UNDERSTANDING THE CONTINUING PROFESSIONAL EDUCATION NEEDS AMONG MALAYSIAN NURSES AND THEIR READINESS FOR E-LEARNING

Submitted by

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Declaration

This thesis contains no material that has been accepted for the award of any other degree or diploma in any educational institution and , to the best of knowledge and belief, it contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

Signed: _____

Date : _____

Ethical Approval

The research for this thesis received the approval of the Monash University Standing Committee for Ethical Research on Humans

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List of Abbreviations

AAHE	American Association Of Higher Education
ALN	Asynchronous Learning Network
AMIS	Management Information Systems
ANA	American Nurses Association
ANC	Australian Nursing Council
AONE	American Organisation Of Nurse Executives
APC	Annual Practicing Certificates
ATC	Attitudes Toward Computers
BI	Behavioural Intention
BSN	Bachelor Of Science In Nursing
CCAC	Community Care Access Centre
CNE	Continuing Nursing Education
CPD	Continuous Professional Development
CPE	Continuing Professional Education
CSI	Current Student Inventory
CVI	Content Validity Index
EEUWIN	Evaluating Educational Uses of The Web In Nursing
FGD	Focus Group Discussion
MCPE	Mandatory Continuing Professional Education
ICT	Information Communication Technologies
ICN	International Council Of Nurses
MOH	Ministry Of Health
MOHM	Ministry Of Health Malaysia

MNA	Malaysia Nursing Association
MUHREC	Monash University Human Research Ethics Committee
NHS	National Health Service
NMBM	Nursing And Midwifery Board Malaysia
OLSI	Online Learner Support Instrument
OT	Operation Theatre
PHN	Public Health Nurse
PREP	Post Registration Education And Practice
SCIE	Social Care Institute For Excellence
SDL	Self-Directed Learning
SDLR	Self-Directed Learning Readiness
SDLRS	Self-Directed Learning Readiness Scale
TAM	Technology Acceptance Model
TPC	Temporary Practicing Certificates
VLE	Virtual Learning Environment
WBL	Web Based Learning
WHMIS	Workplace Hazardous Materials Information System

Abstract

Background:

Globalisation and the rapid advancement in scientific and information communication technology require health care providers to constantly update their knowledge thus ensuring currency. Nurses are the largest workforce in the health care system and are required to participate in continuing professional education (CPE) to maintain their competency and meet the standards of the profession. The Nurses and Midwifery Board of Malaysia has legislated for mandatory CPE and now requires all nurses to provide evidence of having completed 25 credit points of approved CPE each year as part of the licensure process. However, despite this requirement, many nurses are not able to participate in CPE for a range of reasons including an inability to access educational opportunities because they neither have time nor financial capacity nor are geographically isolated. E-learning programs may be an option to enhance learning opportunities for nurses as through e-learning nurses can learn in their own time and at their own pace to keep up to date with contemporary technology

Aim

The study consisted of two phases. Phase 1 was a survey of Malaysian nurses CPE practice, and Phase 2 surveyed nurses with regard to their readiness for e-learning. The aims of this study were to determine 1. The practice of CPE among Malaysian nurses and 2.Their readiness towards e-learning.

Design and Methods

A cross sectional descriptive study was used in both surveys. For the CPE survey, multistage cluster sampling was used to recruit the sample. 1000 registered nurses were selected randomly from 12 hospitals and four health district offices from four states of Peninsular Malaysia. Subsequently, in the second survey, random sampling was used to draw from the pool of nurses from the first survey who had agreed to participate in the follow up. 300 samples individuals recruited for this final stage. Self-reports questionnaires were used to collect data for both phases. Likert scale rating from 1 to 5(1 representing not at all to 5representing a great deal) was used for factors affecting CPE, factors affecting e-learning, attitude towards e-learning and self-directed learning readiness

Results

The response rate was high with 79% (792/1000) returning the Phase 1 questionnaire and 100% (300/300) of the sample participating in the Phase 2 survey. Eighty percent (n=562) of the nurses had engaged in CPE activities within the last 12 months. The most popular form of attendance was workshops (345, 43.6%) followed by conferences (323, 40.8%), and the least attractive activity was undertaking a tertiary education program of study (10, 1.3%). The most important motivation factors for participation were, 'to give quality care to patients' (mean= 4.39) and to update their knowledge (mean=4.34). The major factors impeding respondents' participation were work commitments (mean=3.54) and domestic responsibilities (mean=3.42). In terms of e-learning readiness, the majority of the respondents (289, 96%) had experience in using a computer. Eighty five percent (85%) of the respondents had access to the internet and 71% of them had internet

connection at home. Eighty seven percent of those with internet connection were using high speed internet (ADSL). About three quarters (72%) used a computer for more than 2 hours per week. The three main factors that deterred them from e-learning were limited time (mean =3.42), lack of support from supervisor and limited understanding about network systems (LAN, internet and intranet) (mean =3.27). However 86% of the nurses who had not experienced any e-learning were very interested in engaging in e-learning in the future. Respondents' attitude towards e-learning were good with a mean score 3.87. Eighty seven percent of the respondents had scored more than 150 for SDLRS which mean the nurses were ready for e-learning.

Conclusion

Implementation of Mandatory Continuing Professional Education (MCPE) is considered to be an important measure to increase nurses' participation in CPE however the findings from this study indicate that policy makers should review the continuing professional development system to ensure accessibility of relevant CPE activities to all nurses. Respondents in this study indicate that they are ready to learn on-line, suggesting that e-learning options will increase the accessibility of CPE. A number of recommendations are proposed to enhance the quality and uptake of e-learning in Malaysia.

CHAPTER 1

INTRODUCTION

1.1 Introduction

Nurses are the largest group of health professionals in most health care systems. As the health care environment has changed so too has the practice of nurses. Pre-service and postgraduate education has been modified to accommodate new knowledge, introduce advanced technology and increase the diversity of nurses' scope of practice. As a regulated profession, nurses are required to continually update their knowledge and skills through continuing professional education (CPE) to ensure practice currency in order to deliver best practice. CPE is universally recognized by all professions as a primary method for meeting professional education expectations. Levett-Jones (2005) asserts that health care consumers are demanding that nursing is a knowledge based profession and that nurses have a high level of clinical competence and technological expertise.

The nursing profession needs to accept this challenge. It has been argued that a nurse's basic preparation for practice becomes obsolete within ten years of graduation (Beatty, 2001). Therefore, it is incumbent and indeed essential that all licensed nurse practitioners up-skill continuously. Failing to maintain currency of practice leads to poor performance and a decline in confidence and competence: a situation that directly impacts on quality of care and health outcomes (Beatty, 2001). Upenieks (2002) suggested that one method to reduce these negative outcomes is to provide nurses with continuing professional educational opportunities. In fact, an increasing number of professional nursing regulatory authorities have mandated

compulsory continuing nursing education (CNE)as a requirement for re- licensure e.g. the United Kingdom (Nursing and Midwifery Council, 2004; Yoder-Wise, 2008), Australia (ANMAC, 2012) and Malaysia (Nursing and Midwifery Board Malaysia, 2008a, 2008b; Nursing Board Malaysia, 1998). In the USA there are at least 32 states that have passed legislation requiring nurses to demonstrate CNE in order to be granted re-licensure (Modern Medicine, 2008).Nursing Boards of other countries, such as Hong Kong and Japan, are seriously considering CPE as a compulsive requirement for issuing annual practicing certificates (Kersaitis, 1997; Lee, Tiwari, Choi, Yuen, and Wong, 2005).

The Nursing and Midwifery Board of Malaysia (NMBM) (2008a) understands that providing optimal health care requires a dynamic response to societal and environmental changes, globalization, and advancements in information and communication technologies; and demands that Malaysian nurses keep up to date with current knowledge through CPE. Moreover, the NMBM is aware of the need for nurses to be more accountable and to take on greater responsibilities that require higher level thinking and performance. It is clear that CPE plays an important role in improving nursing practice. Being a professional involves internal as well external monitoring of performance. Unfortunately, the culture of CPE among nurses is not strong when compared to other professional groups (Hamilton, 1996). Hence, it is timely for Malaysian nurses to accept greater responsibility for their own learning needs.

Actively participating in CPE can assist nurses to improve their knowledge and skills as well as practice competency. However, accessing and participating in CPE can be difficult for some nurses, particularly those who may be isolated from education providers. Many factors can deter nurses from participating in CPE; for

example time constraints, geographical factors, lack of suitable courses on offer, financial constraints and heavy work schedules due to the acute shortage of nurses (Edwards, Hui, and Xin, 2001; Levett-Jones, 2005; Muthu, 2006). Most CPE programs and activities are offered face to face but one strategy for overcoming the deterrents, and thus increasing participation rates, is to offer CPE programs and activities by e-learning which are easily accessible, convenient and available anywhere and at any time. As noted by Sit, Chung, Chow and Wong(2005), the application of information technology such as online or e-learning will play an important role in overcoming the weakness inherent in traditional classroom teaching such as lack of flexibility in terms of resources, space and time. It has also been suggested that CPE by e-learning may provide nurses with a richer educational experience and better meet their professional learning needs (Bentley, Cook, Davis, Murphy, and Berding, 2003). Therefore, it is not surprising that CPE by e-learning for nurses is increasing in popularity in the United Kingdom, USA and Australia (Billings and Kowalski, 2007; Farrell and McGrath, 2001; Glen and Moule, 2006).

In Malaysia relatively few e-learning CPE programs are available to nurses, although there are at least two universities that offer hybrid post registration programs that include virtual and face to face learning (Malaysia Allied Health Sciences Academy, 2006; Open University Malaysia, 2008). Providing other forms of CPE, such as short courses, by e-learning is still new in Malaysia.

The primary purpose of this thesis is to identify the potential of CPE offered through e-learning to increase CPE participation rates of Malaysian nurses. To achieve this objective the first step was to survey the current CPE practices of registered nurses in Malaysia and then determine Malaysian nurses' interest in and readiness to participate in CPE if offered in e-learning mode.

1.2 Background to the Study

The following sections provide background to the study. To better understand the context in which the project was conducted, and thus the interpretation of findings, it is important to give a descriptive overview of Malaysia, the Malaysian health care system, and Malaysian nursing.

1.2.1 Malaysia. Malaysia is a rapidly developing southeast Asian country that consists of two geographic regions divided by the South China Sea: Peninsula Malaysia (or Western Malaysia) which is located south of Thailand, east of Sumatra, and north of Singapore; and Borneo Malaysia (or Eastern Malaysia) which incorporates the northern one third of Borneo (excluding Brunei) and borders with Indonesia to the south (see Figure 1.1. for map of Malaysia). The total land mass of Malaysia is 329,847 square kilometres. Malaysia became an independent federation in 1957 which included 13 states and three territories, with 11 states and two territories in Peninsula Malaysia (States: Johor, Kedah, Kelantan, Malacca, Negeri Sembilan, Pahang, Perak, Perlis, Penang, Selangor and Terengganu; Federal Territories: Kuala Lumpur and Putrajaya); and two states and one territory in Eastern Malaysia (States: Sabah and Sarawak, and the Federal territory of Labuan). Kuala Lumpur is the capital and largest city of Malaysia, while Putrajaya is the centre of government executive and judicial functions. Nevertheless Kuala Lumpur remains the seat of the Malaysian Parliament. Both cities are located in Peninsula Malaysia.

Figure 1.1.Map of Malaysia

The population of Malaysia, which stands at 28.3 million, represents a rich ethnic mix of Malays (50%), Chinese (24%), indigenous groups (11%), Indian (7 %), and other groups (7%) which include non-Malaysian citizens. The majority of the population live in Peninsular Malaysia (79.2%). The principal religions of Malaysia are Islam (60 %), Buddhism (20%), Christianity (10%), Hinduism (6%) and others (2.6%) e.g. Confucianism, Taoism. The national language of Malaysia is Bahasa Melayu, and English is used widely in many areas and serves as the medium for instruction in all public schools and universities (Malaysian Government Statistics Department, 2010). Many other languages are spoken by different ethnic groups throughout the Federation e.g. Chinese, Indian, Iban and Dusunic.

