the wards' meeting.

4.7 Sources used for self-directed learning

Sources of learning are important to the self-directed learning of nurses. From interviewing the nurses and the nurse educators, and through observation, it was found that every nurse used various sources for learning in searching for additional knowledge and expertise continuously. They learned from two main sources: other people and material resources of learning. Both these sources of knowledge are consistent with of the original learning sources that nurses have used for a long time. However some new resources have changed the way that nurses are able to direct their own learning.

4.7.1 Human resources for learning

Human resources as sources for learning that nurses have traditionally used include nurses, physicians, patients, patients' relatives and other health care professionals.

4.7.1.1 Nurses

Nurses learned from other nurses who they worked with or who coordinated them. For example, they could be nurse colleagues, the heads of wards, nurse supervisors, and nurse educators. So, nurses can learn from other nurses who have work experience. Moreover, these other nurses as mentioned before have to supervise and routinely provide knowledge to nurses in clinical practice as a part of their job responsibilities. Nurses often observe the practices and techniques of these senior nurses and ask questions, share ideas, and request suggestions in order to solve problems that happen at work.

“I (nurse) learned the skills of interaction from the senior nurse who had to deal with patients who had chronic diseases, and as a result, displayed their bad temper in the ward. That senior nurse could perform this task efficiently.”

“I (nurse) realized the importance of comprehending what nurses do when following the ward round of checking the condition of patients with the doctor. I learned the roles that nurses play in choosing the appropriate alternatives of care for each patient. Nurses are the people who know the most information about patients and who are closest to patients too.”

“When I (nurse) followed the round and checked the conditions of patients with the bedside doctor, I would report changes in patients from former periods. After that the, doctor, the other nurses and I would discuss guidelines for the continuing care of these patients. We exchanged opinions about the diseases and symptoms the patients had.”

During observation in each ward, the researcher found that nurses had a “peer review” activity. Nurses demonstrated when caring for patients in each section of the hospital, that there are some similar patient care activities like giving IV fluid, watching the contents of a draining tube and giving medications. The nurses also have “peer review” as an activity to help colleagues. It is a meeting to present methods of caring and to undertake activities that have been researched and experimented with by the units that present them.

It was noted during observation in the Intensive care unit that nurses often transferred patients from Intensive care unit to another ward or another hospital in order for them to receive more specific treatment. Most nurses have to learn the skills necessary to coordinate with other personnel and units who are involved with caring for patients. They cooperate to give the patient quality care.

During observation in the female surgical ward, nurses discussed while handing over the details of the important incidents that happened in the previous shift with the nurses of the following shift in order to share their learning. Normally, when every nurse on the team works together each shift completes handing over. We will talk about the incidents that happened through the shift to see if there are some things we can learn. During the period of participant observation there was an interesting case. I was checking the blood type before providing it to a patient. And there was a data error in this case. The patient’s blood group was recorded differently after the first and the second screening. So, that bottle of blood was put on hold and the patient’s blood was carefully rechecked one more time in order to be sure. There should be a system of double checks in some nursing activities that may cause problems for patients.

4.7.1.2 Physicians

Most nurses perceived that doctors were an important source of information for additional knowledge. The doctors were used as a source of learning by nurses very often. This occurred when reporting patients' information, consulting, asking for practical instructions, informing about treatment plans, and assisting in solving the problems of patients. By collaborating in caring for each patient, doctors and nurses learned together each working day as they performed the ward rounds to check on the patients' conditions and as they attended group meetings to review caring for some interesting cases.

"I think following the ward rounds to check on patient care with doctors and nurses allowed me to gain knowledge about diseases, treatment plans, and how patients can care for themselves while having illnesses."

"When caring for patients who have died unexpectedly or have had diseases that are common, we are able to protect ourselves from such diseases. When patients have had rare diseases the doctor and nurse teams will have a case conference. As a result, I learned about these diseases, their treatments and how to care for patients. I also learned about updating the information and applying it to my job."

"Sometimes I followed the doctor's rounds to find out what their plans were for the patients I was taking care of."

"Doctors and nurses had a discussion after completing activities. For example, after a cardio-pulmonary resuscitation activity for patients, we would discuss our success, what we did well and what we needed to improve. This learning method made me think realistically. The comments and suggestions of each person helped me. I could learn very clearly this way."

Two nurse educators highlighted doctors as an important source of information for additional knowledge of nurses.

"Every day doctors come to do rounds and visit patients in order to check on their progress of treatment. Nurses are supposed to report changes in patients' conditions and any other relevant data for treatment. In addition, there are discussions on patients' treatment plans by doctors, nurses, and patients. Mostly doctors give suggestions and teach nurses how to care for patients with different illnesses. Also, doctors review patient care with nurses and the other professions at least 1-2 times a month. All of these give us more opportunities to learn."

During observation in the male medical ward the in-charge nurse reported changes of every patient to the bedside doctor and followed the doctor's rounds every time. There was a discussion with the doctor to share opinions in caring for patients.

From observation in the male surgical ward, doctors visited and examined patients' conditions everyday. Most doctors routinely perform the ward rounds to check the patients' condition with nurses once a day. After that, if patients have changes in their conditions, or need to see doctors or want to know additional information about their illnesses, they will talk to the nurses. The nurses will consider the importance of each aspect before calling the doctors to see patients

While observing in the female surgical ward, the researcher observed the doctors and nursing team performing a review activity together in caring for patients, particularly the cases that all of them were interested in. Everyone expresses his/her ideas and discusses patient care with each other until they establish a guideline to develop quality.

4.7.1.3 Patients

Each shift of operation, nurses perceived that they had to learn as much information from the patients they cared for and nursed as the patients needed. The patients were an important learning source for nurses who often used sources of knowledge at work to care for patients with quality. Nurses felt that each patient had diseases and injuries, which had a different longevity and severity. Since each patient's background varied, nurses had to inquire into their history. They talked to patients and asked about their conditions such as allergies to medicines, family history, and other information that was useful to treatment. In addition, nurses had to learn how to use patients' information for nursing and coordinating with other members of the health care team to give effective and quality patient care.

"I had to inquire about the illness, the history and the background information of each patient in the ward. I recorded it in the medical record in order to communicate this information to the health care team. I had reviewed the medical record for improving nursing practices"

"When patients died on the ward, I had to spend a lot of time talking to other patients who were staying in beds near the deceased when he/she died. These patients shared their feelings about death with me. One patient (female) was afraid that she might die in the same manner as the deceased patient had."

During observation in the female surgical ward, nurses had learned from senior nurses how to approach patients in order to take their medical history to see if there were any conditions that meant they could not follow the treatment plan of doctors. There were some patients that the doctors ordered to be rehabilitated in the hospital, but the patients could not stay at the hospital for personal reasons. Nurses had to use the best technique in approaching patients in order to find out why they could not stay at the hospital. For example, one patient had 3-month baby girl and there was no one to feed her baby at home. Also, some patients had very old and ill parents that they needed to care for. Nurses had to plan with doctors and patients to find alternative treatment methods that were proper for each case.

4.7.1.4 Patients' relatives

Some nurses perceived that relatives of patients are good information sources about the patients. The nurses interacted with patients' relatives by discussing the patients' information regarding their illness, background, and in gaining their cooperation in planning treatment for patients. This included acknowledging treatment progress with doctors, nurses, and other personnel on the health care team.

“Patients and relatives are good learning information sources for me. While I am asking about their medical history and examining them, I can decide if the data is agreeable with the treatments the patients are having or not, and whether the symptoms are the same or different. Also, this information can be a part of creating a treatment plan for better results.”

4.7.1.5 Other health care professionals

Nurses learned from other health care professionals such as pharmacists, nutritionists, physiotherapists, and radiologists. Nurses had to inquire about data regarding medicine, nutrition, rehabilitation, and translation of laboratory and x-ray results as a team approach to providing quality patient care.

“In multidisciplinary team meetings and while performing activities on Grand Rounds for visiting patients along with other members of the multidisciplinary professional team, I (nurse) learned more clearly what holistic care means. I found that patients were cared for with higher quality and that the number of days staying in the hospital could be reduced.”

“We, I mean the treatment team which consists of doctors, nurses, nutritionists, physical-therapists, pharmacists have a patient care team (PCT) meeting every 2 weeks in order to review patient care for and to set up guidelines for cooperating to provide the most benefit to patients. It is an activity in which I learned that each person had his/her own perception about the nature of working together and the link we had to each other to create maximum efficiency.”

One nurse educator also perceived nurses learned from other health care professionals.

“In doing activities on grand rounds with the multidisciplinary professional team, patients have chances to tell us their treatment needs and to give additional information about their illnesses. They can choose treatment alternatives. The bedside doctor and multidisciplinary professional team provide information to patients and tell them about the treatment plans and the problems patients may have. Doing such activities creates a good atmosphere. It is warm and patients are satisfied with the health care team. Each person in the health care team interacts with each other in a friendly manner.”

While observing in the pediatric ward, the multidisciplinary health professional team conducted patients' rounds when they examined patients' conditions and planned treatment plans together. In general, the main health care team that always joins in caring for patients is the doctors and nurses. However, for a few particular patients, doctors will write a consultation form and ask nurses to coordinate with therapists or nutritionists to care for the patients.

During observation in the female surgical ward, the multidisciplinary health professional team performed a grand round where they examined patients' conditions and joined in discussions to set the guidelines of the treatment plans with more efficiency. Doctors, nurses and pharmacists visited patients who were allergic to medicines. Nutritionists visited patients who were eating less and assessed the quality of food by receiving feedback from patients. Also therapists performed active exercise for patients who could not help themselves and had weakened arms and legs.

Each afternoon during the researcher's observation in the female surgical ward, nurses read a report from the patient's medical records to learn the results of activities performed to take care of the patients who had to exercise their joints and muscles as trained by the physical therapist. The nurses also helped in follow up and evaluation of the practice of joint and muscle exercises with patients and relatives to find out if they continued practicing or not.

4.7.2. Material resources for learning

As concluded from interviewing, material resources were widely used by nurses as learning sources. There were many types of material resources of learning that nurses chose from, including traditional sources of information along with new resources. They also chose the topics they wanted to study.

4.7.2.1 Books, documents, journals, textbooks, researches, and work manuals

Nurses used material resources in the hospital's library and in the wards as their learning sources. Nurses read to enhance their knowledge and used these learning sources for having discussions, writing reports, providing knowledge to patients, and applying knowledge to their work as the following extracts from interviews show.

“In the afternoon of the morning shift I often had free time (about 30 minutes to 1 hour). I would ask for permission from the head of the ward to go to the library so that I could borrow books that I was interested in so I could gain additional knowledge.”

“I like to search for additional knowledge from books, journals and academic nursing documents from the ward and in the library of the hospital.”

“When there was new medical equipment, I studied its manual and listened to a lecture by an employee of the company who sold the equipment explained. I gained knowledge and skills by using that equipment with patients. For example, I learned about the Infusion Pump which is used to control or stop IV fluid which is given to patients.”

“I recall that when I first worked in this ward, I relied on the ward instruction manual of the ward and the head ward's orientation. So, I could work confidently from the beginning.”

4.7.2.2 Video and cassette tapes

Nurses also chose to use video and cassette tapes that recorded visual images and sound in the field of nursing and on varying topics. Nurses used them to gain additional knowledge. They could learn nursing procedures by viewing video recordings:

“I like to watch the video entitled, “Advance Cardiac Life Support” (ACLS) in order to recall the knowledge of rescuing patients.”

While observing in the Obstetric-Gynecology ward, each nurse had to accept many new admissions and also care for three patients after caesarian, causing nurses to be unable to attend the course of “Holistic Care of Patients”. So, they coordinated with the nurse team manager to borrow the cassette tapes of the training and listened to them at home.

4.7.2.3 Internet and intranet

At present nurses also use new learning sources such as the Internet and the hospital Intranet as information sources in searching for information on diseases, illnesses, treatments, and other areas of knowledge in health care that nurses are interested in learning for self and professional development. Nurses think that the hospital’s Intranet and the Internet are very useful sources. They can search for a lot of information and can get the needed information in a short time. The Intranet and the Internet have become popular sources for them.

“I like searching for additional information on topics I am interested in by surfing the Internet. The hospital has its system installed for use at the library.”

“Nurses can acknowledge their hospital’s efficient operation as a result of learning about health services from the Internet.”

During my observation in the Intensive care unit, nurses brought knowledge of diseases they saw often in the ward and the guidelines for caring for patients with these diseases from many papers they found on the Internet to share their learning with others. These were a source for discussions and helped to set guidelines for improving the quality of services for patients with abdominal injuries.

During my observation of the pediatric ward, one nurse explained her reason for using the Internet:

“It is fast. No boring search is needed to find information through the Internet.”

4.7.2.4 Video compact discs

Nurses observed that video compact discs in the field of nursing science were a source of learning for nurses that they could choose to study.

“I was interested in studying about nursing practices for patients who had diabetes, so I borrowed some video compact discs from the library to study by myself.”

While observing in the Obstetric-Gynecology ward, nurses brought Video compact discs about how to breast-feed and practice bathing to watch together in order to learn the steps and practices before teaching new mothers these skills after they'd given birth.