1.2.2 The Malaysian health care system. Malaysia offers a comprehensive dual healthcare system: the Government run public healthcare system administered by the Ministry of Health, and a co-existing private healthcare system. Health care remains a priority concern under the *Tenth Malaysia Plan* (2011-2015) (Government of Malaysia, 2011). The present health policy places great emphasis on health promotion, disease prevention, affordable healthcare, and on meeting the health needs of the rural and urban poor populations. The increase in the aging population has prompted the Government to improve areas within the healthcare system, including the refurbishment of existing hospitals, building and equipping new hospitals, increasing the number of polyclinics, and improving the recruitment and training of healthcare professionals.

Public health services provided by the Ministry of Health include primary, secondary, tertiary and rehabilitative care delivered through an extensive network of 128 hospitals and 2987 health clinics. Public sector hospitals include district hospitals of between 100 and 200 beds, state general hospitals with 500 to 1500 beds, the National Referral Centre located in Kuala Lumpur (2,800 beds), and special medical institutions: the National Tuberculosis Centre, the Hospital for Leprosy, and five mental hospitals. Health clinics provide primary health services for populations in the urban suburbs and rural areas, offering emergency care, maternal and child health services, school health, aged/disability care, and health promotion programs. All public inpatient and outpatient services are heavily subsidised by the Government. The private health care system compliments the services provided by the Ministry of Health and tend to focus on curative care that is offered through 150 private hospitals, and more than 5,000 general practitioner and

specialist medical clinics. The majority of the private hospitals are located in urban areas and are well equipped with the latest diagnostic and imaging facilities.

1.2.3 Malaysian nursing. As in other countries, Malaysian nurses constitute the greater proportion of the health professional workforce with a total of 78, 484 nurses registered to practice (Lindseth, 1997), of which 70% work in the public health sector. The ratio of registered nurses to the resident population in 2007 was 1:556 which was relatively large compared to other countries for example United Kingdom ratio which had a of 1:100 and Australia with a ratio of 1: 104 from 2005 to 2010 (WHO, 2012).The Malaysian Government is striving to bring the ratio down to 1:200 by the year 2015 in line with some neighbouring countries Ministry of Health Malaysia (2008). The Government also recognizes the importance of nursing and has given more attention to the recruitment and retention of nurses as indicated by the allocation of RM70 million to train 5600 nurses under public nursing colleges and 2000 in private colleges (Barnett, Namasivayam, and Narudin, 2010).

The principal nursing body in Malaysia is the Malaysia Nursing Board (MNB) which enacts legislation to regulate the practice and educatioin of nurses. In performing this role the MNB is responsible for maintaining a register of all nurse categories; issue annual practicing certificates (APC) for local nurses, and temporary practicing certificates (TPC) for foreign nurses to work in Malaysia; and receive and handle complaints in both the public and private health sectors . The MNB also accredits all nursing course curricula, monitors the appropriateness and adequacy of learning facilities for students, and provides CPE opportunities for all Malaysian registered nurses (Malaysia Nursing Board, 2011).

The main professional nursing body in Malaysia is the Malaysian Nurses Association (MNA) which promotes the image of the nursing profession in Malaysia and acts as the centre for national and international nursing networking. The MNB is also an affiliated member of the International Council of Nurses and the Commonwealth Nurses Federation (Malaysian Nurses Association, 2011).

To practice as a registered nurse in Malaysia requires the successful completion of a MNB accredited 3 year Diploma of Nursing program provided by hospital affiliated nursing colleges, or a 4 year Bachelor of Nursing degree offered by a number of public and private universities. Previously, Malaysian nurses qualified for registration by completing a three year hospital-based nursing certificate. Since 1992 registered nurses have been able to upgrade their nursing certificate to a diploma level qualification. Once nurses have completed the Diploma of Nursing they can go on and do an Advanced Diploma course of 6 to 12 months that focuses on particular nursing specialties such as critical care nursing, orthopaedic nursing and midwifery. Since 2001, nurses with an Advanced Diploma can upgrade their nursing qualifications by completing a 2 year conversion degree program. Currently, there are 56 nursing colleges (43 attached to a public hospital and 13 to a private hospital), nine universities with medical faculties that offer nursing programs, and 11 private international nursing colleges which have been accredited by the National Accreditation Board to offer pre-registration nursing programs ("Malaysia has 75,000 registered nurses in the public and private sector," 2011).

In addition to undergraduate programs, three public universities offer Malaysian nurses Master's level education. These programs take two years to complete full time and a maximum 4 years part time. These programs are designed

to prepare nurses for specialist practice and leadership roles (Harvey, 2003; Lembaga Jururawat Malaysian, 2005). Doctorate programs have yet to be established in the public university sector, however a small number of private university colleges offer doctoral programs in collaboration with overseas universities. The trend for Malaysia has been to undertake PhD studies abroad.

1.2.4 Continuing Professional Education for Nurses.

1.2.4.1 What Is Continuing Professional Education? How CPE is defined varies from one author to the next. For example the American Nurses Association (1994) broadly defined professional nursing education as "... the lifelong process of active participation in learning activities to enhance professional practice" (p.5). Likewise, the American Nurses Credentialing Centre's Commmission(n.d.) defines continuing education as "systematic professional learning experience designed to augment the knowledge, skills and attitudes of nurses' contributions to quality health care and their pursuit of professional career goals". The ICN's definition (as cited in Mackereth, 1989) is a little more specific, stating that CPE is "a planned learning experience beyond basic nursing education programs that is designed to promote the development of knowledge, skills and attitudes for the enhancement of nursing practice, thus improving the health of populations" (p. 777). Levett-Jones (2005) also saw CPE as the means by which nurses can maintain currency of practice, and can cover a wide range of activities and programs that include formal postgraduate programs, short courses and on-the-job training. The key elements within these definitions of CPE are; professional education activities and programs that builds upon nurses' basic education and training; are designed to upgrade nursing

knowledge and skills, with the primary aim of providing high quality nursing services.

Several Asian countries have defined CPE for nurses. For example the Hong Kong Cluster Nursing Committee (2004) stated CPE as "any post-registration/post enrolment educational skill or experience that results in updating knowledge and/or skills which is nursing specific or heath care related, and which aims to enrich the nurses' contribution to quality health care and their pursuit of professional goals" cited by Lai (2006). The Nursing and Midwifery Board of Malaysia (NMBM, 2008a), on the other hand defined CPE as "a process of lifelong learning aimed at meeting patients' needs and improving health outcomes by systemic improvement and broadening of knowledge, understanding and skills, and the development of personal qualities necessary for the execution of professional duties, including the acquisition of new roles and responsibilities" (p. 1). Furthermore, the MNMB gives serious consideration to equity of access to CPE for nurses, the relevance of CPE to practice, and the integration of new knowledge into practice. To this end the NBM have developed guidelines and recommendations on CPD programmes for Malaysian nurses.

1.2.4.2 Classification of CPE activities and programmes. CPE involves a wide range of formal and informal activities that can be offered by a variety of educational methods (Barriball, 1996; Harper, 2000; Ryan, 2003). Formal learning activities include post graduate programs (e.g. post-registration degrees, graduate certificates and diplomas) which can lead to a further nursing qualification; short courses and seminar series provided by nursing colleges and universities; and the many in-service training programs offered by employers. Other activities recognised

as CPE are conference attendance that may include presenting a paper, and participating in scheduled workshops.

Less formal CPE activities include reading journals and research papers, attending professional meetings, and private study. It has been suggested that ward-based experiential learning (Murphy, Cross, and McGuire, 2006) and on- the - job training (Levett-Jones, 2005) also constitute CPE. The other claim is that educational activities offered by other professional groups such as doctors and paramedics are acceptable CPE for nurses (Furze and Pearcey, 1999) as many of the topics are relevant to nursing practice and professional development. These activities have the added benefit in promoting greater inter-professional and multidisciplinary practice which is a reality of contemporary health care. Therefore, shared learning is useful in preparing health professionals, including nurses, to work collegially in inter-professional teams. Of note is that the majority of CPE activities are offered face-to face (Curran, Kirby, and Fleet, 2006; Doyle, 2006; Lai, 2006; Lee, 2006).

The Nursing and Midwifery Board, Malaysia (2008a) has formulated a comprehensive list of CPE activities for nurses. This list includes undertaking post-basic degree, diploma or master studies; attending and presenting at nursing congresses or conferences; workshops and short courses; lectures and clinic attendances. Each activity is awarded credit points by the NMBM toward re-licensure.

1.2.4.3 Benefits of CPE.CPE has long been recognised to be beneficial to nursing practice. Engaging in CPE provides a method to update knowledge, create greater awareness of professional issues, improve practice competence, and results in higher quality nursing care. As noted by Pathan (2008), nurses who participate in CPE show improvements in their knowledge and the care they provide. Similarly, Muthu (2006) maintained that CPE can help raise standards of care and facilitate nurses to become more creative, innovative and empowered in the delivery of care to clients. The benefits of pursuing post- registration nursing education have been reported in Poon's 1992 survey of Hong Kong nurses (Poon 1992 cited in Lai, 2006). Positive outcomes included improved quality of patient care, reduced hospital stays, and improved public recognition of nurses, and greater parity between nurses and other health professionals in terms of remuneration. Yfantis, Thniakou and Yfanti (2010) also asserted that knowledge acquisition through CPE increased nurses' confidence and their ability to plan their nursing care. Nurses' participation in CPE not only results in improved patient care, but can reduce health care costs (Pathan, 2008) and lower the risk of litigation among nurses and employers (Beatty, 2001; Glass and Todd-Atkinson, 1999; Levett-Jones, 2005; Yfantis et al., 2010).

Even though most authors agree that CPE is beneficial to the nursing profession, there are a number of limitations. According to Hegney, Tuckett, Parker, and Robert, (2010) commitment to continuing professional education requires enormous effort, is time consuming and costly. Taking the time and effort to participate in CPE activities can be stressful, especially for those with family commitments (Gould, Drey, and Berridge, 2007). Inequitable access to CPE can also cause dissatisfaction among nurses , with nurses who work part-time or night duty

having less chance to attend continuing education programs compared with nurses who are full-time and work day shifts (Gould et al., 2007; Penz et al., 2007). The other limitation with CPE is the cost for employing organisations to provide in-service education and other CPE activities, and the significant costs in releasing staff to undertake post-registration courses. For instance, in the UK it was estimated that 800,000 working days are lost to study leave annually. The cost of introducing the Post Registration Education and Practice (PREP) initiative in the UK was also estimated at £50-100 million per year (Barriball, While, and Norman, 1992).

1.2.5 E-learning in CPE

1.2.5.1 Definition of e-learning. E-learning is a form of distance education and is used interchangeably with such terms as on-line learning, web –based instruction, IT learning, internet education and advanced distributed learning (Chadha and Kumail, 2002). Specifically, e-learning is a learning method assisted by electronic technologies such as the internet, on-line discussion forums, videos and CD-ROMS (A. Wilkinson, Forbes, Bloomfield, & Gee, 2004).

1.2.5.2 Type of e-learning. Bates (2001 as cited in Glen and Moule, 2006) has suggested a continuum of e-learning approaches that ranges from web based strategies that compliment face-to-face teaching to fully web based programs. E-learning has also been classified according to mode of delivery: asynchronous and synchronous e-learning. Asynchronous e-learning is where the facilitator's contribution to learning is temporally static, the learner interacts with pre-recorded information, and feedback on learning from the facilitator provided electronically.

(Moule, 2006) With synchronous e-learning the learner interacts directly with the facilitator and other learners using a variety of on-line strategies such as real time chat-rooms, online dialogue, web-based seminars (Piskurich, 2003) and virtual classrooms (Moule, 2006).

1.2.5.3 Advantages of e-learning. With the world-wide web (www) becoming more accessible to individuals at home and at work, CPE by e-learning has become a more attractive option that has advantages over the traditional face-to-face approach for both learners and CPE providers (Billings and Rowles, 2001). For learners, the major advantage of e-learning is that it offers a more flexible and convenient approach in terms of time, place and learning method; particularly for nurses with complex work schedules and limited time. Other advantages are that rapid learners have access to the latest information and the opportunity to network with other students and share knowledge via on-line forums or face book (Aris, 2008; Articulate Network, 2010). Anders, et al. (2008) also point out that e-learning fosters self-directed learning and the development of lifelong learning skills.

Kruse (2004) claimed that the most significant advantage of e-learning for the educator or organization is financial gain. E-learning is considered more cost effective than the traditional face-to-face method in terms of instructors' salaries, meeting room rentals and student travel and associated costs. Brandon (1997, as cited by Kruse, 2004) also found that e-learning can reduce learning time by an average of 40 to 60%. The flexibility and convenience of e-learning is also an advantage as it enables education and health institutions to provide training and

critical information to learners at multiple locations (Abas, Shamsuddin, and Phua, 2003) , and allow nurses to enrol for courses on their own time (Irving, Irving, and Sutherland, 2007).

E-learning is not without limitations and cannot replace the personal interaction with instructors and other learners associated with face-to-face methods (Kruse, 2004). To be effective, e-learning activities and programs require learners to be ICT literate and to have computers, software packages and access to infrastructure support that is available, accessible, affordable and functional. Some of these requirements cost money. For example, learners may need to purchase or rent new computer equipment and subscribe to internet services which may be costly, especially in developing and underdeveloped countries. Another limitation noted by Kruse (2004) is that some CPE topics may not be appropriate for e-learning such as activities involving psychomotor skills (e.g. advanced nursing skills and counselling techniques).

1.2.6 CPE and e-learning for Malaysian nurses. Malaysia is moving rapidly towards achieving developed world status. Therefore it is essential that Malaysian healthcare services continue to progress to ensure the highest possible standard. As an integral part of the health care system, nurses must keep pace with innovative developments through on-going professional education. In line with this goal, the Malaysian Nurses Board has introduced a number of initiatives to increase nurses' participation in CPE. Of note is the provision of guidelines for CPE providers and the introduction of mandatory CPE (Nursing and Midwifery Board Malaysia, 2008a, 2008b). Hospitals also have in place a number of CPE strategies

such as professional development units to monitor the CPE activities; CPE as a component of staff performance appraisals, and day release for staff to attend conferences and workshops (Hospital Kuala Lumpur, n.d.; Selayang Hospital, 2007; University of Malaya Medical Centre, 2008).

Despite these initiatives, Malaysian nurses have been reluctant and/or unable to participate in CPE due to the shortage of nurses and heavy work schedules that make it difficult for them to obtain release from their workplace to undertake CPE activities. Nurses have also commented that there are few nursing specific CPE opportunities offered in Malaysia that do not require financial support (Muthu, 2006). One strategy that may alleviate some of these difficulties, and thus increase CPE participation rates is to offer CPE activities and programs by e-learning: an approach that is in line with the Ninth Malaysian Plan (Government of Malaysia, 2006) and the National Information Technology Agenda (Government of Malaysia, 2006) that emphasises the importance of life-long learning and web-based education and training within the health care system (Government of Malaysia, 2006). The Ministry of Health has established the National Health Informatics Centre that links public and private health facilities to monitor health information, and TeleHealth to enable the sharing of health records and health care plans. Nurses involved in these initiatives have the opportunity to participate in the development and delivery of ICT health care and to acquire the prerequisite skills to benefit from CPE offered by e-learning.

Although e-learning programmes in Malaysia are well established for a number of disciplines (e.g. science, mathematics and computer technology), they are lacking in many of the applied disciplines such as medicine, nursing and veterinary science (Aris, 2008). In the field of nursing, only post-registration degree programs

use on-line learning as the modality for program delivery. However, data indicates that less than 5% of Malaysian nurses benefit from these programmes (Burchum et al., 2007). It could be that nurses need more exposure to alternative methods of CPE to further develop their IT confidence and skills. The suggestion offered by Bond (2004) is to include IT literacy studies within pre-service nursing education programs.

It is evident that CPE by e-learning for Malaysian nurses is in its infancy and that many factors need to be considered to ensure learning packages meet professional educational needs and student expectations. These factors include nurses readiness for e-learning, infrastructure support, organizational CPE policy and costs (Billings and Rowles, 2001; Dolores, Yvonne, and Deborah, 2001). Hence the purpose of this thesis is to investigate the current CPE practices of Malaysian registered nurses and to determine interest and readiness to participate in CPE activities and programs if offered in e-learning mode.

1.3 Structure of the Study

This study consists of six chapters. Each chapter describes and critically explores the CPE practice of Malaysian nurses and assesses the readiness of nurses in participating in e-learning.

The introductory chapter describes the overview of this study, by defining the meaning of CPE followed by a brief description of e-learning and the issues related to CPE and e-learning in Malaysia.

Chapter two includes a critical review of issues in CPE. This chapter also explores e-learning in nursing globally and the readiness of Malaysian Nurses in engaging e-learning.

Chapter three which presents the conceptual framework, study objectives and concluded with a discussion of the significance of this study to nursing in Malaysia.

Chapter four reports on phase one of this study, the survey of CPE practice among Malaysia nurses. This chapter elaborates on the methodology, study design, development of tool, the ethical procedure, data collection, data analysis, finding of the survey and is followed by discussion and summary.

Chapter five reports the phase two survey on the readiness of nurses towards e-learning, their attitude towards e-learning and self-directed readiness to participate in e-learning. The flow of this chapter is similar to chapter four.

Chapter six discusses the overall implications of this study to Malaysian nursing, with recommendations to improve the continuing professional education for Malaysian nurses followed by a conclusion.

1.4 Researcher's Background

The researcher has been practicing nursing for more than 20 years and is passionate about this profession of nursing, a profession she never imagined to be part of her life. When she was in school she always wanted to be an accountant or teacher. Teaching had always been considered as a perfect job for the female and to have a higher status than nursing. Nursing on the other hand was perceived to be low in status and a 'dirty job' by society. Growing up in an environment with this view naturally led to a disinterest in nursing.

The calling to be a nurse came to her when her late father was diagnosed with liver cirrhosis and later succumbed from cancer of the liver. During his hospitalisation, her mother who was with four school aged children would not have endured the hardship of taking care of her father without the 'angelic' nurses' assistance. The researcher respected their caring attitude and was inspired by their passion in the nursing profession. Following this experience she changed her perception towards nursing and enrolled in a Diploma of Nursing despite strong objections from her family. The three year diploma programme was a lonely journey for her because there was no support from her family. She believes that her determination to become a nurse has made her a better person who has more patience, vigilance and compassion. Being a nurse also offered the opportunity to be a lifelong learner.

She understands that it is her own responsibility to upgrade herself, not only to improve her own nursing skills, but for the sake of the nursing profession. In order to improve the nursing profession she must be a person who is knowledgeable and able to influence others. She registered for a midwifery course two years following her graduation. Upon her graduation she was posted to a health clinic

giving service to mothers and children. She was proud to be able to educate mothers and the community with the knowledge she had gained. This positive experience encouraged her to pursue higher education in nursing in order to help more people. She then continued her professional education to pursue a Bachelor of Nursing Sciences for two years. She was part of the pioneer group of students doing a degree in nursing in Malaysia. Following her graduation she was appointed as a nurse's educator in a Teaching Hospital. She began teaching using the conventional teaching methodology with minimum application of information technology. It was difficult to maintain the students' attention with classes made up of hundreds of students. The situation became worse when teaching nursing skills as the classes needed to be split to smaller classes. It was extremely time consuming and not cost effective. Things improved with the availability of electronic teaching aids such as the video tape, CD Rom and power point presentations. The researcher appreciated the discovery of the powerful IT technology.

The researcher continued to study her Master's degree while teaching the diploma programme. She did a full thesis on a part time basis. Hence, it was solely a face to face course plus occasional communication with supervisor through e-mail. She encountered many problems in juggling her own teaching hours and attending lectures. Apart from the cancellation of lectures without early notification, she also needed to sacrifice her annual leave and days off for classes or to meet her supervisors. She took five years to complete her Master's programme due to the problems encountered during these courses. During the course of her study, she was exposed to the internet. She searched for information via the internet, although it was not as advanced or interactive as that of today. She also picked up skills in power points for presentations. She initiated using power points to teach in the

Diploma Programme. Students became more alert and interested in learning. Since then the researcher has been interested in ICT. Her skills in ICT, however, were limited.

Her interests in ICT continued to grow when she taught the nursing degree programme. She was assigned to a group of students who were studying teaching methodology. She emphasized on the use of ICT such as video click and hyperlink in developing their teaching tools. Her students continually received positive comments from the institution they were attached to during their teaching practicum. This experience inspired the researcher to learn more about ICT.

The researcher's positive experience teaching Degree nursing students online with Open University Malaysia further increased her desire to learn more about it. She felt the interaction with students was good, especially the ability to communicate with introvert students who were shy to express themselves in front of a class. Students were more willing to share their information online and it seemed that they could develop their writing skills even better.

On top of the researcher's experience in teaching methodology, teaching the course on professionalism in nursing also inspired her to promote professionalism by example. One way of striving for professionalism in the Malaysian Nursing circle is to improve nursing education. All nurses should have a degree in nursing before they can demand professional status. Hence, nurses must continually increase their knowledge by continuing professional education. The researcher is very confident that with her research findings she will be able to change nursing education in Malaysia, bringing it to greater heights and thus gaining professional status for nurses.

1.5 Summary

It has been accepted globally that CPE for nurses is crucial to improve nursing practice so as to bring about quality patient care. However, the debates re compulsory or mandatory CPE are still controversial. Many developed countries such as the United States, the United Kingdom and Australia have advocated and implemented MCPE for nurses. Nurses are required to attend a defined amount of CPE to enable them to re-register for their practice annually. The wave of CPE has been transmitted to other developing countries such as Hong Kong, China, Taiwan and more recently, Malaysia. What are the measures that can be taken to ensure nurses achieve their minimum requirement of CPE activities? It would not be possible to fulfil these achievements if the organisations rely solely on the traditional way of disseminating information. In the era of e-economic, information and ICT is changing rapidly. In order to keep up-to date with the latest knowledge and technology in health care services, health care professionals must embrace themselves with ICT skills. Acquiring ICT skills would allow them to have greater access to information, any way and any time. In view of the importance of ICT for nurses thus, this study plans to explore Malaysian Nurses' CPE practice, their readiness as well as attitude on ICT. The results of this survey will then be used to develop a CPE model via e-learning. The development of a CPE model will take into consideration the concept of CPE and the dimension of e-learning. This study also aims to evaluate the effectiveness of e-learning and its influence on nurses' attitudes as well as self-directed learning among nurses. The results will than serve as evidence to support the proposal to the Nursing and Midwifery Board of Malaysia for the feasibility of implementing E-learning for Malaysian nurses.

CHAPTER 2

LITERATURE REVIEW

2.1 Overview of Chapter

This chapter reports on a review of the research literature relating to CPE in general and to CPE by e-learning in particular. The review covers the international literature with an emphasis on studies conducted in Asia and particularly studies of Malaysian nursing.

The literature search strategies were conducted in a range of relevant electronic databases which included MEDLINE, the Cumulative Index to Nursing and Allied Health Literature (CINAHL), the Cochrane Library, Pro-Quest Medical, Pub Med and Health Complete. Besides an electronic search of evidence, unpublished project reports and proceeding papers were also included in the literature search to obtain local and regional data. Great emphasis has been placed on CPE since the early 1980s, therefore literature related to CPE and CPD has long been in existence. Literature related to e-learning, on the other hand, evolved later in the 1990s and is now expanding rapidly. Literature searches for international papers were restricted to English articles; Malaysian literature in English did not begin to appear until 1990. Reviewing recent literature (no more than five years old) will provide the most accurate and relevant information; however, seminal studies dated from 1990 were also included in the present study in view of information still relevant to the nursing practice in Malaysia. The literature search did not conform to a true systematic review process as the methodological criteria used were not strict. The literature search was undertaken at two stages. The first stage is related to

CPE practice and followed by e-learning. Key words used to search the electronic databases for CPE practice were continuing; professional; education; nursing; nurses; development; continuous; mandatory; voluntary; barrier; deterrence ; motivation factors; registered nurses. Key words used to local e-learning data were e-learning; online learning; web based learning; Internet; world wide web; information technology; computer; computer literacy; experience; computer environment; computer-assisted learning, virtual learning; access to ICT; nursing education, post registration nursing education; factors deter; barrier, motivation factors, usefulness, social interaction; readiness; preparedness; attitude; post registration nurses, computer assisted learning, self-directed learning.

The results (n=556) for CPE were imported into Endnote and filtered to eliminate duplicates. The final outcomes from the search were 20 articles, which were reports of original studies except one integrative review.

Literature search for e-learning yielded (n=843) papers that were imported to Endnote using the same process as above. Inclusion criteria involved: focus on preparedness of e-learning among post registration nurses, attitude towards e-learning, and relation to adult learners. Finally 36 articles were selected for reviewed which reports the original studies and one integrative review on attitude towards e-learning.