4.8 Summary of self-directed learning methods and resources

From this study, it was found that nurses learned by using a variety of learning methods and drawing from multiple learning sources in their self-directed learning. For each self-directed learning activity, they did not choose just one learning method or source of learning. They often used several learning methods and learning sources in their self-directed learning activities. In addition, sometimes nurses chose to use many learning methods along with searching for knowledge from many sources of learning in the topics they were interested in or wanted to learn about, even if it was only one topic. From the results of this research, it was found that the learning methods that nurses often used could be grouped as below:

- Structured learning is learning that has learning plan set before time with a clear pattern, starting from having learning needs, setting objectives of learning, selecting resources of learning information and learning methods, and learning evaluation of each self-directed learning. Structured learning activities were a learning method that nurses often had the chance to use as a self-directed learning method, for example, study tours. In addition, nurses sometimes chose to participate in training activities that were planned by somebody else or chose to plan and structure a program for themselves or with others that they worked with. Some learning methods were associated with ways of ways of working in clinical practice, for example case studies, case conferences, attending conferences, training and seminars.
- Unstructured learning is learning that does not have a prior plan. It is learning by accident or learning that happens all of a sudden or learning for solving problems during nursing practice that need to be solved immediately.

Unstructured learning activities were a learning method that nurses of this study often used while practicing on the ward, for example learning by doing nursing practice, learning from previous experiences, learning from problem solving, and learning from working and learning together as a network of nurses.

- Structured and unstructured learning activities are learning methods that nurses in this study used interchangeably and to complement each other in their self-directed learning activities depending on the topic they were interested in, for example, learning from practice with the patient care team who were reviewing the knowledge and skills necessary for developing quality care of patients as a health care team. The basic learning skills of observation, reading and listening were used in both structured and unstructured learning activities. These fundamental learning methods are used in combination or separately depending on the needs of the various self-directed learning situations and the individual nurse learners in each self-directed learning activity.

Sources of learning were also an important factor in allowing nurse learners to be independent in their learning. Nurses were able to use them to search for answers to questions, problems or whatever it was they wanted to learn. These sources of learning were both human and material and learners could select from these according to their preferences. In selecting the sources for their learning nurses sometimes used only one learning resource and at other times used more than one. This was dependent on each nurse's learning situation and environment. They chose to use human resources for their learning such as doctors, nurses, nurse supervisors, the head of the ward, and other personnel in the health care team along with using material learning resources such as books, journals, VCD, and medical records.

In this study nurses chose to use learning methods in various ways and at the same time drew from several learning resources to search for knowledge about the topics they were interested in and wanted to learn about. This varied depending upon the situation, environment, and requirements of nurses as learners as indicated below:

- On-the-job-learning

From the study, it was found that nurses practicing on the ward had opportunities to learn about their practice by observing the nursing practices and patient care of their nurse colleagues, senior nurses, and heads of wards, by asking questions to doctors and pharmacists, and discussing these with their nursing team.

- Off-the-job-learning

Off-the-job-learning is when nurses spent their non-working days studying by attending academic nursing seminars and training organized by other hospitals or educational institutes on topics the nurses were interested in and wanted to learn about. Off-the-job learning was supported by their hospital that has a policy of allocating a budget for each nurse to participate in academic seminars or training two times per year.

- Workplace learning: Hospital-based learning

From this study, it was found that nurses learned by joining academic meetings, training, and seminars in nursing organized by the nursing or human resources department of the hospital according to the personnel development plan set each year incorporating topics each nurse was interested in and wanted to learn about. The hospital had a policy that provided a budget for nurses practicing on the ward to attend workplace learning activities without effecting their leave days. Nurses could willingly attend workplace learning activities on their days off also.

4.9 Factors that influenced nurses' self-directed learning

In order to understand more about the self-directed learning of nurses in clinical practice, I investigated the factors that influenced nurses' self-directed learning. Both positive and negative factors, and how they influenced their learning, were examined. It was found that both human factors and non-human factors influenced the self-directed learning of nurses.

4.9.1 Human factors that influenced self-directed learning of nurses

It was found that the people around nurses, both at home and in the workplace, influenced the self-directed learning of nurses, by assisting, encouraging and supporting as well as barring nurses from the process of self-directed learning.

4.9.1.1 Nursing team

The nursing team, consisting of colleagues, head nurses, nurse supervisors, and nurse educators, worked with nurse learners and assisted them by encouraging and supporting the self-directed learning of nurses. They helped by teaching and suggesting techniques of self-directed learning. They also assisted by stimulating, inspiring and acting as learning sources for the nurses in clinical practice. Meanwhile, other nurses sometimes created barriers to the nurses' learning process such as creating conflicts among them, and by not accepting them.

“After doing activities, sometimes my colleagues and I will have a discussion about the nursing activities.”

“Nurse educators assist by providing new, modern books, journals, research on materials on nursing for nurses in the wards for which they are responsible. They also suggest how to choose the methods of self-directed learning that fit for the topics the nurses are interested in learning.”

“I have experienced some nurse colleagues who have a strong desire for self-development. The head nurse complemented them. This has inspired me to put forth an effort to achieve success like them.”

“The head nurse and nurse supervisor always encourages me to join the patient care team (PCT) meeting of the Surgery Department. They study the results from operations and some patient cases before they attend the meeting.”

“The head nurse kindly scheduled me to have a day off on the day when the hospital organized the academic conference on a topic I was interested in. She scheduled me on another day instead.”

“Nurse supervisor is responsible for supervising me about my job and teaching me to do some nursing activities that I am not skillful with or that are new to me.”

“The nurse educator was not available to give me advice when I needed to consult with her about the problems I was having with learning.”

“One of nurse educators indicated that nurses’ colleagues, senior nurses and the head nurses helped by suggesting techniques for self-directed learning to the nurses in clinical practice.”

“Nurses’ colleagues, senior nurses and the head nurses that collaborate in nursing practices on each shift help me by giving me suggestions and teaching me about doing some nursing activities in which I had no skills.”

During observation in the male surgical ward, the nurse supervisors would come to the ward once during a shift. Each time she was there for 15–30 minutes. She supervised the nurses to ensure they were doing nursing practices correctly and completely and in accordance with professional standards. She spoke with the nurse educator of the section to consider the proper curricula to enhance their knowledge and skills so that they could apply it to their present work.

4.9.1.2 Physicians

Physicians assisted in stimulating and encouraging nurses towards self-directed learning because nurses think that physicians are very good sources of information and they can make suggestions about diseases, give treatment plans, and tell nurses how to care for patients. But, sometimes physicians have time limitations in giving advice and joining the team in reviewing patient care with nurses.

“The bedside physicians who do rounds for checking on patients’ conditions often instruct and give suggestions relevant to diseases and treatment methods. I like to follow the rounds because I have chances to learn various things about patient care in accordance with each patient’s illness.”

“If I have questions about the signs, symptoms and treatment methods, I will ask physicians. They will teach me how and give me advice each time.”

“The physicians of my ward will help me find some textbooks and medical journals for the ward.”

“Physicians will conduct case studies and case conferences with nurses on diseases they are interested in and also hold the meetings to present the results of case studies to give opportunities to interested people to attend and express their opinions.”

In some situations, physicians cannot teach and make suggestions to nurses because of time limitations that do not allow them to share information and to act as learning resources.

“Sometimes doctors are loaded with burdens and have to examine patients. They also have to check on patients’ conditions and hurry to perform surgery on their patients. So, they don’t have time to talk or give me a chance to inquire about my doubts/problems.”

“When doctors are invited to group meetings to review patient care and to review some interesting cases, some doctors cannot come because they have to perform urgent operations.”

4.9.1.3 Health care team

Nurses perceived that health care professionals helped in stimulating and encouraging nurses to do self-directed learning by acting as knowledge resources for nurses to ask questions and to have discussions with.

“I like to ask the pharmacists about medicines and their side effects before providing them to patients in case I don’t know the medicine.”

“Other professionals on the health team like pharmacists, physical therapists, nutritionists, and medical scientists cooperate in caring for patients. They assist me in learning specific information about patients that I care for. I can use this information in caring for patients and report to doctors correctly. This cooperation helps patients to recover faster.”

Nurse educators also commented that the pharmacists as a part of the health team caring for patients together played the roles of facilitators, supporters, and assistants to the group. Additionally, they had discussions with nurses to share their learning about the medication of each patient.

“If patients are allergic to medicines, nurses will phone the pharmacists to join the care team for those patients. They will discuss the medicines and report the data to the doctors.”

During observation in the female medical ward, the researcher found that nutritionists would help nurses teach the patients’ relatives to prepare a blended diet for feeding patients who cannot help themselves. Nutritionists also cooperate in teaching relatives how to feed this food to patients.

While observing in the female surgical ward, the radiologist attended the PCT meeting of the Medicine Department and explained how to translate basic x-ray results to doctors and nurses.

During observation in the male medical ward, a medical pathologist gave advice to nurses on how to use blood and blood products.

4.9.1.4 Patients and patients' relatives

Some nurses perceived that patients and relatives could stimulate and encourage the self-directed learning of nurses. Normally patients and relatives have to ask about the condition and severity of injuries, treatment plans, and how to give and receive care while being ill or having injuries. The need to respond to patients so that they could answer their questions, give explanations and advice to patients and their relatives correctly was a factor that stimulated nurses to learn for self-development.

"I always have to search for knowledge about the diseases that the patients in my ward have so that I can explain them to patients and their relatives."

"Some patients and relatives inquire about the alternative treatment methods for the patients' condition. That makes me have to learn to enhance my knowledge in order to update it continuously."

Moreover, one of the nurse educators mentioned that nurses had to learn different techniques of approaching each patient since they are individually different.

"Each patient is an individual and has different needs, and spirit, so she (nurse) has to learn how to approach each of them in the appropriate manner."

While observing in the female surgical ward, the researcher observed that nurses have the role of giving advice and explaining details of diseases or injuries, and treatment plans to patients. Also, they have to teach patients how to care for themselves while being ill and how to prevent the same illness from re-occurring.

During observation in the male surgical ward, some patients and relatives asked nurses about their conditions diseases, injuries, treatment plans, and how to care for themselves while being ill.

4.9.1.5 Nurse's family

People in the families of nurses influenced the self-directed learning of nurses in both positive and negative ways. People in the families can be good models in learning for self-development.

“My parents are very diligent, and like to read. They have patience in working and searching for knowledge.”

“My husband helps me with household chores. He gives me chances to attend training and academic conferences at external units of the hospital.”

“My mother taught me to be a patient person and to always make an effort to develop my knowledge.”

“I am impressed that my senior has shown patience and has continued to study until receiving a doctoral degree.”

However some people in the families of nurses were burdens of responsibility for them as the nurses had to take care of and help them.

“I have to take care of my father and my mother. They are very old. I have to prepare food, wash their clothes and make their bed everyday.”

“I have an elderly mother who has diabetes and high cholesterol. I have to care for her at home, so I have little time to read books.”

“My husband asked me to spend my free time with him and our children so that we can go out together on the weekends as a family. Therefore, it is difficult for me to find time to read.”

“Some people in nurses' family are burdens for nurses. They have to spend time taking care of and helping family members.”

4.9.2 Non-human factors that influenced self-directed learning of nurses

From the study, it was found that the other factors that influence the self-directed learning of nurses were the environment, workload, time, and budget. These factors influenced the self-directed learning of nurses in clinical practice either positively or negatively.

4.9.2.1 Environment

Most nurses and nurse educators in this study provided information to the researcher that an environment for working and learning that is clean, peaceful, cool, odor free and has sufficient lighting and privacy encourages them to learn. If there was a separate room for learning this could further encourage and stimulate nurses to perform activities for self-directed learning. But, if the environment is full of confusion and chaos, is filled with nuisances, and is hot, cramped, dirty, untidy, and lacks sufficient light, nurses do not want to use the room for learning, reading, or performing activities related to learning.

“My ward has a learning corner for nurses. It consists of a table and chair and is cool and has sufficient light. We like to read there when we have free time.”

“The head of the ward and I helped each other arrange a library for nurses. It can be used as meeting room for small groups too.”

“Some days my ward is filled with confusion and there are many doctors, nurses, and patients waiting for services. At these times I cannot read or search for academic nursing documents. I can not concentrate at all.”

“Nurses have a conference room that consists of cabinets for storing books, a conference table for five to ten people and a telephone. It is clean and air-conditioned and has sufficient light for nurses to read and have group meetings to review patient care. I discovered that this room is open everyday.”

While observing in the female surgical ward, one day the air-conditioner for the ward was broken. Nobody entered to read or do any activities. Moreover, the workplace environment was unclean, untidy and hot, and there were many passers-by. These conditions did not facilitate nurses to want to do activities for their self-directed learning.

4.9.2.2 Workload

Not surprisingly the workloads of the nurses influenced their self-directed learning. On days when they had a high workload, there was little chance to do self-directed learning activities. On other days when they had normal workload, nurses could read and do self-directed learning activities.