This chapter is divided into three main sections. The first section on CPE in general looks at studies on the importance of CPE for nurses' professional development; the extent to which nurses participate in CPE activities and programs; factors in influencing participation that includes motivators, deterrents, and the introduction of mandatory CPE; and evidence of the benefits of CPE. The second

section discusses CPE by e-learning in terms of e-learning experience and interest, opinions on the design followed by factors influencing participation in CPE by e-learning, attitude towards e-learning, and finally readiness towards e-learning. The final section of the chapter provides a summary of the literature review, developing a conceptual framework, and a statement of the aims and significance of the study.

2.2 Continuing Professional Education for Nurses

Table 2.1 presents a summary of 21 studies that describe the nature of participation in CPE among nurses. Eighteen of the studies were cross-sectional surveys (one study from the UK, three from USA, two studies from Hong Kong, one from mainland China, one from Australia, one from Ireland, one from Thailand and five were from Malaysia). One study used an interview with a structured questionnaire (study from UK) and one of the literatures was an integrative study (including studies from the UK, USA, Canada, and Australia).

The sample size is ranged from 68 to 3000.The outcome measure was mainly on the CPE practice in terms of participation rate, perception, and attitude towards CPE practice and the emphasis of motivation and barrier/deterrence factors.

Table 2.1

Studies Describe the Nature of Participation in CPE among Nurses

Author	Sample	Design	Outcome Measures
1. Thuraisingham (1994) Malaysia	110 nurses from the surgical unit of hospital (random sampling)	Cross-sectional survey	CPE practice; perceive importance of CPE, motivational factors. Learning needs (topic preferred)
2. Barriball (1996) UK	449 nurses. Random sampling.	Interview study with structure questionnaire.	Level of participation, association between demographic data, and different CPE attendance histories.
3. Cullen (1998) USA	94 nurses. Sampling method not documented.	Descriptive study using self-explanatory questionnaire.	Factors deter nurses from participating in CPE
4. Apgar (2001) USA	Qualitative approach: 26 nurse managers, 2 director, and 18 trauma nurses, quantitative data 1675 nurses were randomly selected.	Phenomenological approach and survey.	Factors that promote or deter participation in CPE
5. Beatty (2001) USA	620 nurses from Pennsylvania countries. (Random sampling)	Survey	attitudes toward participation in continuing professional education
6. Edward et al. (2001) China	200 nurses. random sampling from 14 hospital	Descriptive survey	Continuing education experience. Barriers for participation in CPE
7. Abu Salim (2001) Malaysia	68 registered nurses from a teaching hospital (random sampling)	Cross-sectional survey	Attitude towards MCPE Factors affect decision on MCPE

Table 2.1

Continue

Author	Sample	Design	Outcome Measures
8. Ryan (2003) USA	300 (150 nurses, 150 professions allied to medicine) Random sampling	Comparative survey study	factors influenced motivation to participate in continuous professional development (CPD)
9. Lee (2004) Malaysia	191 registered nurses from a private hospital (convenient sampling)	Cross-sectional survey	Nurses participation in CPE. Attitude towards CPE. Perceived barrier towards CPE
10. Doyle (2006) Ireland	500 RCNs. (stratified random sampling)	Postal questionnaire survey	CPE practice Factors hinder and motivate CPE The important of CPE method to improve knowledge and skills
11. Lee et al. (2005) Hong Kong	260 hospital nurses. Random sampling.	Postal questionnaire survey	CPE practice Facilitating and hindering factors, Learning and education needs
12. Lai (2006) Hong Kong	1291 nurses from teaching hospitals (retrospective audit) 696 nurses from QMH in the survey	Retrospective audit and cross-sectional survey	Review on CPE program Opinion on factors motivates or deters CPE.
13. Meeparn (2006) Thailand	400 nurses from four region of Thailand were selected randomly.	Cross-sectional survey	CPE practice and factors affect the participation and non-participation. Learning needs of nurses.
14. Muthu (2006) Malaysia	207 registered nurses from paediatric hospital. (Stratified simple random sampling.)	Cross-sectional survey	Nurses perception on CPE, CPE practice, perception towards implementation of MCPE
15. Gould, DreyandBerridge (2007) UK	451 registered nurses (random sampling)	Postal questionnaire survey	CPD experience Factors encouraging and discouraging participation in CPD
16. Penz et al. (2007) Canada	5783 Registered nurses (stratified random sampling)	Postal questionnaire survey	Perceived barrier to participation in CPE
17. Pathan (2008) Malaysia	75 registered nurses working in the OT. Universal sampling.	Cross-sectional survey	Knowledge on CPE, participation in CPE, barrier for participation in CPE. Motivational factors

Table 2.1

Continue

Author	Sample	Design	Outcome Measures
18. Hagley et al. (2010) Australia	3000 nurses from the total population of Queensland nursing council nurses register for both year 2004 and 2007	Prospective survey	Factors impacting CPE activities Satisfaction with nursing work changed over study period
19. Yfantis et al., (2010) Greece	56 registered nurses were selected from a hospital in the City. Sampling method was not clearly described.	Postal questionnaire Survey	The aspect of CPE, role meaning and effectiveness. CPD programme and participation. Barriers and benefits of CPD
20. Phillips, Piza and Ingham(2012) USA, UK, Canada, and Australia	Sample size range from 13 to 375 (almost all more than 30), almost all used random sampling	Integrative review of 10 studies which evaluated palliative care APD programme.	Strategies to participation in CPD Impact of CPD programme Barrier and facilitator to participation in CPD Support for the use of technology to deliver CPD.

Provision of current and relevant CPE for nurses is crucial to ensure nurses are competent in their practice. CPE has long been recognised as a means to increase nursing knowledge and skills however there are many factors that could affect CPE participation. A critical review of CPE practice will identify nurses' CPE trends and the factors that motivate and hinder CPE participation. The finding of the review and this research will provide valuable information to improve the provision of CPE to nurses. The following literature review seeks to explore nurses' participation in CPE, the importance of CPE activities and the topics and factors that influence CPE participation.

2.2.1 Nurses' participation in CPE. The study conducted by Barriball (1996) aimed to examine the level of participation in CPE among qualified nurses and unqualified practitioners. It was also to identify the implication from this study to develop a CPE policy, which was in line with the introduction of CPE and Mandatory CPE in UK nursing. Semi-structured interviews were used to collect data from participants on issues and records of their demographic, level of participation, and barriers to CPE. The sample size was 449 qualified and unqualified practitioners; however, only those who had achieved 5 CPE study days were selected for the interview. Only two thirds of the participants had five or more study days attended during the last 3 years.

The barrier/deterrence factors for participants who had attended less than 5 CPEs in the past 3 years was clinical grade or status such as night staff and part time; for those who had more than 5 CPEs perceived length of waiting list and budget constraints were seen as barriers. The finding from this study suggests that nurses on part-time and night duty attended less CPE than their counterparts. It also highlighted the inequality in the provision of CPE. The semi structured approach enabled the researchers to obtain a range of personal and professional information which had benefits over other form of data collection.

Edwards et al. (2001) undertook a descriptive exploratory survey to examine the CPE experience of nurses working in hospitals in Tianjin Municipality, China. The objectives of the study were to determine the types of CPE opportunities accessible by nurses, to assess nurses' need for CPE, and to explore the barriers that prevent nurses from attending CPE. Random sampling was used to select 200 hundred nurses from 14 hospitals. A structured self-report questionnaire was sent to

each hospital. The results were encouraging; over two thirds of the nurses attended CPE within the previous few years. The learning activities reported were on- and off-site workshops, and associate degree courses; the teaching methods were mainly lecture, film, and video. Barriers that effected nurses most were lack of time, cost, distance, and not being given approval to attend CPE. This study also revealed nurses from rural or suburban hospitals were less likely to access CPE activities than their counterparts in the city. Most agreed that their clinical practice had changed following the participation in CPE. As this is an Asian study, it is a good reference to compare and contrast with the present study. It is appropriate to specify the period of time that CPE activities are being considered for example from 2011- 12. If the nurses participated in only one CPE activity for the previous three to five years, it may not be adequate to ensure knowledge and practice is current in this ICT-savvy community.

Lee et al.'s (2005) survey explores Hong Kong hospital nurses' perception of and participation in continuing nursing education. Sampling method was not described, however self- report questionnaires were sent to all nurses in a major public hospital in Hong Kong. The result shows Hong Kong nurses were actively participating with more than 50% of the nurses obtaining 45 credit points for CPE in the past 3 years. The main CPE activities were seminar workshops (87.2%), followed by in-service training (70.3%). Obviously, many nurses preferred to participate in courses that earned CPE credit (67.7%) and conferences (57%); degree courses only contributed to 42.1% of the nurses. Most of the nurses attended CPE on a part-time basis and they were willing to self-finance for the CPE fees. Most of the participants preferred a mixed method in delivery of CPE which included lecture, tutorials, problem-based learning, and online learning modules. They also preferred

the CPE content that would improve their knowledge and skills in practice, but were less interested in topics related to research. Generally, the factors that nurses will consider before they enrol for the CPE course were cost, duration, course content, teaching and learning mode, location, and qualification of the teaching staff. Others factors that would affect their participation were course fees, time constraints, difficulty in requesting the suitable duty, lack of availability of course, or family care commitment. Nurses perceived most preferred the CPE courses of health promotion and education, psychosocial influence on health and illnesses, and advanced practice. On the other hand, the least or less preferred CPE course were nursing theory, health economics, and epidemiology and population health.

In terms of specialties that nurses were interested in for future CPEs, most of them favoured intensive care nursing, medicine, paediatric care, traditional Chinese medicine, counselling skills, and food and nutrition.

This study extensively explored the key area of CPE, type of practice, future demand of nurses in CPE, and the factors that motivate and discourage nurses from CPE. However, the study was undertaken in only one hospital; as such, the result may not be generalised to other parts of Hong Kong. In addition the sampling method was not clearly defined with a limited analysis strategy

A study conducted in Ireland by Doyle (2006) on 205 registered children's nurses (RCNs: registered nurses working in children hospital) aimed to explore the CPE of RCNs with specific objectives to establish the practice of CPE, type of CPE, and to establish the factors that facilitate or deter the nurses from taking CPE in the future. The study design was a non-experimental research design using a survey. Self-reported questionnaires consisting of both closed and open-ended questions

were administered to collect data. Stratified random sampling was used to recruit 15% (557 RCNs) of the total population of Irish nurses from 26 counties across the Republic of Ireland. The samples were recruited based on the Irish nursing board register of nurses and sampling was stratified according to geographical location. Fifty-seven of the samples were selected for a pilot study, with the remaining 500 being included in the actual study. The tools for this study were tested for validity and reliability using test- retest reliability measures; however, reliability finding were not reported. The result reported that the methods of CPE by Irish nurses varied, with the most popular being reading journals, while the least used methods was using computerized journal databases and the internet. This may be due to lack of competence in necessary skills. This study had a respond rate of only 41%, which may not be generalizable to the total population of nurses in Ireland. The method used by Irish nurses was slightly different from the local studies in which nurses preferred to participate in conference and seminar or in-service training. Interestingly, nurses from Malaysia also disliked seeking information and learning via the internet.

Lai's (2006) study on Hong Kong nurses' participation and perception in continuing nursing education for three years reviewed the CPE program developed and implemented by a major teaching hospital in Hong Kong, documenting the variety of CPE activities undertaken by registered and enrolled nurses for duration of three years. It is also to identify factors that influenced participation rate. This study consists of two phases that used retrospective audit of the CPE program for three years, followed by a survey. Universal sampling was used for both phases; nurses who met the selection criteria were included in the study. For the audit, 1291 responded (80.74%), while for second phase only 696 of 1522 nurses returned the

complete questionnaires (45.66%). The reliability test of the tool was not reported in the dissertation. The result of this study shows the most frequent course attended by nurses was general and specialty nurses courses, occupational safety and health programs, and management courses. Indirect nursing courses were not popular and nurses were unlikely to present at conference. The mean score for credit points obtained from CPE was high with 104 credit points when compared to the minimum requirement of 30 point for enrolled nurses and more than 45 for registered nurses over three years of experience. The main motivators for the participants were to increase professional knowledge and to learn hospital policy, to improve patient care skills, and to meet recommended statutory requirements. The main deterrence factors included time constraints, cost, scheduling of CPE activity, and lack of a supervisor; the findings from this study are quite consistent with the local studies. The sample size was sufficiently large to suggest that the findings can be generalised to the applicable Hong Kong population. The activities and courses presented in this study are quite similar to the present study, which provided good literature to support the present study.

Hagley et al. (2010) from Australia studied nurses from Queensland and their access to and support for continuing professional education. The design is a prospective exploratory study, which involved nurses from three main sectors of health care system in Queensland, namely the public (state hospital) private (both profit and non-profit) and age care. Random sampling was used to select 1000 nurses from each of the sectors, with a total of 3000 for both 2004 and 2007. The response rates were 44.9% and 39.7% respectively for 2004 and 2007. More than three quarters of the nurses reported that they had access to CPE opportunity, but most of them were either partially or entirely self- sponsored. The major barriers

perceived by nurses from both surveys were time and financial constraints; many also reported that geographical distance prevented them from participating in CPE activities. The sample size from this study was large enough to generalise, even though the response rate was less than 50%; however, the sampling criteria was limited to the financed members of the Queensland nursing council, therefore it is difficult to generalise to other states. Approximately 70% of the nurses working in Queensland are members of the nursing union, so it can represent a larger proportion of the nursing work force.

Yfantis et al. (2010) conducted a study to explore the nurses' attitudes regarding continuing professional development (CPD) in a district hospital of Greece. This study evaluated the concept of CPD in a provincial hospital and the provision of opportunity for advanced professional development among nurses. Fifty-six nurses from a hospital located in the city were recruited; however, the sampling method was not reported. Data was collected using the postal questionnaire via a link nurse (nurse leader in the hospital). The response rate was low with only 41% (n=23) returning the questionnaire. More than three quarters (78%) of the nurses participated in any post registration activities. Only 30% of them attended two programmes and 48% attended only one programme. Most (70%) of the CPD activities were held outside of the hospital. The strategies used in CPD were formal seminar, small group teaching, and educational programmes. A high percentage (48%) of respondents believed CPD played a role in supporting flexible career pathways, helped to meet career aspirations, and assisted in job retentions. They also felt CPD would enable them to continually develop new competencies /skills in order it remain up-to-date. This study attempted to define the meaning of

CPD and explored the factors affecting CPD that would add to the reference for the present study. The limitation of this study would be the small and biased sample.

A recent integrative review on CPD by Phillips, et al. (2012) reported a similar pattern of CPE among rural nurses involved in palliative care. This review examined the impact of CPD programmes on nurses' practice, the method best received by the nurses, the support of ICT in CPD, and the factors that enhance and deter them from CPD. Ten studies were critically reviewed by two authors. The majority (n=6) of the studies were from the northern hemisphere, namely UK, USA, and Canada and four from Australia. The design of these studies includes a qualitative and quantitative study, for example survey, post-test and mixed method. The sample sizes ranged from 13 to 374 with 3 quarters more than 30 participants. The duration of cause ranged from three hours to few days; however, no conclusion was made to decide on the appropriate duration. Topics of CPD mainly emphasised on palliative care and hands-on session. The strategies used in delivery of CPD varies from conventional face-to-face and didactic presentation such as formal teaching, train the trainer, group work, and article review to more advance technology such as distance learning with video conferencing or incorporating video presentation in the face-to-face learning. Leaning solely by e-learning was not reported. This review provided comprehensive evidence of CPD among rural nurses, CPD practice, and particularly nurses caring for palliative patients. However, the selection criteria for this review may have limitations, as it does not provide information of the commitment of nurses in CPE and what nurses need in terms of preference in topics and method used. A review on factors affecting rural nurses' participation would be able to draw conclusion give suggestion for the present study that involved rural nurses.

There are several Malaysian studies, which are not published, but these finding are valuable to compare to the present study; the description of each study will be presented according to chronological order.

One of the earlier studies by Thuraisingham (1994) was a descriptive approach to determine the nurses' attitude towards continuing education. The aim of the study was to examine the nurse's perception towards CPE. A structured self - explanatory questionnaire was used to collect data. The study was undertaken at a tertiary hospital where 110 nurses from a surgical unit were randomly recruited. The tool was validated by a pilot study carried out to check for consistency of the tool, but the reliability test was not explained in the thesis. The participation rate for CPE over the last 12 months was high (78%); about 18% of them had never attended any CPE activities. Most of them were aware that the hospital provided on-going education programmes for the nurses. Almost all respondents understood the benefit of CPE, which are: continuing education increases knowledge; continuing education increases better patient care; continuing education leads to awareness of current trends in nursing; and continuing education maintains professional competency. This study also explored the priorities of learning needs of the respondents, which presented that the most demanding topics were nursing new trends, communication, and patients teaching skills. On the other hand, the least interest was in research and computer skills. This study did not explore the preferred activities by nurses. The sample size was too small to generalize in the hospital population and it was limited to surgical nurses. With the focus on respondents' learning need priorities the questionnaire could have been improved with open ended questions.

Abu Salim (2001) conducted a descriptive cross sectional study at a teaching hospital that explored the nurses' perception towards MCPE for re-licensure and identified whether some personal factors influenced their participation in CPE. Ten percent of the 552 RNs in the clinical area were selected randomly. The study showed a high participant rate, with the majority of nurses agreeing MCPE is important to improve nurses' participation rate. There were no significant association between demographic data and participation rate. The limitation for this study is the sample size is too small and only based on one hospital, therefore it cannot be generalised to other part of the country.

Lee (2004) undertook a cross-sectional survey study in a private hospital. The purpose of the study was to determine the extent of participation in CPE, nurse's attitude towards CPE, and factors that influence the participation and non-participation in CPE. The selected sample is all the registered nurses working in this hospital, convenience sampling was used and the sample size was 98. The instrument used was validated by the two nurse lecturers and two nurse managers but not tested for reliability. The 5 point Likert scale with 1 indicates strongly disagreed to 5 indicates strongly agreed were used to measure attitude of nurses. The study indicated that majority of nurses participated in CPE during the past 2 years. Level of professional education was significantly associated with CPE participation. All nurses were found to have a positive attitude towards CPE; however, barriers that prevent them from CPE were shortage of staff, cost, and lack of support from employer. Few constraints of this study were recognised; firstly, the sampling method was a convenience sampling of RNs from a private hospital and nurses on leave were not include in this study. As such, the findings could not be generalized to a wider population. Since the study is to assess the attitude and their participation

on CPE, one must consider the limitation on the method used in data collection was a self-reported questionnaire. The potential of the respondents reporting inaccurate information and the respondent's reluctance to document their actual feeling are high.

Muthu (2006) from Malaysia also undertook a cross-sectional survey to explore the registered nurses' perception towards implementing mandatory CPE participation for re-licensure in a paediatric hospital. Stratified random sampling was used to recruit RNs from 16 wards in the hospital; 207 RNs were included in the study. A self-explanatory questionnaire was used to collect data. The instrument was validated and pilot study was carried out to ensure the reliability of tool. The Cronbach's alpha coefficient was .671 which is lower than the normally accepted standard of 0.7(Cronbach, 1951). More than three quarters of the respondents participated in CPE during the last 12 months. Most of them were attended in-service training, followed by seminars and workshops. Most of the respondents also perceived CPE as valuable for nurses' professional practice, necessary for better patient care and to face the challenge of rapid technological changes, and contributing to an increase in professionalism. This study did not report the type of topic nurses preferred. Again, as in the previous study, the sample size for the study was too small and only confined to one hospital, therefore cannot represent the entire population of nurses. Factors that affect the participation of CPE were not explored in this study.

Finally, Pathan's (2008) cross-sectional study measured the perception of registered nurses towards CPE and identified the factors that influence participation. The selected sample was all registered nurses working in the OT. Universal

sampling was used. The finding indicated that majority of nurse have good knowledge on CPE but less than a quarter of them participated in informal certified short courses during the past year. The factors identified as a barrier were lack of information, seniority, shortage of expert nurses, long contract, and less autonomy in OT practice. The other motivating factors were encouragement and support from OT manager and peer group, adequate nursing information and computer facility, proper educational programme, and placement with sponsorship. As in other studies in Malaysia, the sample size was too small to be generalised to other nurses in other parts of Malaysia and finding from this study only refer to nurses working in OT.

2.2.2 Importance of CPE topic for the professional development of nurses. Thuraisingham's (1994) study also looked into the aspect of what were the nurses' needs for future CPE activities. The respondents were given 14 topics and were asked to prioritize their learning needs. On prioritising their learning needs, communication skills was most popular with a response rate of 18, followed by patient teaching with 17 responses. Legal aspects of nursing and new trends in nursing were also identified high up the list, with responses of 14. Leadership skills and nursing process were equal with a response rate of 8. Counselling, computer technology, or care of the elderly was not identified as a top priority by anyone. In terms of time, this study may be too old to be referenced for the existing study, but it is selected for review because it is a limited local study which highlights this issue. Another constraint is that the sample size was too small to generalise to the whole population.

Lee et al.'s (2005) study on CPE examined the issue of CNE in Hong Kong and provided a broad overview of the CPE practice in Hong Kong. One of the objectives was to explore the learning and education needs among Hong Kong nurses and the importance of those needs to be fulfilled. In regards to the general demand and expectation for future CNE, the majority of nurses prefer to attend CPE on site and only 46.8% like distance learning. They also preferred learning methods with a combination of lecture, tutorial, problem-based learning, and online learning. As in developed country nurses from this study also would like to update their advanced knowledge or skills in nursing. Only 2.3 % of the respondents were interested in nursing research. Nursing administration or management were also not popular, with only 7.8 % of them wanting to attend. The most preferred CNE courses for Hong Kong nurses from this study were health promotion and education, psychosocial influence on health and illness, and advanced practice, while the less preferred CNE course were nursing theory, health economics and epidemiology, and population health. The strength of this study is it covered a detailed assessment of CNE experience and future demand and need of CNE; the study background assembled has similarities with the current study, as it is from the same region. However, the finding may be difficult to generalise as it covers only one hospital.

Doyle (2006), in her study on Irish nurses, also explored the perception of nurses towards the importance of different methods of CPE. More than 50% of nurses felt journals were a "very important" method and 36.6% of them indicating that journal were "important." No participant perceived journals were unnecessary to them. About one third of the respondents felt conferences were a "very important" method, similarly 34.1% also indicated conferences were "important" method for informal education. Internet was regarded by 58% of the respondents "important" or

"very important." Only one fifth of the respondents viewed computerized journal databases "very important;" on the other hand 19.5% of them felt that this method is not an important method of informal education. Since stratified random sampling was administered to recruited nurses across Ireland, the study would be able to yield robust findings that would represent the population of Irish nurses. The limitation of the study was that it only included registered children's nurses, which may not reflect nurses from other disciplines. As this study is more recent, internet and computerized data based are more acceptable and included as one of the common method.

Meepam (2006) undertook a study among Thai nurses to develop a model of continuing professional education with e-learning to enhance the nursing standard. This study utilised a mixed methods design that included both qualitative and quantitative approaches. The study consisted of three phases; this paper presented the phase one study where information about the situation and need for online continuing education of Thai registered nurse were collected using a survey of 400 nurses. Random sampling was administered and the sample was drawn from four regions of Thailand. For this section, the discussion is focused only on the learning need for CPE. The preferred courses for CNE were critical care nursing, emergency nursing care, and nursing administration; the less preferred course was haemodialysis and ostomy care. The finding of this study can be generalised for Thailand nurses as it was taken from four region of Thailand and the sample size was large enough to represent the population.

2.2.3 Factors influencing CPE participation.

***2.2.3.1 Motivational factors*.** Thuraisingham (1994) from Malaysia reported that 97% of the respondent attended the CPE programme for self-development and 57% attended because of promotions. Forty-eight percent attended because of a pay raise, 31% for paid leave, 29% needed a break from work, 14% of them for social recognition, and 9% wanted to keep away from home. Most of the factors presented by Thuraisingham (1994) still remain concerns even in this ICT-savvy era. As mentioned earlier, the finding for this study is from a single hospital that may not be generalised to other setting. Finding for this study is descriptive only.