“On some workdays there are a lot of patients and many of them are in severe condition and need intensive care. As a result, I don’t have a chance to go to the library or to simply read in the reading room of the ward.”

“If I have free time from work, I like to invite the nurse educator to show us how to search for information via the Internet.”

“Many times when I was working a shift, there were a lot of patients who were admitted in the ward and many of them were in severe condition. So, I had very high workload and I did not have time to think, review, and discuss with the other nurses about what we were learning from working.”

“While practicing, if there is an arrest of one patient on the shift, all nurses will be very busy and there will be no time to read or discuss at all.”

During observation in the pediatric ward, the researcher found that some days of operation there are a few patients with severe conditions. As a result nurses do not have enough time to read or search for information in the library or to have discussions with the team after nursing practice is finished.

4.9.2.3 Time

Four of the seven nurses expressed an opinion through their interviews that time was a factor that influenced the self-directed learning of nurses. If nurses had free time from work, they could do learning activities such as group meetings, study tours as well as attending conferences, training, and seminars in nursing. But if they had limited time, nurses would only choose to read, search for knowledge from documents, or ask experts instead of using other learning methods.

“If I have free time from work longer than 1-2 hours, I will have a group meeting and discuss topics with colleagues and senior nurses that we are interested in.”

“If there is free time in the afternoon on a day when a conference is planned at the hospital, I will apply to attend the conference.”

“While practicing, if I have a little free time, I will read books and journals on nursing. I will study the instructions for nursing activities which I must understand and follow correctly.”

“Most nurses like me have very little free time. Sometimes, we have a little free time of about 30 minutes. This limits us from going out of the ward to the library to search for knowledge. So, instead of staying there I borrow books to read at home. At other times I want to visit the other wards to observe how they operate. I then bring the good points of practice to apply to my own work. But, my time is limited.”

4.9.2.4. Budget

The participants believed that the budget was a factor that influenced the self-directed learning of nurses. The hospital had a policy of providing money for every nurse to attend training, conferences, and seminars in nursing twice a year. As explained by one of the nurse educators:

“All nurses request to get a support budget from the hospital to attend trainings, conferences, and seminars in nursing.”

This was confirmed by one of the nurses.

“Usually I receive money from the hospital to attend conferences, training, or seminars in nursing two times a year.”

But, if the budget had been spent some nurses did not receive money for their self-development. The budget allocation of the hospital for personnel development of each year is limited, about 3% of all personnel’s salaries, the policy in this aspect is consequently limited to two times a year, but without a limit of a certain amount of the expense for each time. As a result, the whole budget is often used before the end of fiscal year and some nurses have no chance to use the budget according to their rights for attending professional development training.

As a consequence, some nurses voluntarily paid for their own expenses to attend some conferences they were interested in.

“I paid for the registration fee of the Conference in Nursing of 2005 by myself because the support budget of the hospital was finished.”

4.9.2.5 Human resource development policy of the hospital

Three of seven nurses confirmed that the hospital’s policy on human resource development encourages and motivates nurses towards self-directed learning by the principle that every nurse has to continually develop her knowledge and skills. The

hospital allocates in the budget for every department/section 3 % of all the personnel annual salaries of each department/section for its personnel's development. Also, personnel can schedule their days off to do self-directed learning activities to develop their knowledge.

"I could attend the conference on "patient care after exploratory laparoscopy" by receiving a full support budget from the hospital."

"The head nurse re-arranged my schedule so that I could attend a conference on my day off on the topic of nursing elderly people."

"I have been given a travel budget to attend academic nursing seminars organized at some institutes two times per year."

One of the nurse educators gave information during their interview that nurses of all wards collected information and documents about the development of their knowledge, ability, and skills in portfolios.

"Each nurse of each ward will produce a portfolio that consists of information she gathered for her self-development."

4.9.2.6 Patient care team meeting

Some nurses indicated that the Patients Care Team (PCT) meeting consisting of multidisciplinary professionals such as doctors, nurses, pharmacists, physiotherapists, radiologists, and nutritionists who come together and review patients' care once a month, is a time when everyone is given a chance to share ideas and establish guidelines for solving problems in nursing practice. As explained above in sections 4.8.1.3, 4.8.1.4 and 4.8.2.1 this meeting serves as a source of knowledge and encouragement for nurses to learn from the meeting.

"I received an assignment from the head nurse to attend the PCT meeting of the Surgery Department once a month. I have learned many things from this meeting."

"Every Wednesday morning the multidisciplinary professional team, who care for patients, conducts grand rounds to check on and to discuss the condition of the patient together at the bedside."

4.9.2.7 Medical records

Two of seven nurses shared their opinion that medical records, that is, the patient files contain the history and details of a patient's background, information of illness or injuries, treatment plans and information provided by the nursing team. These records also contain the continuity of care, changes of illness and changes to the treatment plans, evaluations, and treatment results. As described above in section 4.8.1.2, nurses perceive that medical records are a source of knowledge that support and encourage their learning.

“I will read the changes in patients' conditions, adjustments to the treatment plans, and the evaluation of treatment results. I feel I gain more knowledge from observing the follow up information of patients.”

“I and nurse colleagues learned the guidelines of treatment and nursing for caring for diabetic patients from reviewing medical records of many diabetic patients and then we wrote a conclusion of what was found as the guidelines of caring for these patients further.”

4.10 Summary

The people in the nurses' work and family environment and other factors concerned with the work environment itself, including the policies and practices of the hospital administration, influenced the self-directed learning of nurses. Some of the policies and practices of the hospital supplied nurses with sources of information for selected learning, providing support as well as subject matter for self-directed learning activities.

The extracts from interview and participant observation indicate that people who are around nurses both in the workplace and at home play a part to encourage, support, stimulate, and assist nurses to continuously learn for self-development by providing advice, acting as a consultant and good model, sharing knowledge and experience, and by participating in learning as a team in order to let nurses have the chance to study and practice additional skills. On the other hand, these people may have limited time or don't have time to join meetings. So, this means that nurses have less chance to learn from other people around them. Access to books, academic documents, the internet, hospital intranet and visual aids, as well as work environment, time, budget, and workload also influenced nurses' self-directed learning. But if they have a high workload so that they do not have

spare time, nurses have fewer chances for self-directed learning as a consequence. If their units do not have books, academic documents, modern visual learning aids prepared for them and have little budget for promoting nurses' self-development, there is a lack of stimulation for nurses to direct their learning in the style they prefer and are interested in.

4.11 Roles of nurse educators in supporting nurses in clinical practice in self-directed learning

In general, the nurse educator of each unit of the hospital has a role in surveying the needs of self-development and career development of nurses, analyzing the needs of personnel development, planning nursing personnel development programs, managing development along with encouraging and supporting self-development and nurse career development. They also have a role in evaluating the development of nurses in order to improve the personnel development plan for the next year.

In this study, it was found that nurse educators had the role of supporting nurses to learn using self-directed methods through encouragement, support, and evaluation.

4.11.1 Encouraged and supported learning

From the interviews of nurses and nurse educators, it was found that the nurse educators stimulated and encouraged nurses to direct their own learning by motivating, arranging an environment for learning, and by suggesting learning methods including learning resources to nurses. The nurse educators explained their role and some of the nurses corroborated these roles in their interviews.

4.11.1.1. Motivation

One of the four nurse educators told the researcher that nurse educators had roles in motivating nurses in clinical practice to direct their own learning. They explained that it was because nurses in clinical practice have to work as a team in caring for many patients who have different signs and symptoms and there are many activities, as well as incidents of resuscitation that happen and so nurses may have chances to self-direct their learning.

So, the nurse educator uses this method of motivation in order to encourage and facilitate nurses to learn from incidents that happen in their practice.

One nurse explained that she felt proud that she applied her knowledge to create innovation in producing a set of equipment used in a patient's secretion activity. It was a piece of work well accepted by her colleagues and the nurse educators.

"The outcome of creating a new instrument to track the secretion of a patient was a success. The set I (nurse) produced is economical but meets sterility standards and was appreciated by service-providers and the nurse educators."

Another nurse told the researcher that she learned the technique of dressing and caring for burns and the result was excellent. The nurse educator rewarded her achievement by recommending that she share her knowledge with colleagues:

"I (nurse) have been selected by the nurse educator of the Department to present the results of a successful study in caring for burn patients and the implementation of a technique for dressing wounds for burn patients more effectively. This was the result of my self-directed learning."

In addition, nurse educators promoted love among nurses and a sense of unity. They created a culture in which the senior nurse was responsible to mentor and train junior nurses to continually develop their potential.

"I motivated nurses to love each other and to be united as one team. I also motivated them to collaborate at work and to develop their professionalism. If there were senior nurses who had good knowledge and abilities or who had recently attended specific nursing training in surgery or who were skillful in any specific areas, I would encourage and motivate them to teach junior nurses so the junior nurses could gain the knowledge and ability too."

"I motivated nurses in clinical practices by suggesting the importance of learning from work and experience. I showed them that they could have the knowledge to develop their work, to meet required quality standards and also to develop themselves usefully in order to gain more knowledge and skills."

"Once in a while I announced that there would be rewards for nurses who had been become accomplished in self-directed learning. I felt that some nurses who were more enthusiastic than others would receive rewards and finally this group did receive. As a result, the other nurses imitated behaviors of the nurse who had been rewarded because they wanted to succeed too."

“Having nurses’ participate in meetings trainings and seminars of the Department makes them active because they have to plan and really practice. They get a chance to demonstrate their knowledge. They will be praised if they are capable in learning activities.”

During the period of observation in the pediatric ward, the researcher found that the head of the ward conducted supervisory activities to stimulate and motivate nurses to review the new things they had additionally wanted to learn and to exchange opinions encouraged them with their colleagues.

During observation at the female surgical ward, the nurses divided into teams, three nurses in a team. They cooperated by studying and searching for knowledge and developed skills in how to care for patients such as bed sore prevention for unconscious patients, caring for patients on ICD, and caring for patients after chemotherapy. They presented the result of their study in the monthly meeting of the ward and received rewards from the head of the ward who had promised to give rewards to the team who had produced results from self-directed or team-directed learning.

4.11.1.2. Create learning environment

The nurses from this study perceived that nurse educators had a role in arranging good learning environments for nurses in the ward.

“Nurse educators will arrange a place for our group to meet so we can learn about nursing topics and can discuss and share ideas.”

At the time that the researcher was observing in the male medical ward, the nurse educator assisted in coordinating to arrange a meeting for sharing knowledge about caring for patients with chronic vascular disease (CVD) for the medical department in order to give an opportunity to each ward’s nurses in the department who were interested in this topic to meet and share their knowledge and experience in caring for CVD patients together.

Nurse educators assisted and encouraged the creation of an atmosphere and environment inside of the wards that facilitated self-directed learning of nurses as described by one nurse educator:

“I assisted and encouraged the head of each ward of the department to arrange the environment and atmosphere. This facilitates learning in cooperative case study teams, and doing conferences of the diseases patients have and often found in the ward each month. I am a consultant for them and I follow the grand rounds the doctors make.”

Moreover, nurse educators encouraged nurses practicing on the ward to exchange learning activities among others.

“When I made rounds and visited wards of the Department, I encouraged nurses in clinical practices to have talking, to ask questions and exchange opinions about caring for patients that had interesting diseases. This process stimulates learning for the nurses and the team.”

“Umm...I encouraged nurses to diligently search for additional knowledge, to learn from their experiences and to improve their learning in order to solve problems systematically. I encouraged them to learn from their mistakes and weak points based on scientific principles. I cooperated with every ward and encouraged them to have computers so that they could go onto the Internet and so that everyone could search for the information they needed.”

Furthermore, nurse educators intended to create a good atmosphere, one that was friendly and conducive to the self-directed learning of nurses. Nurse educators were also resources for the people who were involved.

“I attempted to create good atmosphere and friendships among nurses and members of the interdisciplinary professional team of the ward. The strategy was to support nurses to have good feelings and to dare to communicate with the other people and the other professionals.”

“After assigning tasks and responsibilities to nurses, I assisted them (nurses) when they needed my help. I asked what they needed from me once in a while. I also evaluated the progress of work they were doing. This method helped nurses develop their learning and improve the operation of the ward.”

In general, the nurse educators arranged the environment to facilitate self-directed learning of nurses in clinical practice. There was a small room available in the ward arranged by nurse educators to serve as the meeting room and as a place to read books, watch videos and search for information on the Internet. It was a cozy and peaceful place that had a clean atmosphere and enough lights. In addition, the nurse educators arranged the environment to bolster the spirits of nurses so that they would be comfortable. The nurse educators realized the importance of self-directed learning and praised diligence in learning and were able to bring what they had learned and apply it in their work as is defined by these examples from the interviews of nurse educators:

“The head of each ward of each department was responsible for encouraging nurses in the ward to realize the importance of self-directed learning and continue to learn as much as they could by self-directed learning. The head of the ward would praise and sometimes give rewards to nurses when they achieved their goals or when they created innovations in patient care as a result of their self-directed learning.”

“A monthly meeting was held for each ward. As a part of the agenda nurses presented their results from self-directed learning and team studies on projects that were assigned by the head of the ward. It was a stage filled with benefits.”