Apgar (2001) reported her study on trauma nurses in the USA to determine factors that facilitate or deter them from taking part in CPE. The research design used for this study included semi-structured interview, focus groups, and survey. A total of 27 accredited Pennsylvania trauma centres were selected for this study. Data collection was both qualitative and quantitative. For qualitative data collection, a phenomenological approach was used while quantitative data were collected using the questionnaire survey. Sampling method for the qualitative data were purposive sampling where 1,675 trauma care staff was recruited for the survey, however the sampling method and effect size was not reported. Overall the results from this study show Pennsylvania's trauma care nurses believe that CPE would enhance their clinical knowledge, skills, and abilities. Moreover, CPE can benefit clients and employers. The finding from this study also reported that more interesting, relevant, accessible, and affordable CPE programmes will help them to achieve their specific clinical interests and levels of professional competency and development are the priority in participation in CPE. The strength of this study was the qualitative data

were supported by a large scale survey that strengthened the robustness of the overall study. The weakness of this study however was the findings are not generalizable as the sample only included trauma nurses.

According to (Bourne, McMaster, Rieger, & Campbell, 1997) Abu Salim (2001), the factors motivating Malaysian nurses to participate in CPE were because it increases professionalism and for the purpose of relicensing their annual practice. Respondents from this study also felt that improving competency in provision of nursing care and promote better quality care for patients were key motivators to engage with CPE. Besides that, CPE would provide them with the latest knowledge and skills in nursing. Similarly, Yfantis et al., (2010) also reported the factors motivating nurses to complete CPE included planning of nursing care (83%, n=19/23) and a critical appraisal of nursing practice (17%, n=4/23).

Beatty‘s (2001) study among rural nurses in Pennsylvania countries was sought to examine their attitudes toward participation in continuing professional education. A total of 620 (75%) nurses from seven Pennsylvania counties were recruited for the study. Only 253 (40.8%) of the nurses completed surveys and returned the questionnaire. The researchers retained only the non-retired nurses for analysis with a total of 199 completed questionnaires.

Generally, the nurses had positive attitudes to CPE the most important reason participating in CPE was a desire to provide quality care for their patients. The least significant reason was personal benefit. The relationship between most of the demographical factors such as age, gender, race, and children less than 16 years of age, place of work, and specialty area were not significantly related to CPE participation. Type of basic educational program was found to have significant

relationship with participation in CPE. Nurses who graduated from collegiate programs (associate or baccalaureate degree) were more likely to participate in CPE than those with diploma qualification from hospital based programme. Nursing supervisors were found to play an important role in providing a positive organizational environment that motivates participation in CPE. The rural nurses felt that support from a spouse (partner) was an important factor influencing their participation in CPE. There was a discrepancy between the rural nurse's and nurse administration's perceptions of the support they received that would encourage them to participate in CPE

Ryan (2003) compared the factors that influenced motivation to participate in CPE among a group of qualified American nurses, occupational therapists, and physiotherapists. The research design was a comparative survey on staff with an equal sample size of 150 respectively for nurses and occupational therapists and physiotherapists. Data was collected using the instrument which measured the views on the concepts of lifelong learning and CPD. The response rate was 60.6% with 182 questionnaires returned to the researcher. The factors that influenced the respondents most to participate in CPD was to obtain professional knowledge. The next three most prominent factors were updating existing qualifications, increasing the status of the profession as a whole, and demonstrating that an individual was professionally competent. The limitation for this study is small sample size from only one hospital.

Lee's (2004) study of Malaysian nurses in a private hospital found the factors that influence participation in CPE were "to develop new professional knowledge and skills," "to help me be more competence in my nursing work," and

to “keep me remain current” with the mean score > 3.90. The less important factors were to meet hospital requirements, to increase the likelihood of personal financial gain, and to “consider the limitation of my role as a nurse” who had a mean score of less than 3.65.

Lee et al.’s (2005) study of Hong Kong nurses found that the most important drivers for participation in CPD were, the duration of the course, course content, teaching and learning mode used, location and the qualifications of the teaching staff.

According to Lai (2006), nurses from her study in Hong Kong found the three motivating factors were “increase professional knowledge” (92.8%), hospital policy (89%), followed by “to improve skills of patient care” (87.5%) and fulfil the statutory requirements (80.7%). The three least important motivations were to increase communication for promotion (59.2%), increase self-esteem (59.2%), and prevent boredom (37%). Other factors were to get another qualification (73%), improve professional status (72.2%), and obtain a further qualification for promotion (62.7%). It can be concluded that these Hong Kong nurses felt improving their knowledge, skills, and competence to be a professional nurses was important while external motivators, such as promotion and increasing self-esteem, were of least importance.

Muthu’s (2006) study found the nurses’ perceptions on the importance of participation in CPE were value for nurses professional practice (90%); CPE is necessary for better patient care (90%); to upgrade skill through CPE (89%); contribution to increase professionalism (82.5%); and to ensure continued competence (70.50%). But only 34% of them perceived CPE is required for re-

licensure. Similarly to Lai's (2006) study, this study also placed professionalism, competency, and patients' care most important for participation in CPE.

Gould, Drey, and Berridge (2007) undertook a study among senior nurses (grade D-I) who were from three acute National Health Service (NHS) trusts in London. This study explored the qualified nurses' experiences of CPD. It is a large scale survey that used random sampling. Ten percent (n=695) of the nurses were identified from their payroll and recruited for the study. Closed and open-ended questions were used to obtain detailed descriptions of their experiences in CPD. The questionnaires were distributed via the internal hospital mail delivery. The respond rate was good with 451 (64.9%) returned the completed questionnaires; however, only 27.7% of them gave detailed opinions for the open-ended questions with regards to their CPD experiences.

The qualitative responses were later analysed inductively, which derived five main themes: Who and what is continuing professional development for? Accessing continuing professional development accessing continuing professional development; one size does not fit all; managing work, life and doing continuing professional development; and making the best of continuing professional development.

Most of the nurses held a positive opinion towards CPD. They commented that CPD provided them with the latest information which could enhance their practice by bringing the theory-practice gap; they also considered CPD to play a key role in career development. Lack of access to CPD due to working hours, especially for those working a night shift or part timer, was a barrier for CPD activities, as was manager denial. Inequality of CPD activities offered to nurses also deterred nurses from CPD activities. The sample size of this study is large; therefore it would be

representative of a larger population. Beside that the qualitative data for the motivation and deterrence factors provide an in-depth description which will be added to the literature for CPE.

Pathan‘s (2008) study found almost 68% of nurses were encouraged by the OT managers to participate in g CPE; however, only 59% were motivated to attend CPE for promotion purposes. Appropriate placement relevant to the course was agreed by two thirds of the respondents. More than two thirds of nurses agreed to attend formal courses if given full scholarship. Family support was perceived to be the most motivating factor, followed by support from peer groups, friends, and subordinates. Ninety percent of the nurses felt a well-planned in-service education was also a motivating factor. More than 80% of the nurses agreed that journal and books provide in OT encourage them to read and gain knowledge. In short, the motivating factors for OT nurses in this study are provision of nursing information, encouragement from family, superior and peers, coast and education program and the appropriate place following formal course. Though many factors motivated participation in CPE by nurses, the finding of this study may only be relevant to OT nurses, but not for other disciplines.

Phillips,et al. (2012) identified many factors that would facilitate active engagement in CPD which included accessibility of learning activities relevant to individual learning needs and it is preferably small group package and facilitate by skilled trainer. As highlighted by most of the studies above, strong organization, leaders, managers, and lead clinicians were categorised as very important factors to motivate participation in CPE. Besides the common factors, participation from different disciplines also seems to be crucial in encouraging engagement of CPE.

Some studies in this review also found nurses prefer to travel to attend CPE programme to establish networking with others. Interestingly, this review also found nurses were keen to learn via electronic (video conferencing) and paper means. They also prefer to identify their own learning schedule and flexible learning time. The factors identified by Phillips, et al. (2012) not only account for rural nurses but are also applicable to the wider population.

2.2.3.2 Deterrents. Cullen (1998) surveyed Delaware register nurses for reasoning behind non-participation in continuing education. Self-report instrument, was used to measure the reasons for not taking part in CPE. The instrument had a reliability of alpha = .91. The sampling was based on the Delaware Board of Nursing list of active and inactive licenses (RNS); the sampling criteria were to recruit all nurses from this state who did not renew their RN license in 1993 and resided in Delaware. Sampling method was not stated. Questionnaires were mailed to 528 Samples. A total of 228 (43.18%) questionnaires were returned, but only 94 (17.8%) of them were complete and suitable for analysis. The response rate was too small to be able to represent the whole population of the nurses from Delaware. Furthermore, it was restricted to just the nurses residing in Delaware, which may not reflect the nurses outside this state. The highest rank order of non–participation in CPE was "*because other things happen to have higher priority in my life*." followed by "*because of all my other commitments, I don't have the time*." Subsequently, the third ranked factors was "*because of the programs were scheduled at inconvenient times;*" the fourth reason was "*because the program locations are often inconvenient*." The reason that scores lowest rank was "*because my family/spouse objects.*" Cullen (1998) established factor analysis to examine the six factors which would have the most effect as reasons for predicting nonparticipation in CPE. He

found that these factors explained only 58.4% of the variance, which suggested other reasons RNs did not participate in CPE.

Apgar (2001) stated trauma care nurses found that it is a major problem for nurses to apply for a study day or schedule time off to engage with on-going CPE. Similarly, Abu Salim (2001) reported that the main reason why nurses did not participate in CPE was time constraint and the cost; most of the nurses were reluctant to spend their own money in any CPE activities. They also express their dissatisfaction to attend the courses or seminars which exist to refresh their skill rather than learning new skills or knowledge.

Edward et al.'s (2001) study in mainland China found the reason for not participating in CPE were less access to CPE opportunities, especially for nurses who work in rural and suburban hospitals, which contributed to 76% (n=32) who had not attended any CPE. This justifies that geographical constraint or lack of opportunities would prevent nurses from CPE activities (22%, n=11). The most prominent deterrence factors was not enough time (36.5%), the Chinese nurses also stated that cost is also major concern (27%) and denied permission to attend CPE (19.5%). The less significant factor was lack of interest in CPE. Edward et al. explained that the Chinese organisation structure is based on hierarchical structure. The administrative authorities determine the learning needs and educational strategies for nurses, requiring approval for CPE from management. Betty (2001) also found that distance to travel, time constraints, and inflexible work schedule deterred participation. Lack of financial support from employers for CPE emerged as an important deterrent to participation.

Lee (2004) from Malaysia found nurses from a private hospital had perceived difficulties in attending CPE. The highest ranked or primary reason for non-participation in CPE were "*shortage of staff*," "*contract bound after the academic program," "Needs satisfied by on the job training," "too expensive,"* and "*lack of support from the employee*," the mean score range was 3.59 to 4.10. The lowest ranked reasons for non-participation were "*no interest*," "*no confidence to succeed,*" "*content is not relevant to practice needs*," "*family commitment*," and *"lack of information about the available programme*" (2.26 -3.32). Other reasons were "*lack of reward and recognition*," "*other higher priorities in my life*," "*not enough time*," "*events too far from home*," and "*long waiting list for academic courses."*

Lee et al. (2005) from Hong Kong had similar findings to the study from Malaysia. In Hong Kong, the top five factors that hindered them from participating in CPE were high fees (92.2%), limited time (88.6%), difficulty in requesting duty (79.7%), unavailability of courses (77.2%), and family care burden (73.2%). The cost for CPE was a major concern among them as most them were only willing to spend about 5% of their salary, which is approximately of US$145 and they expected the organisation to provide free CPE or support them financially.

Lai (2006) identified 11 factors that deterred CPE participation. There are nine factors which the participants rated more than 50% as major deterrents: time constraint (94.4%), cost of the course (85.5%), time schedule of the CNE activities (80.7%), lack of supervisor support (73.5%), travelling issues (distance , time to travel) (72.5%), lack of hospital administrative support (65.1%), Physical health issues (61.2%), emotional stress (53.6%), and lack of family support (51.3%). Lack

of colleague support and negative effects of previous school experience were respectively 43.2 % and 38.2%.

Doyle (2006) undertook a study on Irish paediatric nurses and found the deterrent that may discourage them from participating in conferences were geographical constraints, as usually the specialist courses were held in the city. This makes traveling difficult for them. They also faced the problem of getting study days if the courses were run locally and the topic presented was usually a generalist topic. The respondents also disliked the journal club due to lack of awareness about the objectives of journal club. The finding of this study contained large amount of data gathered and discussed which would contribute to the literature. However, it would be difficult to make comparative to the present study as data describing this section was in qualitative manner.

Penz et al.'s (2007) study explored the barriers to participation in CPE experienced by nurses from rural and remote area of Canada. The finding reported in this article was extracted from a larger national study "the nature of nursing practice in Rural and remote Canada." The research design was cross sectional mail survey using a structured questionnaire format that was inclusive of closed and open-ended questions. The closed ended questions asked respondents about perceived barriers; which was supported by information provided in the open ended questions. Stratified random sampling was used to recruit 57,831 nurses from three territories. Data were collected from October 2001 to July 2002 with a response rate of 68% (3,933). The final sample included only respondents who provided valid responses to every variable in the logistic regression analysis given a sample size of 2,838. Only 2,547 respondents had responded the qualitative questions "what are those

barriers," all qualitative data was analysis using non-numerical unstructured data indexing, searching, and theorizing software. All data were group according to theme. Three main categories were derived with sub categories for each theme. About two thirds of the respondents perceived barriers to participate in CPE activities. The qualitative data which answered the open-ended questions "what are those barriers?" were analysed using content analysis. Three main themes were emerging from the content analysis, rural community, work-life time constraints, and financial constraints and related subtheme. Forty-one percent of the respondents stated living in a rural or remote community and rural nursing work life contributed to barriers of CPE participation and 16% of them identified being away from the educational institute, isolation, and remote area. The perception that there was a shortage of staff and that the respondents had limited opportunity to participate in education and training were also recognised as concerns. About one third of the respondents identified time constraints as a barrier for participation where 16% reported lack of time related to working environment for example on shift duty, tight schedule, rigid working hours, family obligation and commitment also contributed to preventing nurses from participate in CPE activities. Financial concerns accounted for 29% of respondents with 14% related to financial constraints related to the workplace for example lack of funding and not refundable fees. The finding from this research added to literature and the sample size was suitable for the effect size which would be able to represent nurses from the remote and rural area. Since this study involve only nurses from rural and remote area it would not be able to reflect the magnitude of problem face by nurses working in urban and metropolitan area. The limitation for qualitative data was data with one word like time or money may not sufficient to explain the context of participant intended.

Pathan (2008) reported that the lack of opportunity to engage in CPE was impacted by long waiting lists because of seniority. About half of the respondents agreed financial constraints were a hindering factor for CPD. Other factors that hindered nurses from CPE were shortage of expertise, lack of information, and CPE offering. Long contracts after CPE also made CPE participation less interesting. Last but not least, less autonomy such as no freedom to practice what has been taught also discourages nurses from CPE.

Hagley et al. (2010) found the major factors that deter nurses from participating in CPE were unable to pay the CPE fees, time constraints, not ready to take non paid leave and limited relief staff. Others barriers which had less impact were difficulty to access CPE activities due to distance, employer would not approved the leave for CPE activities, inaccessible or lack of information on CPE and unaware of the availability of the entitlement of leave for CPD. The barriers for CPE were found to be significantly associated with employment status specifically family commitment affected full-time employees more than the part-time nurses with p value less 0.05 however, others barriers were not significantly associated with employment status.

In terms of geographical impact, the data was analysed to establish the difference among nurses from different areas that were categorised into three main areas: metropolitan, rural, or remote. It was found to have significant differences between the responses and geographical location. Nurses from rural and remote areas were more likely to report inaccessibility to a course due to distance from the course provided with $p = .001$. The quantitative data from this research was supported by the qualitative data that there was a lack of financial support from the

employer in terms of cost of CPE. Other support required by the respondents was to increase leave for them to attend the CPE activities.

The deterrent factors discussed previously are confirmed by Yfantis et al. (2010) who found that the barriers to accessing CPE that included CPE activities being fully booked and staff too busy to leave the ward to participate in CPE. Surprisingly, the cost of training was not a concern of the participants in Pathan's study. Phillips , et al. (2012) also report numerous barriers that affect palliative care nurses' access to CPE including: lack of access to CPE, time constraints and difficulty finding relief nursing staff, and cost of the fees and loss of income. Other barriers were lack of engagement among participant and limitation in access to ICT facilities such as computer and internet access to maximise participation in learning activities.

2.3 CPE by E-learning

Table 2.2 presents a summary of 36 studies that describe CPE by e-learning. Twenty studies were cross-sectional surveys, one was a longitudinal study, two were pre- and post-intervention studies, one was an empirical study, two used focus-group discussion, one was a phenomenological study, and there were four mixed-methods studies, two Delphi surveys, two literature reviews and one case study. The studies identified for review were from 17 countries: four from the USA, three from the UK, five from Australia, two from Canada, one from China, one from Hong Kong, three from Malaysia, nine from Taiwan, one from the Netherlands, one from Poland, one from Belgium, one from Indonesia, one from Turkey, three from Thailand and one from South Korea.

Sample sizes ranged from 16 to 3151. The outcome measure focused on experience and interest in CPE by e-learning, Factors influencing participation in CPE by e-learning, preparedness for and opinions about e-learning, motivating or deterring factors, attitudes towards e-learning and readiness for e-learning.

Table 2.2

Summary of 36 Studies Describing CPE by E-learning

Author	Sample	Design	Outcome measures
1 Bourne et al. (1997) USA	Purposive sampling was used with 83 participants	Pre- and post-test	Performance before and after the e-learning. Factors affecting asynchronous learning network
2.Kenny (2002) Australia	21 student nurses. Purposive sampling	Qualitative research using individual interviews and focus group interviews	Experiences of nursing students with online learning
3.Abas, Shamsuddin, andPhua (2003) Malaysia	89 nurses and medical assistants purposive sampling	Survey after two-week orientation	Preparedness for e-learning Belief in online learning
4.Atack and Rankin (2002) Canada	57 registered nurses who enrolled in an online course were selected and randomly assigned to one of three classes	Descriptive survey on registered nurses who enrolled in a web-based course	Experience of web-based learning Barriers in web-based learning
5.Atack and Rankin (Atack, 2003) Canada	Sampling size and sampling method as in Atackand Rankin(2002)	This paper presents the qualitative design using focus-group interview.	Description of the nurses' experience in web-based learning from home or workplace Barriers or obstacle in web-based learning. Impact of web-based learning to clinical practice
6. Gragg, Edwards, Yue, Xin, and Hui (2003) China	Multistage random sampling was used. 498 nurses were recruited	Survey	Access to computer and internet Attitude towards computers
7.Yang and Tang (2003) Taiwan	40 graduate students enrolled in a course were recruited	Survey via e-mailing questionnaire	Effect of social network on students' performance
8.Akar, Ozturk, Tuncer, andWiethoff, (2004) Netherlands	16 students were selected via purposive sampling	Semi-structure interview and questionnaire were used to collect data	Perception of a collaborative virtual learning environment (CVLE) Perception of technological and infrastructure s of CVLE Perception of usability and usefulness of CVLE
9.Gabriel and Longman (2004) USA	50 staffs attended a two hours on line session. Sampling method was not reported	Survey and semi-structured audiotaped interviews.	Perceptions, attitudes and responses of learners towards e-learning

Table 2.2

Continue

Author	Sample	Design	Outcome measures
10.Vaughan and MacVicar (2004) UK	80 employees were selected using stratified random sampling	Survey using electronic questionnaires for self-completion was email to the participants. A hard copy of the questionnaire was also distributed to staff that did not have e-mail account	Employee awareness of e-learning decision of e-learning Barriers to e-learning Evaluation method Motivation and self-discipline factors
11.Willging and Johnson (2004) USA	83 students were selected into the on-line program. Universal sampling	Electronic survey	Factors that influence students' decision to drop out of online courses
12.Abramczyk, Lewoc, and Izworski (2005) Poland	An e-learning programme	Case study of a training program based in the educational program of polish medical academics for community nurses	Feasibility of implementing e-learning. Evaluation of the training programme
13. Sit et al. (2005) Hong Kong	Random sampling was used to select 198 students	Survey using self-administered questionnaire	Experience s of on line learning Hindrance to online learning
14.Ipsos MORI (2006) UK	516 social care sector employers 994 social care sector staff Sampling method was not reported	Cross-sectional survey and focus group	E readiness (practical enablers of e-learning) Barriers to e-learning
15.Meeparn (2006) Thailand	400 nurses from four region of Thailand were selected randomly	Cross-sectional survey.	CPE practice and factors affect the participation and non-participation. Learning needs of nurses
16.Yu and Yang (2006) Taiwan	329 PHNs was randomly selected	Survey using mail questionnaire	Attitude towards e-learning Readiness towards e-learning
17.Yu, Chen, Yang, Wang, and Yen (2007) Taiwan	233 PHNs were recruited via random sampling method	Cross-sectional survey	

Table 2.2

Continue

Author	Sample	Design	Outcome measures
18. Chen, Yang, Tang, Huang, and Yu (2008) Taiwan	202 PHNs were randomly selected	Cross-sectional mail questionnaire survey	Attitude towards web-based learning Perceived usefulness Perceived ease of use Behavioural intention towards web-based learning
19.Wong (2008) Malaysia	Non-probability sampling (purposive sampling) was used. 400 working adult and 400 full time students	Empirical study	Perceptions of benefits and limitations towards E-learning between fulltime students and working adults in Klang Valley, Malaysia
20.Tien and Fu (2008) Taiwan	Random sampling was used to collect data from 12 4-year universities in Taiwan	Cross sectional survey	Usage of computer among students Students' computer knowledge and skills. The consequences of digital divide to academic performance
21.Edmunds (2007) Belgium	Samples recruited from 10 Flemish hospitals. Sampling method and size was not reported	Survey using e-readiness tool	E-learning benefit E-learning barriers E-adoption of organization Enabling criteria
22.Hsu, Hou, Chang, and Yen (2009) Taiwan	203 nurses were selected, which consist of 99 Korean nurses and 104 Taiwanese nurses. Convenient sampling was used	Cross-sectional survey was used	Computer literacy of nurses Factors influence nurses' computer literacy
23.McVeigh (2009) UK	88 post registration students were recruited. Non probability convenient sampling method was used	Focus interviews and survey questionnaire were used	Causative factors that might influence the utilization of e-learning in nurses related education
24.Koch, Andrew, Salamonson, Everett and Davidson (2010) Australia	Sampling method not reported in this paper; 123 of 665 students completed the web page survey	Evaluation of course using web-based survey which consists of open ended and closed – ended questions	Perception on web-based learning to support learning

Table 2.2

Continue

E-learning readiness (Self-directed learning (SDL) ability)			
Author	Sample	Design	Outcome measures
25.Guglielmino (1977) USA	14 experts for the first round. After construction of tool 307 were participated in the second round study. The final round of the study include compilation of 3151 respondents from USA and Canada	Delphi technique	Level of SDLR
26.Fisher, King, andTague(2001) Australia	First stage of the study: 11 nurse educator experts were included. Second stage: convenient sampling was administered to recruit 201 undergraduate nursing students	Delphi technique, First stages: assess the content of construct validity Second stages: Surveyusing questionnaire	SDL readiness scale for nursing education
27.O'Shea (2003) UK	24 research reports were reviewed with sample size ranging from 17 to 599; sampling method were not report	Literature reviews	Concept of SDL
28.Djenta (2006), Indonesia	Simple random sampling used to selected 47 nursing students I intervention group and 54 in the control group.	Intervention study with intervention and control group. Pre- and post-intervention questionnaire and focus group discussion were used to collect data.	Readiness scores SDL pre and post intervention.
29.Smedley (2007) Australia	All 93 year-one student were included in this study.	Quantitative study using self-directed learner readiness scale (SDLRS)	Validity and reliability of the SDLRS scale developed by Fisher et al. (2001) Readiness scores for self-directed of year-one student nurses.
30.Nokdee (2007) Thailand	The samples were seven nurses from seven ward and four educators from four departments. Sampling method was not explained in the reports.	Phenomenological research approach to explore the process of nurses' self-directed learning in clinical practice.	Nurses' experiences and self-perception in SDL.