During observation in male surgical ward, it was observed that the ward had additional space not utilized by patient care management. These spaces were arranged as meeting rooms. They included places for document cabinets and bookshelves to store textbooks and nursing journals as well as PC sets where the nurses could search for information on the Internet. The rooms were also arranged to be quiet, clean, tidy, and to have air-conditioning so that nurses could sit and read books. Some parts of the ward had no room available, so they used corners of the wards as a “learning corner.” These were equipped for learning in the same way as the larger rooms.

In addition, nurse educators believed that they created a good atmosphere for the nurses’ self-directed learning by focusing on friendliness, warmth, happiness, and joyfulness with respect to learning. They also prepared rewards for nurses who had done outstanding activities in self-directed learning.

“I focused upon creating an atmosphere for nurses’ learning while they were in clinical practice. I encouraged them to be friendly, warm, happy and joyful with respect to learning and to dare to express their opinions freely.”

4.11.1.3 Suggested learning methods

The nurses perceived that nurse educators had a role in helping nurses are interested in learning to choose suitable learning methods.

“I was given advice by the nurse educator about how to choose the correct self-directed learning methods when I wanted how to care for severe patients”

“She (Nurse educator) suggested that I can learn whenever I want to learn.”

During observation in the male medical ward, the nurse educator gave advice to nurses about selecting learning methods for studying about caring for colostomy patients. The nurse educator helped to explain the procedures of self-directed learning and how to evaluate the results of self-directed learning order to in reduce the error rate when dispensing medicines to patients.

Nurse educators acted as coordinators that supported the learning methods in the areas that nurses were interested in. They encouraged them to learn by self-directed learning methods and also advised them of sources where they could search for information.

“I often stimulated nurses to create innovations and to try new, modern experimental methods of caring for patients by studying new nursing documents. Additionally, I suggested appropriate learning methods for each aspect including the location of learning sources. I assisted nurses in learning new things and inspired them to continuously create innovations in nursing.”

Moreover, nurse educators were concerned about their roles as mentors who facilitated each individual nurse with her own skills to gain the most in the self-directed learning process. Nurse educators suggested appropriate learning methods targeted to each nurse’s learning interests, however, the learning methods needed to be appropriate for the nurse too.

“Each nurse had different learning styles and did not understand the steps of learning like teachers. Therefore, I had to adjust my degree of assistance to support each nurse to gain self-directed learning skills.”

4.11.1.4 Suggest and support learning sources

One of the seven nurses shared her opinion that nurse educators had a role in giving suggestions and supporting learning sources for nurses.

“The Nurse educator advised me about some learning sources so that I could search for information and produce a manual for caring for patients with CVD.”

Two nurse educators thought that they had roles in providing advice about knowledge sources that included providing academic documents to nurses so that they could apply the information in their learning conveniently.

“When I had chances to share opinions with nurses, some of them told me that they had not experienced much self-directed learning since they had attended formal training in nursing. After having more discussions with them, it was found that when they had problems at work, they would find books to read and ask doctors and senior nurses. The nurses would apply the knowledge to their actions without being aware that they were performing self-directed learning.”

“Some nurses, who were working in the ward, told me that they preferred listening to instructors or experts rather than doing self-directed learning. They (nurses) were not confident that they had enough ability to do self-directed learning. However, they also thought they might have done self-directed learning without realizing it.”

Moreover, nurse educators gave nurses nursing textbooks, nursing journals, and research articles in nursing. They also provided materials and equipment to supplement the learning process of nurses by distributing academic documents and equipment from the library of the hospital to each ward that the nurse educator was responsible for:

“My role is to search and find academic nursing documents and nursing research articles from the library of the hospital and to provide them to every ward of Pediatric Department in order to facilitate nurses to read them at their convenience and to search for information. I also make lists of new books, journals and academic documents once a month. The departments and the hospital order these new books and journals every month in coordination with the library at the hospital.”

Furthermore, nurse educators provided textbooks, academic documents, journals, and modern research articles on nursing for the wards that had high workloads and were located far from the library of the hospital.

“For the ward that had critical patients and high workloads, I would assist the nurses to provide them with textbooks, journals, and nursing documents to read on the ward. They could read these nursing texts whenever they wanted and did not have to go to the library.”

“Facilitating the media used in self-directed learning is a very important thing. Which types of media are best in communicating the knowledge nurses are interested in learning? If the appropriate media is chosen, they save time in learning and it is easier to learn.”

In addition, nurse educators provided suggestions and details on the sources of learning and made a list of sources for distributing to each ward.

“I prepared nurses to be ready for the operation of the ward. The nurses of every ward of the Surgery Department were familiarized with self-reliance in learning what they were interested in. For example, I suggested the appropriate books in which to find information and where the information sources are located on web sites. When they could not find the information they needed I suggested that they ask doctors, senior nurses, the head of the ward, and the nurse educator for help.”

4.11.2 Evaluating

Two of the seven nurses in this study perceived that the nurse educator had a role in teaching and suggesting to nurses that they evaluate their own learning needs. The nurse educators also showed them how to evaluate the self-directed learning process to see if they were successful or not.

“The nurse educator makes suggestions and encourages me to evaluate my learning needs.”

Moreover, nurse educators evaluated the self-directed learning results of nurses in clinical practice.

“Umm...I encouraged nurses to do self-assessment once in a while every 3-6 months to once a year. I inspired them to examine what they had learned from work and from their experiences, and how often they had done self-directed learning. I asked them to look at the new things they had learned including how they had applied it to their self-development and operational development.”

“The nurse educator collaborated with the head nurse to evaluate each nurses’ operation results and how each nurse had applied the knowledge from her self-directed learning in her self-development. The nurse educator and the head of the ward also evaluated quality of work and what kind of assistance and support they had needed from the other nurses or the head of the ward.”

“Nurse colleagues who worked with the nurse (learner) assisted in evaluating the nurses’ self-directed learning results. They worked closely with the nurse, so they could evaluate the self-directed learning behavior of the nurse effectively. They could also evaluate how much the learner had learned and how she had applied this learning to real situations.”

“Nurses needed to use the technique of self-assessment in learning. They needed to know their strong points and weak points including which avenues were the best choice for developing themselves and which methods of self-directed learning should be chosen. The nurse educator then encouraged nurses to do a Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis of themselves.”

“I evaluated the result of nurse’s operation in the areas of improvement both in quality and in the overall condition before attending meetings and training and seminars. I also

evaluated which aspect of self-directed learning they had chosen and how much they had applied the knowledge to their work.”

During observation in the Intensive care unit, the researcher found that the results of the research obtained from evaluating the learning of nurses included the presentation of new information learned in caring for patients, writing textbooks and other academic documents and submitting them to be published in the hospital journals.

4.12 Summary

In conclusion, the finding from interviewing nurses and nurse educators and participant observation, was that nurse educators had important roles in encouraging, supporting, and stimulating nurses to engage in self-directed learning. They also partly assisted nurses in their self-directed learning efforts by introducing tools and methods of assessing needs in self-directed learning and evaluated the achievements of the nurses' self-directed learning.

4.13 Conclusion

In this chapter the data collected from interviews of nurses and nurse educators and from observations in the wards has been presented to illuminate the practice of self-directed learning while working in the wards. This chapter was organized so that the themes concerning each of the five research questions were presented sequentially. The first research section included the themes that defined self-directed learning and how the nurses in this study perceived themselves as self-directed learners. There were four main themes. They saw themselves as independent learners, effective learners, accepting responsibility for learning, and having the ability to use problem-solving skills.

The issues, topics and aspects of activities that nurses learned by self-directed means in clinical practice concerned three main themes. These were self-directed learning about patients, nursing practices and nursing communication.

The third and fourth sections of this chapter described how nurses learned using self-directed methods. From the study, it was found that nurses learned by self-direction, starting from their own interest and with one aspect of their practice that they wanted to learn more about. Sometimes they used several self-directed learning methods together.

As learners, the nurses might have selected structured or unstructured learning methods, or used both in each self-directed learning activity they engaged in. Additionally, nurses chose to use one or more learning resources for each self-directed learning activity, human or material resources, or both. Nurses often chose to use various learning methods and searched for information using multiple learning resources while they were learning. This could vary depending on the situation, environment, and requirements of each nurse.

Many factors, human or otherwise, influenced the self-directed learning of nurses in clinical practice. Human factors that influenced nurses' learning were people around the nurses both at home and in the workplace, resulting in the support and encouragement, or the obstruction, of self-directed learning in nurses. These included the nursing team (consisting of colleagues, senior nurses, heads of wards and nurse educators), physicians, the health care team, patients and patients' relatives, and the nurses' family.

Non-human factors also influenced nurses' learning, resulting in the support and encouragement of, or hindrance to, nurses' self-directed learning such as the environment, the workload, time, the hospital budget, the human resources development policy of the hospital, the patient care team meetings, and medical records.

Encouraging and supporting self-directed learning of nurses in clinical practice is an important role of nurse educators who assisted nurses by giving suggestions, motivating and inspiring nurses to engage in a process of self-directed learning. In addition, there should be an environment arranged to be appropriate and convenient for learning including the provision of documents and learning media to support nurses of each ward in facilitating their self-directed learning.

In the next chapter of this research study these findings will be discussed. A conclusion will be presented along with recommendations about how to utilize the results of this research in my workplace and in other hospital settings, and what further research should be conducted.

Chapter 5

Discussion and Conclusion

5.1 Introduction

The final chapter of this thesis discusses the research findings and their implications for nurses' learning in clinical practice. Throughout the chapter, the findings are discussed with respect to how they support, compare with and/or diverge from the literature.

It is generally known and accepted that nurses must develop themselves in order to gain the knowledge and skills necessary to have a successful nursing career and to continually provide quality patient care.

After graduating in nursing from nursing colleges or universities and providing nursing services in the hospital, nurses have primarily learned by attending conferences, training, and seminars on nursing topics in which they were interested. Hospital units have policies that encourage nurses to gain knowledge, as well as care giving and nursing skills, especially when the hospital aims to extend nursing services into additional health care areas. As a result, nurses have opportunities to develop their knowledge and abilities by attending conferences, training, and seminars in nursing organized by their hospital to address the needs outlined in self-development surveys as well as the developmental needs of hospital units. The hospital in this study has also granted scholarships to support their training and development budget so that each nurse could have opportunities to attend academic conferences, training, and seminars organized by academic institutes outside of the hospital twice a year.

Since 1997 Thailand has been facing an economic crisis and as a result the Thai government has introduced a policy stipulating that every ministry has to save money and limit their budgetary spending. The Ministry of Public Health, that is the body chiefly responsible for the health of the Thai population, has been impacted by this policy. The Ministry has received tighter budgets to support each hospital. Because all hospitals need to spend most of their budgets on health service, health promotion, disease prevention, treatment and patient rehabilitation including the

provision of high quality health services to people, the budget allocated for the hospital's personnel development has been drastically reduced. Additionally, the Nursing Council of Thailand introduced a policy to measure the competency of nurses in clinical practice in hospitals and at every level of the nursing department. This policy was established to continuously develop the quality of education and learning methods by varying learning styles including self-directed learning. The Council also designated that every Thai nurse must develop their knowledge and abilities, entering into the learning system of the Continuing Nursing Education Unit. The system demands that every nurse collects a minimum of 50 credits from diverse learning methods and that nurses apply themselves and study in order to gain additional knowledge and abilities. Regarding this policy, nurses would be eligible to extend their professional licenses, which are required to be renewed by each nursing professional every five years. Under such a policy, Thai nurses are interested in and eager to search for the most appropriate learning methods because they have to work and take care of their families at the same time. Thus self-directed learning is a learning method that nurses are interested in applying because it develops their knowledge and abilities in nursing practice.

In this research, the researcher was interested in studying the self-directed learning of Thai nurses in clinical practice. The objectives were to investigate how nurses in clinical practice undertook self-directed learning and how they went about finding answers to the questions they had in practice. The research questions for the study were as follows:

1. To what extent did the nurses see themselves as self-directed learners? What did self-directed learning mean to them?
2. What did professional nurses working in the wards learn by self-directed learning?
3. How did professional nurses working in wards learn by self-directed learning?
4. What factors influenced the nurses' self-directed learning? How did those factors influence their learning?
5. What were the nurse educators' roles in supporting the self-directed learning of nurses working in wards?

This research employed a phenomenological approach to investigate the phenomenon of self-directed learning by nurses in clinical practice. The researcher worked with nurses who practiced in seven wards and with the nurse educators of four separate departments of the hospital for a period of seven months, starting from July 2003 until February 2004. The data were collected from each participant during a semi-structured interview. The researcher also observed each participant to find out how nurses in clinical practice engaged in self-directed learning by observing the environment and atmosphere of the setting in which the learning took place, as well as the behaviors of the nurses who engaged in self-directed learning. Field notes were made during the observation process. After that, all the data were compiled and then analyzed using the analytic induction method. The researcher read and re-reads the data obtained from the cassette tapes and transcribed the interviews and the field notes from observations of the participants' learning. Then, the researcher created an index of the data by searching for key words, phrases, and sentences that were relevant to the self-directed learning process of nurses. These indexes were categorized by grouping key words, phrases, and sentences that were similar with each other into the same sub-category. It was necessary that each step of the analysis related to the literature in identifying each category. Finally, these categories were identified as themes relating to the five research questions of this study.

The findings of the research revealed how nurses had used the process of self-directed learning in clinical practice, the meanings that were given to self-directed learning and the outcomes of their learning. These findings are illustrated in Figure 7.

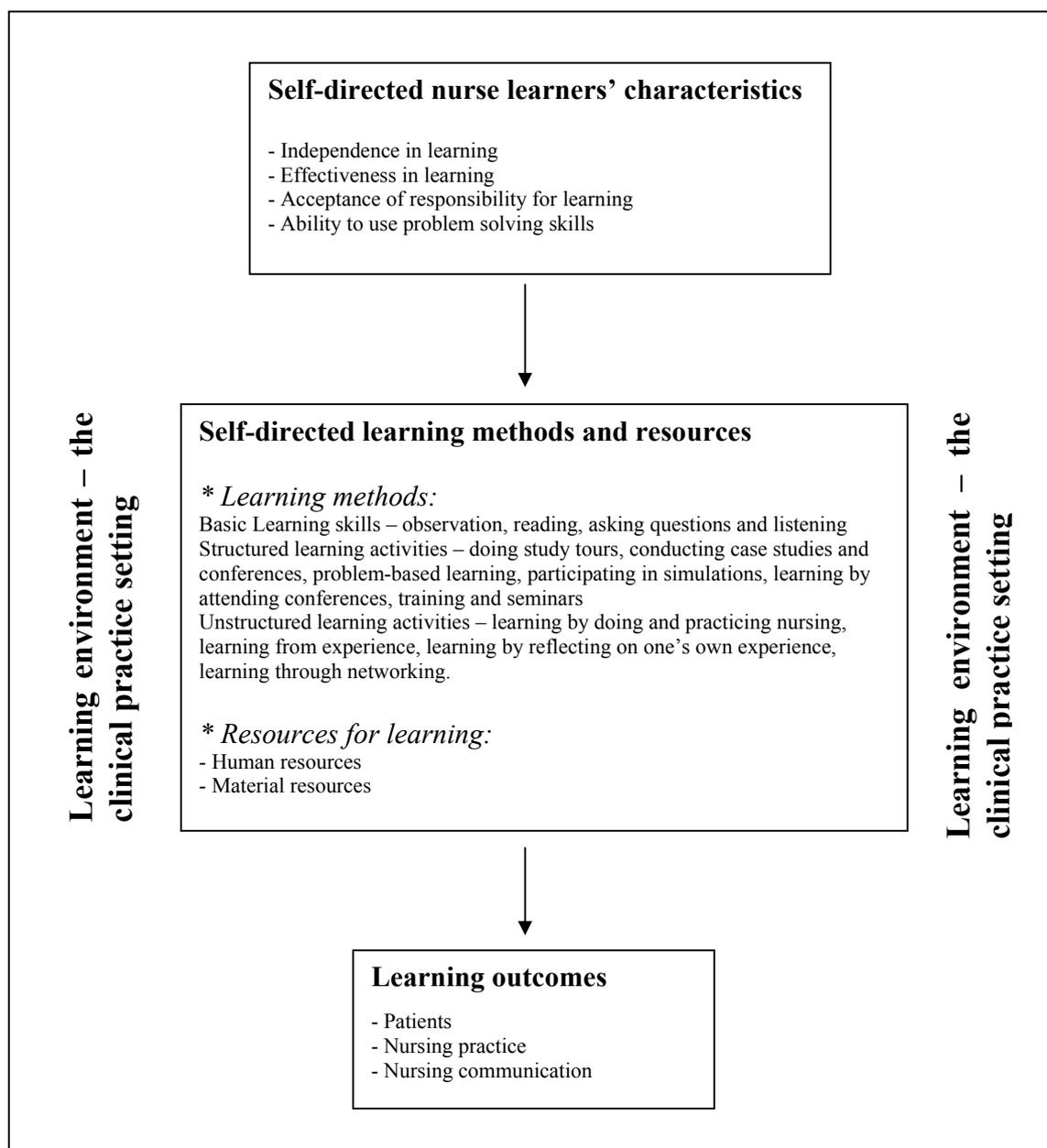


Figure 7: Self – directed learning model of nurses

This model shows that the process of self-directed learning was initiated as a result of the presence of four learner characteristics – independence in learning, effectiveness in learning, responsibility for learning and the ability to problem solve. The learner with these

characteristics then selected learning methods and resources for learning that best suited the learning situation and their individual preferences. The selection and subsequent utilization of these methods and resources for learning took place in the clinical practice environment and were influenced by several extrinsic and intrinsic motivational factors. The outcomes of nurses' learning through self-direction included knowledge about patients, nursing practice and nursing communication. Each of the sections of this model is discussed in this final chapter. A discussion of the role of nurse educators in the self-directed learning process and further recommendations are also included.

5.2 The meaning of “self-directed learner”

The individuals who engage in self-directed learning are very important in the self-directed learning process because they must initiate the learning, make decisions about what is to be learned and what development experiences will occur, and how. The learner selects and carries out their own learning goals and objectives, chooses suitable learning methods and makes evaluations in order to verify that the goals were met. Because the learners themselves must be the initiators and owners of the learning process, it is important to note the characteristics that nurses perceived self-directed learners as having. From this study, it was found that nurses who learned through self-direction perceived that they were diligent, patient and committed to learning what they were interested in. In addition, they perceived that self-directed learners loved to read and search for knowledge. More specifically, independence in learning, effectiveness in learning, responsibility for learning and the ability to problem solve arose as crucial characteristics of self-directed learners. It was found that some nurses possessed the characteristics needed for self-directed learning and could learn through self-direction successfully. Others needed stimulation, development and encouragement to access the attributes necessary for successful self-directed learning.

5.2.1 The meaning of independence in learning

This research has shown that nurses and nurse educators established the meaning of self-directed learners as individuals who could learn independently, choosing to learn about

whatever topics they were interested in, selecting the learning methods and resources they preferred as well as selecting evaluation methods by themselves. Additionally, they were competent in their learning and were able to learn anywhere and at anytime. This is consistent with the previous work of Knowles (1975), Iwasiw (1987) and Spencer and Jordan (1999).

The research also showed that it was perceived by the participants that self-directed learners initiated and “owned” their learning process from beginning to end. The learners were independent in identifying their learning needs and the topics they were interested in learning. They set objectives, outlined the results they wanted to receive from learning, and selected appropriate learning methods and resources, and then evaluated their learning and learning methods.

Guglielmino’s (1977) study of self-directed learning characteristics also found that self-directed learners exhibited independence and initiative in their learning. Her research found that self-directed learners endeavor to figure out difficult problems, understand their learning needs, like to manage their own learning and are confident in working by themselves. Additionally, they are attracted to learning, have good reading skills, and are familiar with available sources for the information they want, are able to plan their work and show initiative in starting new projects.

Moreover, findings of this research support the work of Griffin (1983) who found that independent learning is characterized by “freedom from constant supervision”. From his study, it was found that self-directed learners saw the importance of making connections using instructional leads in order to make further inquiries so that they could make their learning more personal. These connections included maintaining self-discipline, seeking human resources, using material resources, creating and completing a product and working to improve. These behaviors are essential for the development of independent and efficient learners.

Developing strategies for helping individuals to progress as independent learners in order to improve their performance is what facilitators do so that learners can be encouraged to learn independently. In relation to nursing clinical practice, nurse educators should concern themselves with how they as facilitators can help others refine suitable work habits, and learn

how to be more effective in supporting learners. According to Brookfield (1986), who has proposed issues concerned with facilitating the learning process of learners, the environment needs to be arranged so that it promotes learner independence and attention to learning. Encouraging learners to be responsible for self-management and in control of their own learning, developing the competency of learners in critical thinking and decision making about their learning are also important factors in self-directed learning.

5.2.2 The meaning of effectiveness in learning

The research found that being an effective learner is an important skill of self-directed learners. The participants thought that nurses who were self-directed learners displayed several prominent characteristics such as diligence, mindfulness, commitment, patience, attention to detail and thoughtfulness. Additionally, they showed a love for reading, searching for new knowledge and continually developing themselves. The attributes of efficient self-directed learners as described by Knowles (1975), Skager and Rodney (1978), Burman (1969) and Guglielmino (1977) were self-confidence, discipline, and enthusiasm, a sense of responsibility, an ability to acknowledge their needs and an ability to maintain good relationships with others. Additionally, self-directed learners were described as flexible, detail-oriented, creative, self-reliant, and able to find learning sources and implement learning methods, and as individuals that love to learn.

As indicated by the research of Guglielmino (1977), if learners can perceive themselves as effective learners, their ability to learn by themselves and willingness to set aside time for learning are much greater. In addition, they are disciplined, have a clear understanding of their learning needs, can choose suitable learning methods, and are committed to lifelong learning. These characteristics can be developed and taught to learners in order to assist them in becoming effective self-directed learners. Elizabeth (1987 cited in Leardgaveporn, 1996) mentioned that most nurses were enthusiastic learners both in their personal and professional lives and that about 80% of them planned their learning. Additionally, from the study of Arpanantikul, Thanooruk and Chanpuelksa (2004), it was found that nurses exhibited a high level of readiness for self-directed learning; however they still had barriers and problems in the learning process. The nature of their work and the fact that they are required to work morning-

afternoon-night shifts left them with little time for their self-development activities like attending academic conferences. Despite high levels of intrinsic motivation, external factors can still influence the effectiveness of self-directed learning. Therefore, the nursing and hospital administration should be aware of these factors and continually support nurses to learn and utilize their full potential in self-directed learning.

5.2.3 The meaning of acceptance of responsibility for learning

This research has shown that nurses accepted that, as self-directed learners, they had to take sole responsibility for their entire learning process, starting with analyzing their learning needs by themselves, and then creating and designing the steps of their learning process for learning any topic they wished to learn, implementing those steps and finally evaluating their effectiveness. Boud (1988), Knowles (1975) and Brookfield (1984) concluded that self-directed learning made learners responsible for determining every aspect of their learning process based upon their own needs and their own direction. Williams (2001) identified personal responsibility as the foundation of self-directed learning, defining it as an individual's readiness to take ownership of their thoughts and actions within the learning process. Furthermore, personal responsibility requires a readiness and capacity for self-examination relying upon both external and internal feedback (Garrison, 1992).

Learners are perceived as solely responsible for every aspect of their learning no matter what situations they face including the acceptance of individual differences. Self-directed learning is a learning method that respects the learner's potential and responds to the individual needs and interests of the learner by accepting that every learner has the ability to learn independently and are able live their lives happily and dynamically in society as a result. If nurses accept themselves and accept responsibility for their own learning, they can realize their potential as learners and be prepared to learn what they are interested in even when it is difficult. They can engage in research, manage their own learning, take responsibility for their learning and acknowledge their progress.

5.2.4 The meaning of the ability to use problem solving skills

In this research, nurses and nurse educators also defined self-directed learners as persons who can use problem-solving skills. It was found that most nurses use problems as the impetus for their own learning and bring the knowledge gained from learning to help solve problems they encounter in nursing practice every day. The research indicated that nurses in clinical practice wanted to learn about patients and their health problems and were willing to engage in self-directed learning about these topics. They also learned about nursing practice and communication integral to nursing on-the-job in order to answer any problems or questions they found in their workplace. Therefore it was perceived as important for nurses to be able to apply problem-solving skills in working with patients, engaging in clinical practice and communicating with other healthcare staff.

Barrows and Tamblyn (1980) defined problem-based learning as the result of the working process that focuses on understanding or problem solving. When a problem is first found in the learning process it is used as the motivation to apply problem-solving skills, or to use logic. Problems nursing administrators encountered for study and research also serve as opportunities to gain the knowledge needed to understand the working system and to find ways to solve problems. Therefore, it is useful to distinguish problem-based learning from problem solving. In problem-based learning, learners do not already have the knowledge required to apply to the problem and have to seek out additional knowledge, but in problem solving, learners already have the necessary knowledge and simply need to apply it (Gallagher, 1995; Boud and Feletti, 1996). Nurse learners who were problem-based learners had experience in using problems as stimulus for learning and searched for additional knowledge to solve problems based upon their learning needs. This process often necessitates additional scientific research and reading and encourages nurses towards teamwork too as they solve problems collaboratively drawing on the experiences and knowledge of the team.

The self-directed learning needs of most nurses in this research arose from 1) patients and their health problems and dysfunctions, 2) nursing practice, and 3) nursing communication. Each of these arose on-the-job in clinical practice. The learning needs were determined by using the

problems that surfaced each shift as a starting point for the learning process with the goal of developing higher quality nursing care in solving the problems.

5.3 Self-directed learning methods and resources

The findings of this study show that nurses engaged in self-directed learning through the use of a variety of learning methods, and in drawing from multiple learning sources. Often, several learning methods and sources were used for each self-directed learning activity, depending on individual learning styles and circumstances as well as the learning topic.

Nurses took part in on-the-job, off-the-job and workplace learning, and, within each of these contexts, utilized a variety of learning methods and sources for their learning. In on-the-job learning activities, nurses primarily used basic learning methods and skills such as observation, asking questions, listening and discussion drawing mainly from human sources for their learning, for instance, nurse colleagues, senior nurses, heads of wards, doctors, and pharmacists. In off-the-job learning, nurses participated in structured learning activities such as conferences, training or seminars. Workplace learning involved nurses taking part in hospital-organized training, academic meetings or seminars.

5.3.1 Learning methods

This research has shown that nurses used many varied learning methods and that they selected learning methods to suit the topics they were learning according to their own needs and preferences. There were thirteen learning methods that nurses most often selected:

- Observation
- Reading
- Listening
- Asking questions
- Doing study tours
- Conducting case studies and case conferences

- Problem-based learning
- Participating in simulations
- Learning by doing and through nursing practice
- Learning from experience
- Learning by reflecting on one's own experiences
- Learning by attending conferences, training, and academic nursing seminars
- Learning and working together as a network.

Choosing which learning methods were appropriate depended upon the needs of each nurse. Watkins and Marsiel (1993) support the view that workplace learning opportunities are many and varied, specifying that these include learning from industry experts, through various internal and external training and education programs, through self-directed learning programs, and/or from study teams, amongst other methods. They assert that learners engage in learning by utilizing a diverse range of formal and informal methods both within and outside of the workplace.

The learning methods of observation, reading, listening, asking questions and discussion are fundamental to learning activities on and off-the-job. They are basic learning skills that are essential to engaging in the learning process. These methods of learning demonstrate that the process of learning is not only cognitive, but highly personal and interactive.

The thirteen learning methods outlined above can be categorized as structured or unstructured in their nature. Structured learning activities included study tours, training and seminars, case studies and case conferences. These learning activities had clear learning steps in which the learner could easily determine learning objectives, outline procedures, select learning methods and sources, and choose methods of evaluation. Unstructured learning activities are those in which learning happens incidentally and is not the primary focus of the activity, such as learning through engaging in clinical practice, learning from previous experiences, and learning from problem solving. Nurses often applied structured and unstructured learning methods interchangeably in their self-directed learning using one to support the other depending upon the learning topic and their individual preferences. Whilst structured learning activities could

support learning that occurred in practice, unstructured practice-based learning could reinforce learning that occurred through structured learning activities.

Cooper (1980) asserted that individual difference has a significant impact in the selection of learning methods. The characteristics perceived as important in self-directed learning process by the participants in this research further support this. Independence in learning which puts the learner at the center of control in the learning process enables the learner to make decisions based upon their individual preferences and needs regarding the learning methods they select. Furthermore, the characteristic of effectiveness in learning means that the decisions made would be best suited to meeting the goals of learning whilst still balancing the learner's individuality. If the learner is able to accept sole responsibility for the learning process, he or she would also be able to critically evaluate the usefulness and appropriateness of various learning methods and make effective decisions as a result. In addition, the ability to problem-solve would enable the learner to effectively use and modify their use of various learning methods as needed throughout the learning process.

Learning how to learn is also an important factor in selecting learning methods as indicated by Smith (1982) who stated that learning how to learn is related to gaining knowledge and discovering effective methods of learning. If individuals want to gain necessary skills and knowledge through structured and unstructured learning, they have to learn how to learn. This is further supported by who Iwasiw (1987) who asserted that an intellectual understanding of the process of self-directed learning is essential for learners to have before being able to apply it in practice.

According to Knowles (1975), self directed learning is an effective method of learning, enabling learners to retain information for longer periods of time and then apply that knowledge more easily than through the use of other more traditional methods of learning. The findings from this study indicate that the opportunity to learn through self-direction already exists in the clinical setting. Nurses have indicated that they engage in self-directed learning in key areas of their work – with patients, in nursing practice and in nursing communication – providing them with the opportunity to develop professionally and progress in their career. However, as

indicated by Conway and McMillan (2005), in order for learning opportunities in the workplace to be of advantage to nurses, nurses must be capable of reflecting critically on their work, evaluating their skills and abilities against industry standards and looking for assistance from their peers when necessary. Most importantly, they must be capable of identifying the learning opportunities that arise in their work. These skills are fundamental to self-directed learning and need to be developed in nurses in order for them to continually provide quality nursing care and successfully move forward in their profession.

5.3.2 Learning resources

The findings of the study show that nurses learned by using many resources. The resources they've used in the past were original sources such as books, academic documents, journals from library and dialogues with experts. The findings show that, more recently, they've used new sources for their learning such as medical series on VCD, search engines on the Internet, and reviews of academic knowledge from interactions with members of the multidisciplinary healthcare professional team. Other material sources included the nurses' personal libraries, the nursing library on the unit, the hospital library and the public library. These were found to be helpful when searching for materials on a specific subject.

Moreover, nurses also used their nursing colleagues as sources for self-directed learning. The heads of wards, nurse supervisors and senior nurses were all potential sources. Whilst some nurses have more experience or education than others, this was not the only criterion used when seeking consultation. All nurses have the potential to help one another. A nurse may choose to talk with another nurse face-to-face or on the telephone to gain information. The research of Hart and Rotem (1995), who studied a group of nurses participating in teleconferences with peers, indicated that participants reported the benefits of peer learning as providing the opportunity to gain different insights into practice, diminishing feelings of isolation, and providing support and encouragement. According to Dowling (1970), peer learning assists the learner in broadening the scope of their clinical knowledge and helps them to develop their self-monitoring skills by providing opportunities for observation, analysis and problem solving. For this reason, learning from peers is particularly beneficial in the self-directed learning process.

Gathering information from patients, families and medical records also served as an important resource for nurses. Nurses learned helpful hints that they could share with patients who face similar problems. Patients also provided feedback about nursing care and could help evaluate the effectiveness of nursing care measures. In addition, patients and their medical records supplied information for research.

Conducting patient rounds was also found to be a useful source of learning. Although the purpose of these rounds is to facilitate patient care, nurses found many opportunities to learn from these experiences. Rounds often contributed to the nurses' knowledge by raising questions that could be used as the basis for developing a learning project. Moreover, other health professionals served as good sources of information for nurses. These experts provided information from their area of expertise and enhanced nursing knowledge because they offered new perspectives on topics and/or discussed these topics from another point of view. While these professionals can be helpful, nurses were considered the experts on nursing care and therefore the best resources to answer nursing care questions.

It can be concluded that nurses search for additional knowledge using human and material sources for their learning as previously observed by Cooper (1980). Nurses chose to use human or material sources for their learning, or utilized both. These findings are also in agreement with the research of Penland (1979), and Brookfield (1984) who found that learning sources of self-directed learners were experts, books, journals, colleagues, study tours, and family members.

According to Cooper (1978), the ability to select and utilize various resources in learning is a key benefit of self-directed learning and can have a significant impact on the results of learning. Cooper suggests that in order for learners to be able to choose the most suitable learning sources and meet their learning objectives, they must have adequate knowledge about learning sources or access to persons knowledgeable in the sources available.

In conclusion, the findings of this research show that within each self-directed learning activity, structured or unstructured, nurses employed a variety of learning methods and drew from a

range of sources as determined by their own individual interests and the nature of the topic they were interested in learning about. Sometimes, this required the use of multiple learning methods and sources. Therefore, nurses need to have access to and knowledge of a variety of learning methods and sources in order to effectively engage in self-directed learning. An ability to choose from and utilize a diverse range of methods and sources is essential to learners being able to direct their own learning. Additionally, individuals learn in different ways, therefore necessitating the availability of methods and sources that meet their different learning needs.

5.4 Factors that influenced nurses' self-directed learning

Motivation in learning is a key psychological aspect of the learning process that has a significant influence over every step of learning, in particular the learning outcomes (Vellerand, Pelletier, Blais, Briere, Senecel, and Vallieres, 1992). A learner's motivational state has intrinsic and extrinsic aspects. In order for intrinsic motivation to be maximized, external influences need to be shaped toward that end. Because of this, it is important to understand the external factors that facilitate and hinder self-directed learning in individuals so that effective learning can be ensured. From the findings of this study, it was found that there were many factors that positively and negatively influenced the self-directed learning of nurses in clinical practice. These were divided into two main categories – human and non-human factors.

5.4.1 Human factors that influenced self-directed learning of nurses

It can be concluded from this study that the people around nurses, both in the workplace and at home, such as the nursing team (colleagues, the head of the ward, the nursing supervisor, and senior nurses), physicians, the health care team, the patients and their relatives, as well as the nurses' family, had a significant impact on the self-directed learning of nurses. They assisted in encouraging, supporting, and stimulating nurses to create self-directed learning opportunities and continually engage in self-directed learning. According to the research of Tough (1979 cited in Knowles, 1984) the ready convenience of peers acted as a catalyst to the learning process and enabled nurses to more effectively assimilate new knowledge into their practice. Nurses also indicated that they were comfortable learning from their peers as they were considered trusted

sources, easily accessible, and non-threatening. According to Lincoln and McAllister (1999) due to the nature of activities that peers engage in together such as problem solving, brainstorming and observation, learning from peers could serve to facilitate deeper learning. Furthermore, peer learning is compatible with self-directed learning as it allows the learner to continue to have autonomy and control in the learning process.

However, once in a while, people around the nurses could also become problems, obstacles, and barriers to the opportunity and eagerness of nurses to engage in self-directed learning. They unfortunately limited nurses' opportunities for self-directed learning. While engaged in on-the-job learning, the absence or unavailability of nurse educators, doctors and other health care staff to refer to in the learning process presented the main obstacle to nurses' self-directed learning. This is supported by Tough (1979, cited in Cooper, 1980) who reported that the absence of nurse educators to refer to in the learning process created a hindrance to learning and solving problems. In addition, the nurses' workload limited the amount of time nurses could spend in work-based learning activities. With competing demands at work, nurses were hindered from participating in self-directed learning while working. With respect to off-the job learning, the greatest obstacles were most often created by nurses' families. Some nurses reported having additional family responsibilities that prevented or limited them from investing time in self-directed learning activities.

5.4.2 Non-human factors that influenced self-directed learning of nurses

From the interviews and participant observations in this study, it was concluded that there were other factors in addition to the people around nurses that influenced nurses' self-directed learning. These were the environment in wards, workload, time, budget, and the personnel development policy of the hospital, meetings with the patient care team, and the medical records. Each of these influenced the encouragement and capacity of nurses to engage in self-directed learning and, at the same time, were problems and obstacles to nurses' self-directed learning.

The presence and absence of “protected time” was identified by the research of Dixon (1991) and Emblen and Gray (1990) as a vital issue in the facilitation or hindrance of learning. With its presence, nurses felt freer and more relaxed to engage in learning activities. With its absence, nurses felt stressed and pressured knowing they would have to deal with a more intense workload following learning activities. Time was also linked to external learning expectations as well as external responsibilities. In Dixon and Emblen and Gray’s research, nurses reported feeling resentful having to spend their free time engaged in learning activities necessary to their work.

Availability and accessibility to resources such as visual aids or written material were also reported as being valuable to the learning process in that they provided reinforcement and clarification of what was being learned, as well as being of greater convenience to the learner.

In addition, a physical environment such as a learning room on each ward that is clean, tidy, quiet, and cool, and filled with sufficient and diverse learning media and resources was also a facilitating factor. This is in agreement with Isarawatana (1999) who suggests that the creation of a relaxed and pleasant learning environment that supports and encourages the interests of learners helps to bring about higher levels of motivation.

Understanding the factors that influence self-directed learning helps the learner to overcome obstacles to learning and continue to engage in learning activities. Cross (1981) organized obstacles to learning into three categories – situational, institutional, and dispositional. Situational obstacles can be defined as difficulties that arise from an individual’s life circumstances at particular times. Institutional obstacles are identified as processes, systems or procedures that prevent or deter learners from continuing education. Dispositional obstacles are considered to be difficulties arising from how one perceives and thinks of oneself as a learner. However, as noted by Penland (1979), many hindrances rate low in an individual’s selection of self-directed learning as a learning method. Rather an individual’s preference for self-directed learning and its benefits are the guiding factors.

Individuals have different learning needs and objectives, and they have different influencing factors to their self-directed learning. Understanding that the obstacles and facilitators to self-directed learning are complex and different for each individual is important if self-directed learning is to be undertaken as a continuing education initiative. Additionally, nurse educators need to be aware of these factors in providing educational support to nurses and become familiar with ways of addressing obstacles.

5.5 The role of nurse educators in supporting self-directed learning in clinical practice

The findings of this research indicate that nurse educators had roles in encouraging, facilitating, and stimulating nurses in clinical practice to learn through self-direction by creating motivation and providing inspiration for nurses to learn. Nurse educators arranged an atmosphere conducive to learning inside the ward. In addition, nurse educators taught and suggested various learning methods for nurses so they could select the methods that were most suitable for them.

Nurse educators also advised nurses about possible information sources for their learning, so that nurses would be able to search for information conveniently. Moreover, nurse educators acted as instructors and suggested ways that nurses could evaluate the results of their self-directed learning to assess whether the methods used in the learning process were successful or not.

The findings of this research indicate that nurses perceive nurse educators as having a role as facilitator in every aspect of the self-directed learning process. A facilitator's role in education is understood in different ways. According to Frost (1996), the role of the facilitator is to encourage learners to examine and draw on their own knowledge in order to create their learning goals. Katz (1995) suggests that the use of questions to bring out ideas for discussion can help to achieve this. In this way facilitators are seen as guides who lead learners through the learning process, assisting them to draw from their previous experience and knowledge and enabling them to recognize the boundaries of their experience and knowledge (Biley & Smith, 1998; Frost, 1996). However, too much input and involvement by facilitators can hinder the learning process. Schmidt (1993) suggests facilitators should guard against over-involvement in

the learning process of learners so as to avoid taking excessive control of the process. Facilitators of self-directed learning should provide learners with opportunities to enhance and develop self-directed learning characteristics such as independence and effectiveness in learning. Fostering autonomy in learning necessitates a shift from teacher controlled learning and over-involvement in the learning process toward student-centered control of the learning process.

In order to be effective in the facilitation of self-directed learning, nurse educators need to be willing to invest their time in the aspects of the learning process of nurses where they will make the most difference. This involves identifying and assessing the learning needs of nurses to ensure that they can provide the most effective assistance. Whilst it is often assumed that learners are capable of identifying their own learning needs, research indicates that nurses' expressed learning needs may reflect personal learning desires and interests rather than real needs (Courtemanche, 1995; Holmes, 1989; Jazweic, 1991; Within & Altschuld, 1995). According to Kristijunson & Scanlan (1989), supervisors or peers may identify a specific learning need during clinical practice that may not have been mentioned in the nurse's self-assessment.

According to Cooper (1978), whilst self-assessment is a skill that isn't included in a nurse's formal education, some ability in self-assessment is important in order to bring about changes in a learner's behavior. Learners must identify a need to learn and/or change so as to endeavor to do so. For this reason, assessment needs to be done in collaboration with the learner in order for it to be acceptable and effective to the learner. In the process of assessing learning needs in self-directed learning, data must be gathered, decoded, and further analyzed to discover what needs to be learned. These skills can be developed and encouraged in self-directed learners by nurse educators.

The process of assessing learning needs is on-going (Zazo, 1979). Learning needs change continually depending on a variety of factors. Therefore, nurse educators and nurses themselves must work with each other to identify the ever-changing learning needs of individuals and teams. Varying perspectives help in providing greater accuracy in learning needs assessments.

According to Within & Altschuld (1995), the nurse educator can be more assured of a precise assessment of learning needs if they use several informants as well as various assessment methodologies.

Throughout the process of self-directed learning, nurse educators may need to assume the role of motivator or the role of counselor to learners. These roles require an ability to understand an individual's learning characteristics in order to best motivate and assist them. As motivator, the nurse educator needs to be able to come to an understanding of what inspires and stimulates individual learners. As counselor, the nurse educator must be able to assess the strengths and weaknesses of learners as well as various learning methods in order to be able make appropriate recommendations and give suitable advice.

5.6 Self-directed learning outcomes

From this research, it was found that as a result of self-directed learning nurses in clinical practice learned about their patients and their health problems or dysfunctions, learned particular aspects of nursing practice and learned about nursing communication as it related to their work.

5.6.1 Patients

While practicing on the ward, nurses perceived that they learned about their patients and what kinds of health problems and dysfunctions they had, especially when there were new cases admitted. Nurses had to learn the signs and symptoms of the health problems of patients in detail in order to gather information for creating a treatment plan. In addition, nurses learned about their patients as individuals by learning about the different backgrounds, experiences, feelings, and behaviors of patients on the ward in order to create the most suitable nursing plans for them.

5.6.2 Nursing practice

Nurses also reported that they engaged in self-directed learning while practicing nursing on the ward, doing activities they've either never or have rarely practiced before. They had to apply nursing principles and practices suitable to individual patients. In addition, they had to learn the tasks of their new responsibilities if promoted into higher positions by acquiring additional knowledge and skills to be able to work in their new positions successfully.

Furthermore, nurses perceived that they learned about teaching techniques for health education and how to give advice to promote health, prevent disease, and selfcare whilst ill. They learned how to do teaching plans and choose teaching methods suitable for each patient and their family, which in turn helped patients and their family understand and be able to apply knowledge in caring for their health correctly.

Nurses also had to learn various evaluation methods – the evaluation of their need to self-directed learn, the quality of nursing service in their wards, evaluation of the results of nursing activities, assessment of illness conditions and injuries used as basic knowledge in completing nursing plans and for communicating information among professionals regarding the treatment plan of each patient. In addition, nurses learned nursing management; in particular resource allocation in the ward to care for patients, decision making and problem solving while providing nursing care to patients, management of patient safety in order to take care of the lives and belongings of patients while being admitted to wards.

5.6.3 Nursing communication

From this research, it was also found that nurses learned about nursing communication. They learned techniques, systems, and methods for communicating information about illnesses and injuries, treatment plans and the results of nursing care within nursing and multidisciplinary teams (and among units and hospitals when referring patients to get further treatment) in order for patients to receive the best quality care and safest treatment possible. Nurses had to learn techniques of approaching other people, sharing information with them and communicating

appropriately to all relevant people to ensure they have the same understanding. Again, this was to make certain that patients would receive the highest quality service and care.

5.7 Recommendations

This research has revealed some important facts that can be used as basic information in making decisions about and planning the knowledge and competency required for the development of nurses in clinical practice as well as the on-going development of the nursing profession.

5.7.1 Hospital administrators

The results of this research indicated that nurses' self-directed learning was influenced and informed by various factors within the hospital setting. It was found that nurses primarily utilized learning sources within the hospital setting when engaged in self-directed learning, in particular human sources. Specifically, nurses indicated that they learned from people who were members of the multidisciplinary health professional team involved in the care of patients. Case conferences, patient rounds and shift change over are hospital practices that enable the multidisciplinary health professional team to communicate and interact with one another contributing to learning opportunities for nurses in clinical practice. Additionally, it was found that the environment of the wards and hospital significantly influenced nurses' self-directed learning. Consequently, it is recommended that the hospital devise a plan to address these factors as follows:

1. Introduce a policy and supportive plans to assist and encourage personnel of every profession in the hospital to extensively apply self-directed learning as a method of learning for their professional and self-development.
2. Set guidelines for creating an atmosphere and environment conducive to the development of self-directed learning for personnel, arranging an environment in which learners have a chance to think, analyze, experiment, and evaluate their learning results and work practices.

3. Arrange a setting for people who are interested in the same topics where they are able to share in learning together and effectively manage the knowledge learned.
4. Encourage people who are interested in the same topics to build up a network of learning so that they can connect through more channels and have access to a variety of learning methods.
5. Develop visual aids for learning and set up comprehensive, up-to-date sources of learning – for example, a library, the internet service, communications room and/or educational technology room – in order to facilitate convenience for personnel in searching for information they need for learning and self-development.
6. Build up motivation by having a reward system and honoraries for personnel who show competency in continually learning for self and professional development and who efficiently apply that knowledge in the development of quality healthcare service.

5.7.2 Nursing administrators

Nursing administrators at every level, including ward chiefs, head nurses, and nursing supervisors, play an important role in helping to encourage and facilitate continuous self-directed learning among nurses. They can efficiently plan and run projects for the self-directed learning development of nurses, such as follows:

1. Enable the necessary training and development of nurses in clinical practice to occur so that all nurses will be able to effectively engage in self-directed learning.
2. Enable the training of nurses to be ready to continually learn through self-direction in their practice.
3. Organize activities that facilitate nurses to engage in self-directed learning while they are practicing on the ward, such as doing root cause analysis for problem solving on their work.
4. Set up a list of peers and others who have particular expertise in one or more aspects of practice, and consult those individuals as needed.
5. Share one's own knowledge, skills and beliefs about practice.
6. Try new strategies in one's practice and be open about this with nurses

7. Change and experiment with one's practice based on discussions with nurses and peers
8. Question and reflect on one's practice after each shift, perhaps with the help of a journal or log
9. Request comments from others – nurses and peers – on one's practice
10. Develop a personal vision of what practice would be like in an ideal situation (without constraints) and deliberately work toward that vision
11. Set up a development plan independently of any other person's request or expectation.

5.7.3 Nurses as learners

In order to facilitate self-directed learning in nurses the following strategies are recommended for nurses as learners:

1. Develop an awareness of the learning opportunities present in the workplace.
2. Identify issues and problems that could be a focus for self-directed learning.
3. Develop an understanding of, and proficiency in, setting goals in order to prioritize learning activities.
4. Gain knowledge about the skills necessary in the self-directed learning process.
5. Develop skills in reflective practice.
6. Develop an awareness of the potential alternative methods for engaging in self-directed learning founded on previous knowledge, values, and experiences.
7. Develop an awareness of the resources available for self-directed learning.
8. Learn to evaluate their self-directed learning.
9. Create a personal professional development plan.
10. Prepare for setbacks and challenges using self-reflection and support of a network of peers.
11. Develop an attitude of self-sufficiency and greater independence in the workplace, taking into consideration the importance of working cooperatively with others, hearing their thoughts and ideas, and reflecting on their value

5.7.4 Nurse educators

Nurses who are in the position of nurse educators in hospitals have roles to encourage and facilitate and stimulate nurses to learn for self-development. Thus, they should have obvious roles in assisting nurses to have skills in self-directed learning as following:

1. Assist nurses to know the process of self-directed learning and obstacles in learning.
2. Assist nurses to understand the components of self-directed learning.
3. Assist nurses to choose the best learning methods based on their learning preference and the resources available to them.
4. Assist nurses to be aware of and understand opportunities in learning on-the-job.
5. Build positive attitudes in nurses in working towards the achievement of effective self-directed learning skills.
6. Arrange and design the environment in the ward to facilitate and stimulate nurses to engage in self-directed learning.
7. Have good relationships with nurses in clinical practice and provide time for nurses' consultation and enquiry.

5.7.5 The Ministry of Public Health

Every hospital under the supervision of the Ministry of Public Health has nurses as a big personnel group and largest number of all personnel. The results of this research indicate that nurses needed to make enquiries of other professionals for their self-directed learning. The Ministry of Public Health should facilitate and support nurses in self-directed learning for their self and professional development as follows:

1. Formulate policies and programs that encourage self-directed learning as a learning method for every health care profession so that health care professionals can choose and take responsibility for developing their knowledge and skills.

2. Support administrators and supervisors in every level to change their directing and commanding roles into suggesting and mentoring roles on self-directed learning of personnel.
3. Create a culture of motivation for learning, and information sharing inside of hospital.
4. Stimulate hospital' administrators to promote and encourage prototype people that are brave to think and dare to take a risk carefully, and also dare to do experiments for opportunities to learn new things continuously.

5.7.6 The Council of Nursing of Thailand

The Council of Nursing of Thailand is an organization whose main duty is to control and direct the practice of all nurses' practicing in Thailand, according to the standards of the nursing profession, supporting nurses in the continuous development of their knowledge and skills in nursing. The Council should have an important role in encouraging nurses to use self-directed learning as follows:

1. Promote self-directed learning as a strategy of learning for developing knowledge and competency of nurses in clinical practice.
2. Create a body of nursing knowledge both theory and practice based and share the information by using new technology for the fast transmission of information, so that information can be distributed to users quickly and timely did the research support this being the Nursing Council role
3. Encourage a create culture of learning, for example applying a system of performance appraisal that can provide feedback of fact and merit, that is transparent and accountable in order to facilitate learning and to improve performance continuously.

5.8 Limitations of the study

This study had a narrow focus, being concerned primarily with the conduct of self-directed learning of nurses in clinical practice in one general hospital of Thailand. It was conducted within the context of nursing in hospitals in Thailand and the results are therefore pertinent to

that context. However, because of the world-wide nature of the problem in continuing professional nurse development, the research may have some wider relevance. The data for the research were collected over a period of seven months and are therefore limited in that respect.

5.9 Areas for further research

Areas of further research are required in order to implement self-directed learning in the continuing professional development of nurses in clinical practice. Further research that compares self-directed learning with organized classroom-based instruction such as training, conferences, and seminars would help to determine the best methods to utilize in personnel development. Additional study into the resources used by most nurses in self-directed learning activities is essential in order to determine the resources that need to be made available for continuing professional development. In addition, research into the roles of facilitators in self-directed learning from other health care professionals would be useful in developing a broader context for self-directed learning in hospital personnel development programs, as would a study of self-directed learning models in other health care professions.

5.10 Conclusion

The findings of this research show that nurses engage in self-directed learning in clinical practice. It was found that nurses perceived self-directed learners as having four important characteristics: independence in learning, effectiveness in learning, acceptance of responsibility for learning, and an ability to use problem-solving skills.

When nurses wanted to learn about a subject, they would learn by various learning methods and search for knowledge from several varied learning sources. It was found that there were many learning methods nurses selected including basic learning skills such as observing, reading, questioning, and listening, in addition to other learning methods such as through taking study tours, conducting case studies and case conferences, problem-based learning, participating in simulations, learning by doing and nursing practice, learning from experience, learning by reflecting on one's own experience, learning by attending conferences, training, and academic

nursing seminars, and learning and working together as a network. They usually chose learning methods according to their individual preference and skills.

Moreover, it was found that nurses searched for knowledge from many learning sources in their self-directed learning. Nurses chose to learn from doctors, nurse colleagues, senior nurses, heads of wards, supervisors, pharmacists, and other personnel in the health care team, patients and relatives. In addition to traditional sources such as books, documents, and journals from library and dialogue with experts, they utilized new resources being for learning such as medical series on VCD, search engines on the Internet, and reviews of academic knowledge from interactions with members of the multidisciplinary health care professional team, and the nursing library on the ward.

Additionally, the findings indicate that the self-directed learning of nurses in clinical practice had several factors that influenced their learning either positively, as motivation and encouragement to learning, or negatively as barriers to nurses learning. These factors were human and/or non-human extrinsic factors such as the people around the nurses, the workload, limited time, budget and availability of equipment for learning media.

The findings suggest that nurse educators had key roles in assisting and facilitating nurses to self-directed learn. It was found that nurse educators played important roles in motivating and inspiring nurses to engage in self-directed learning, arranging an environment and atmosphere that facilitated self-directed learning, guiding nurses in how to choose learning methods and learning resources as well as suggesting evaluation methods for self-directed learning, each leading to more effective and efficient self-directed learning.

Nurses reported learning about patients and their illnesses or conditions, as well as various aspects of nursing practice and nursing communication. Therefore, the results of nurses' self-directed learning have impacted clinical practice in key areas. This indicates that self-directed learning is a significant method of learning for nurses in clinical practice and can be utilized for the continuing education and lifelong learning of nursing staff.

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Appendix A: The first interview questions for nurses

1. How do you define self-directed learners?
2. What are characteristics of self-directed learners?
3. Do you think that you are a self-directed learner? Why do you think that you are a self-directed learner?
4. What do you have to learn by self-directed learning while practicing in clinic?
5. What did nurses learn while practicing on wards?
6. How did you learn while practicing in clinic?
7. When you needed to self-directed learn in any topics while practicing in clinic, what were your learning processes?
8. Who participated in your self-directed learning?
9. Which incidents or activities provided fruitful learning opportunities?
10. Who assisted, encouraged, and stimulated you to self-directed learn?
11. What assisted, encouraged, and stimulated you to self-directed learn?
12. What were the problems and obstacles of your self-directed learning? How did they influence to your self-directed learning?
13. How did nurse educators' roles assist, encourage, and stimulate you to self-directed learning?

Appendix B: The first interview questions for nurse educators

1. What do you think are the characteristics of nurses who are self-directed learners?
2. How do you define self-directed learners?
3. What do you perceive the meaning to be of nurses who are self-directed learners?
4. What do you often find that nurses in clinical practice self-directed learn about?
5. How do you think nurses in clinical practice self-directed learn?
6. Which incidents or activities provided fruitful learning opportunities?
7. Who do you think assists, encourages, and stimulates nurses to self-directed learn?
8. What do you think are problems and obstacles in self-directed learning of nurses and how do they influence nurses' learning?
9. What are your roles in assisting, encouraging, and stimulating nurses to self-directed learning? How?
10. How did you motivate nurses in clinical practice to self-directed learn?

Appendix C: The second interview questions for nurses

1. How do you define self-directed learners?
2. How did you self-directed learn while practicing in clinic?
3. What were the problems and obstacles of your self-directed learning? How did they influence your self-directed learning?
4. How did nurse educators assist, encourage, and stimulate you to learn by self-directed means?

Appendix D: The second interview questions for nurse educators

1. What do you perceive to be the meaning of nurses as self-directed learners?
2. How do you think nurses in clinical practice self-directed learn?
3. What are your roles in assisting, encouraging, and stimulating nurses to self-directed learn? How?

Appendix E: An example of field notes: One ward / One participant

Attendance	Summary of field notes	Codes
<p>4 Nurses 2 Nurse aides 48 Patients</p>	<p>From 8 am to 4 pm of Monday the nineteen of December to Friday the twenty-three of December 2003, I conducted participant observation in the Male Surgical Ward. Everyday I arrived at this ward at 7.30. There were 4 nurses operating on morning shift and each of them started nursing practice. The process of learning happened in each period while working as follows:</p> <p>One nurse checked readiness and counted quantity of the important medical tools/equipment of ward. Then, readiness and quantity of each type would be confirmed to night shift's nurses.</p> <p>Another nurse checked the vital signs and neuro signs of patients with severe conditions in the ward and discussed about changing symptoms of them with night shift's nurses.</p> <p>Another nurse checked types and quantity of fluid/blood providing to each patient in the ward.</p> <p>In-charge nurse and other nurses in morning team and the Head ward began handing over between night shift and morning shift. The in-charge nurse of night shift described injured and changed condition, treatment/surgery plan included assessment of each patient in the ward one more time.</p>	<p>- Patients' health problems and dysfunction. - Assessment</p> <p>-Connecting system / Nursing communication</p>

Attendance	Summary of field notes	Codes
	<p>After handover finished, the nurse team of morning shift discussed nursing practice plan for each patient in that morning. Then the team had arranged a conference on disease/injure and how to care a case with severe and complicated for about 20 minutes. The Head ward questioned the nurse team what they had learnt from this conference. Each nurse answered how to apply what she learnt to nurse practices.</p> <p>Then each nurse performed her task separately. Some injected and provided medication for the hour; some other practiced injure dressing for patients. The other two nurses took care of suction and provided oxygen to patients by Bird's Respirators. The incharge nurse coordinated and prepared the patients for operation, x-ray, EKG, and consult with other section in case the patients' physician needed some patients with specific diseases before having had accidents to receive caring from doctors of relevant section. Besides, the incharge nurse followed the round in checking patients' conditions with doctor. It was found that nurses questioned about knowledge of disease, injure and severity condition of patients with organs' dysfunction included treatment plan, surgical plan and how patients take care of themselves from the doctor. Sometimes there were discussions between doctors and nurses on how to care specific</p>	<p>- <i>Learning by case conferences</i></p> <p>- <i>Learning by asking / reflection</i></p> <p>- <i>Nursing activities for patient care</i></p> <p>- <i>Connecting system</i></p> <p>- <i>Learning by asking</i></p>

Attendance	Summary of field notes	Codes
	<p>patients.</p> <p>Nurses assessed injure condition, vital sign and neurosign of patients periodically, every 15 minutes, 30 minutes, 1hour, or 4 hours regarding to severity of illness/injure and information in medical records. In addition, nurses had to make decision in reporting to doctor when they found patient had changed condition of vital sign, neurosign, pain and bleeding in higher or lower than standard value for the doctor to adjust treatment plan and to solve critical condition of patients. The participants informed the researcher that assessing changed condition of patient periodically and bringing up the information for reporting doctor made them learn significance of dysfunction they found for the patients received best care and safety of every system.</p> <p>At 10.00 of Monday, there were 1 doctor and 4 nurses of morning shift and the Head ward and a nutritionist. All of them would perform a ward round for 1 case by review knowledge and discussed as a multidisciplinary team that had to care patients together on the questions: 1) Have we cared this patient with our best? 2) How well have we communicated to the patient and family about knowledge of disease, injure, treatment plan and result? 3) How did we altogether plan on caring the patient continuously?</p>	<p>- <i>Assessment</i></p> <p>- <i>Management</i></p> <p>- <i>Patients' health problems and dysfunction.</i></p> <p>- <i>Learning by case study</i></p> <p>-<i>Problem-based learning</i></p>

Attendance	Summary of field notes	Codes
	<p>4) Did we have readiness of our medical tools / equipment for caring the patient? 5) Have we arranged safety environment for this patient's rehabilitation in the ward?</p> <p>6) Did the multidisciplinary team that cooperatively cared this case have enough knowledge and skills for the patient's care?</p> <p>7) Have we recorded correct and complete information of this patient; treatment plan and result in medical records of his or hers?</p> <p>After that nurses concluded together with the multidisciplinary team what was learnt in the activity of review and care this case. The important issues from this learning were typed up and copied for distribution to other nurses and multidisciplinary team.</p> <p>About nurses' normal operation each day, it was found that there were new admissions from accidents whom have had injury and blunt trauma about 5 to 12 cases averagely including the other 3 existing cases, the participant told the researcher that nurses had very high workload, causing limited time for self-directed learning; searching in the library, reading text books of nursing, searching on the Internet and researches. Exceptionally, some other days in the afternoon with less than 30 patients and not many severe cases, then she could ask for permission from the Head ward to search for knowledge and find some</p>	<p>- <i>Human resources of learning</i></p> <p>- <i>High workload</i> - <i>Time limited</i> - <i>Material resources of learning</i></p>

Attendance	Summary of field notes	Codes
	<p>textbooks she was interested to read.</p> <p>During participant observation, the researcher found that some nurses joined informal group conference in order to study and find out conclusion of work instruction in providing nursing practice to patients such as caution and prevention of Nosocomial infection, risk prevention in nursing practice that may happen to patients, quality improvement of caring patients with cerebro-vascular disease or getting result of co-learning for use in further quality improvement of caring patients.</p> <p>Patients with severe condition in critical situation had to receive Cardio-pulmonary resuscitation: CPR for rescue their lives back to normal and able to wear respirator again, nurse team would bring the success or failure happened for their discussion in the group on what had happened. Were the tools/equipment and emergency medication ready? If this kind of incident happens again, what do we have to improve? What we have already done a good job; we would conclude it as our knowledge.</p> <p>Besides, nurses also performed activity of peer review between nurse team of which was representative from each ward in presenting nursing practice in performing suction for patients, retain foley's catheter, how to provide IV fluid for patients with safety and no infection, and</p>	<p>- <i>Learning by co-working as a network</i></p> <p>- <i>Learning by reflection</i></p> <p>- <i>Learning from experience</i></p> <p>- <i>Human resources of learning</i></p>

Attendance	Summary of field notes	Codes
	<p>cooperate in finding for nursing best practice in these nursing activities and follow the same guideline.</p> <p>Nurse supervisor visited ward once a day for about 15 to 30 minutes and together with the Head ward, she would tell nurse educator about the points all nurses should have been developed on their knowledge and ability for planning further nurse profession improvement.</p> <p>When patients recovered and some were discharged, the patients and families would ask about how to care their health and continuous treatment plan with nurses rather with physicians. The physicians had informed the patients such information, but they could not remember all of it and had no chance to ask for more details. So, they asked nurses instead. Nurses told the researcher they needed to develop their knowledge continuously.</p> <p>This ward had a small library where it could be a conference room also. The library had textbooks in nursing, researches, medical textbooks, and nursing journals on caring surgical patients. There were some tables and chairs. The participant said she had very little chance to read them because of time limit. So, she brought some back home to read. Sometimes she needed to search for knowledge of medication or some nursing practices of which rarely performed, she</p>	<p>- <i>Human resources of learning</i></p> <p>- <i>Encouraged and supported learning</i></p> <p>- <i>Teaching and giving suggestions</i></p> <p>- <i>Material resources of learning</i></p>

Attendance	Summary of field notes	Codes
	<p>could grab what she needed here. She said it would be very useful to have modern and updated information kept inside the ward. The participant said that if the library were air-conditioned and quiet and clean, she would like to sit and read when she had free time.</p>	

Appendix F: An example of codes and categories of self-directed learning

Codes	Categories
<ul style="list-style-type: none"> - Independent learner - Self learning 	<ul style="list-style-type: none"> - Independence in learning - The effective learner - The acceptance of responsibility for learning - The ability to use problem solving skills
<ul style="list-style-type: none"> - Patients' health problems and dysfunction - Patients as individuals - Nursing activities for patient care - Teaching and giving suggestions - Assessment - Management - Connecting systems 	<ul style="list-style-type: none"> - Patients - Nursing practice - Nursing communication
<ul style="list-style-type: none"> - Learning by observation - Learning by reading - Learning by listening - Learning by asking - Learning by study tour - Learning by case studies / case conferences - Problem-based learning - Learning by doing and nursing practice 	<ul style="list-style-type: none"> - Methods of learning

Codes	Categories
<ul style="list-style-type: none"> - Learning from experience - Learning by reflection on one's own experience - Learning by attending conferences, Training, and academic nursing seminars - Learning and co-working as a network 	
<ul style="list-style-type: none"> - Human resources for learning - Material resources for learning 	<ul style="list-style-type: none"> - Sources of learning
<ul style="list-style-type: none"> - Human factors that influenced self-directed learning - Non-human factors that influenced self-directed learning 	<ul style="list-style-type: none"> - Factors that influenced self-directed learning
<ul style="list-style-type: none"> - Encouraged and supported learning - Create learning environment - Suggested learning methods - Suggest and support learning sources 	<ul style="list-style-type: none"> - Roles of nurse educators