Table 2.2

Continue

Author	Sample	Design	Outcome measures
31.Huang (2008) Taiwan	Eight students were selected to participate in semi-structured interview. For the survey, 369 students were recruited via convenient sampling.	Mixed method was used in this study. Semi-structured interview was used to collected qualitative data and cross sectional survey to examine the conceptual frame - work.	Experience of students goal achievement Perception of learning environment Development of SDL readiness.
32.Chou and Chen (2008) Taiwan, USA	The samples for the six studies were range from 17 to 401. All students enrolled for the online learning were recruited.	Literature review to examine six empirical studies (three from USA and three from Taiwan)	SDL and students performance in web-based learning.
33.Gurdial andEmbi (2009) Malaysia	All (16) students enrolled for an asynchronous on line interaction course.	Mixed method approach was use with combination of semi-structured interview and cross sectional survey.	Self-directed abilities of adult students via computer mediated communication in a private University.
34.Kocaman , Dicle A, andUgur (2009) Turkish	59 students who enrolled in the program identify to participate in this study	Longitudinal correlational design was used	Perceived changes in self-directed learning for 4 years in a baccalaureate nursing course.
35. Klunklin A, Viseskul N, Sripusanapan A, and S. (2010)Thailand	Universal sampling of 272 students who undertake SDL	Cross sectional survey using SDLR scales.	Level of SDLR among Thailand student nurses. Difference in SDLR score in first to fourth year.
36. Fisher and King (2010)Australia	Samples comprised 227 first-year students nurses	Cross sectional study to revalidate the tool which was developed in 2001, confirmatory factors analysis was used to establish the reliability of tool.	This study suggests 11 items need to be removed from the original scale with 40 items. Researchers suggested the original tool still valid till establishment of more reliable analysis with more sample sizes.

There is an emerging need for health-care professionals to acquire skills in information and communication technology in their clinical practice. Evidence has proven that health consumers have access to tremendous amounts of unfiltered material through the internet (Timmous, 2001), which could have an impact on the boundaries between health-care worker and patients, demanding more responsibility from health practitioners. In this information-seeking age, nurses ought to engage in lifelong learning to face these challenges. Glen and Helen (2006) suggest that the vital tool in maintaining lifelong commitment to education is the ability to use a computer, and effectively to find and use the wealth of information available online. They also assert that information and technology skills have become universally important for nurses working in many countries (Glen and Helen, 2006). Hence, the implementation of e-learning would play an important role in promoting nurses' ICT skills. The following sections present the literature on nurses' interest in CPE through e-learning, the factors that influence participation in CPE by e-learning, attitudes towards e-learning, and readiness for e-learning.

2.3.1 Experience and interest in CPE by e-learning. A Canadian descriptive study (Atack and Rankin, 2002) surveyed the experiences of 57 registered hospital and community-based nurses who had enrolled for an online post-diploma course. Atack and Rankin (2002) developed an online learner support instrument (OLSI) to measure the nurses' experiences of online learning either from home or in the workplace. The tool was validated by a panel of six experts in web-based learning. Internal consistency tested with an alpha coefficient of 0.95. The subscale in this instrument is interaction with teacher and peers, course design and resources, technology, work environment, home environment and overall

impressions. Only 28 (49%) of the respondents completed the OLSI. All nurses who had completed the online course were happy to register for online courses in future. The strength of this study was the attempt to follow up withdrawal from this course to investigate the reasons for it. The findings of this study will provide a valid reference for the present study to assess the need for e-learning and readiness to engage in it. The limitations of this study were its small sample size; the fact that the assessment should be administered before the courses begin in order to meet the learning needs of students appropriately; and faculty members' awareness that the research was taking place, which could have influenced teaching practice and the learner experience.

Abas et al. (2003) undertook a study of a group of Malaysian nurses and medical officers during orientation for web-based learning. The aim of the study was to find out whether the first intake for online distance learning was ready to take the course. A survey was carried out during orientation week before the course began. The research sample consisted of 89 nurses and medical staff who were teaching in the Ministry of Health Institute. All the respondents were educators from colleges of nursing and medical assistants. A substantial percentage (89%) of the cohort was very interested in online learning and looking forward to e-learning for their professional development. Other aspects of this study will be discussed in the following section. Overall, this study successfully explored the need for ICT skills during orientation, before the students embarked on actual online study; however, it did not determine the learners' needs before developing the course. The findings of this study cannot be generalized to Malaysian nurses, as the sample consisted of educators who had had more exposure to ICT than registered nurses. The sample size, moreover, was too small to represent the general population.

A study from the USA explored the perception, attitudes and responses of learners to delivery of an e-learning module for the Workplace Hazardous Materials Information System (WHMIS) training in a community health care organization (Gabriel and Longman, 2004). The aim of this study was to decide on the best method for training for health care workers based the research findings. A qualitative semi-structure interview and survey were used. Fifty respondents participated in the study, 32 of them case managers (mostly nurses) and 18 other staff members. The survey was complemented by in-depth interviews with seven respondents comprising case managers, two support staff, the database coordinator, one director and one supervisor. The interview sessions were recorded and transcribed. The Community Care Access Centre (CCAC)'s staff WHMIS online experience of more than 94% (n=47) of the participants was very positively rated at six or higher (on a scale of one to ten), indicating that they were very keen to participate in future e-learning modules. This study also reported on likes and dislikes about online training as factors affecting e-learning. The strength of this study is that it serves as a yardstick to measure the effectiveness of e-learning and to ascertain what future improvements can be made. The finding of this study will enable CCAC administrators and trainers to scrutinize future e-learning modules. The findings were further supported by the qualitative data. The sample size was small and from one healthcare organization, and cannot therefore be generalized to other populations. The data collected should include the objectives and structure of the course, and delivery and assessment method. The sampling method was not explained in this report.

An Ipsos MORI (2006) study of e-readiness among social care workers consisted of a survey of 516 social care employers, a survey of 994 social care sector

staff, and four case-study focus groups among social care staff to identify the factors that facilitate and hinder e-learning. For the purposes of this study, however, the review will focus on the staff survey and the focus group, which identify the factors influencing the uptake of e-learning. The sample for the staff survey was drawn from the pool of employees of organizations that had participated in the employer survey and an additional random sampling of employees from 1000 other employers. The sampling method was rigorous because it was drawn from a pool of 21,000 social care organizations. Since social care workers share similar work, the survey may therefore be included in the literature review for the present study. Less than 50% of the respondents had experience in e-learning using internet/intranet/VLE/CD Rom-based materials on a computer in their own time. The respondents' preferences for e-learning were not encouraging, in that the preference shortfall using the internet was 8%, while that using an intranet was 30%, it shows those using intranet did not prefer learning using this resource. The preference shortfall was good 44%) for learning using a virtual learning environment (VLE). Two-thirds of the population felt it was feasible to use e-learning in workplace learning. The respondents also showed reasonable interest in learning via CD.

Meeparn's (2006) study of nurses in Thailand found that only 9% of the respondents had engaged with online learning. Of the nurses who had experience of learning online, 25% were engaging with supplementary face-to-face lessons, one third had experience of complementary face-to-face classes, and about 40% of them engaged CPE by self-study. More than 50% were interested in undertaking e-learning as a means of study, and about one third were considering it.

The relevance of this survey lies in the fact that the research was undertaken in an Asian country that has similar social and cultural conditions to those of

Malaysia, so that its findings may perhaps be compared with the local study. The sample size is also large enough to draw conclusions about the impact of e-learning, and the data was also collected from wide range of locations spanning the four regions of Thailand, south, north, east and west. However, this paper was focused more on preparedness for e-learning; the attitude component was not discussed, and nor was SDL readiness reported.

Yu and Yang (2006) undertook a study in Taiwan to explore attitudes towards web-based distance learning among public health nurses. The study design was a cross-sectional survey using a mail questionnaire. The main objective was to examine the determinants and attitudes towards e-learning. The study was conducted in 369 health centers in Taiwan, which contributed to the population of 2398 PHNs. The sampling method used was random sampling. The response rate was good, with 84% of 369 PHNs returning the completed questionnaires. Overall, the PHNs agreed that e-learning is a feasible method of study; however some of them were worried that e-learning might not assist them to improve patient care and had doubts about the effectiveness of e-learning. The findings of this study are important, because there is a lack of research exploring the readiness of post-registration nurses to embark on e-learning. The strength of this study was the sampling method, with representation from a large number of nurses. However it failed to reflect nurses working in hospitals and in metropolitan areas.

Chen, Yang, Tang, Huang, and Yu (2008) also conducted a study in Taiwan that aimed to explore the behavioral intention (BI) of public health workers towards web-based learning and to examine the factors influencing PHNs' BI, based on the technology acceptance model (TAM) before implementing e-learning. This study

involved the whole population of PHNs in Taiwan, and the design used was a cross-sectional survey using mail questionnaire.

202 PHNs had participated in this study, and almost all (91.6%) the nurses had behavioral intention to web-based learning. This study also examined the perceived usefulness, perceived ease of use and attitudes towards e-learning, which will be discuss in the subsequent subtopic. This study established the hypothesis to examine the predictor for the English language. For the purpose of the present study, only the descriptive part of the findings will be taken into consideration. The strength and limitations of this study were similar to those of the earlier study by Yu and Yang (2006).

2.3.2 Factors influencing participation in CPE by e-learning.

2.3.2.1 Preparedness for and opinion of e-learning. Bourne et al. (1997) reported that their study aimed to evaluate the effectiveness of an asynchronous learning network (ALN) for students. Non-randomized convenient sampling was used where 62 students were enrolled to the course. During the first week another 63 students registered. By eight weeks, 42 of them had dropped out. Eventually 83 students completed the course with an average mark of 79, which was equivalent to C+. This study used pre- and post-test for summative assessment and an on-line survey was used to assess the formative assessment. Fifty three students who had completed both pre- and post-test were included in the analysis. The result of the course evaluation improved, given the pre-test average score was 47/100 whereas the post-test was 75/100. The study also found that those who had attended face-to-face classes favored ALN more. No significant preference was found between men

and women. Non-native English speakers were seen to be less in favor than their native English-speaking counterparts. It was also found that students living off-campus were more likely to prefer a private forum than those in the dormitory. As regards learning time, students had moved the learning time to midnight. Students engaged with ALN were shown to be learning as well as those using the traditional mode of study. This is supported by the finding that 80 % of them favored ALN. Social interaction online, such as conferences or forums, is crucial as it can encourage a peer-to-peer learning process. On the whole, students did not appreciate having too extensive a range of learning material given to them, but preferred to know what it was their responsibility to learn. Only about 50% felt that the mentors or facilitators were helpful.

This study also found that online evaluation was effective, and a useful way to assign grades. Even though ALN has many advantages, internal or laboratory work requires traditional face-to-face teaching in order to ensure the necessary manual dexterity. ALN simulation may serve as supplementary or complementary learning method. The findings of this research shed some light to the present study. The literature may be old, but it remains relevant for this study because e-learning is still in its early days for Malaysian nurses. This article was also selected because the course was designed for students of engineering, a discipline that has similarities with nursing in that both require the acquisition of skills and form a professional group.

Kenny's (2002) study explores the experiences of nursing students taking online learning. This is a qualitative study that used individual interviews to determine students' perception of on-line learning. The findings from individual

interviews were enhanced by focus group interviews. Twenty-one health information students were selected using purposive sampling. The main objective of the study was to determine those students learning online. Four main themes emerged: computer confidence, flexibility, active learning, and practicalities of teaching. This study showed that the most frequently use of computers were for sending e-mail, preparing presentations using PowerPoint, spreadsheets and search engines for literature search. This cohort of students experienced a lack of technical support and lack of availability of reliable computers on campus, and they also encountered computers infected with viruses. Kenny (2002) also explored the factors affecting online learning, which will be discussed under the following sub-heading. The strength of this study is that it explores the perceptions of the student in great detail using verbatim interviews. However the sample size may be too small to be generalized and the evaluation was undertaken after the course. The information obtained from this review will serve as a guide to formulate the tool for present study, as it is appropriate for the present cohort because on-line learning is still in its infancy for Malaysian nurses.

According to Abas et al. (2003), of 89 respondents, 80 (89.9%) had a personal computer at home, but only 38.3% (n=53) were able to access the internet from there. At that time, most of them needed help with ICT because they were not the primary user of the home computer, which were usually their children or spouse. Almost all (94.3%) respondents had experience using a computer lasting the six months before the survey. More than half (57.9%) had spent more than two hours per week on the computer. The respondents had hardly used e-mail and the internet in the past six months; 68.2% had not used e-mail at all; only 47.7% had accessed the internet; and less than 6% had experience of using e-mail and the internet for

more than an average of 11–20 hours per week. The data would definitely have an impact on the implementation of e-learning, emphasizing the importance of an orientation course. The implication is also critical in that the cohort consisted of educators from the Ministry of Health, who will be expected to act as role models in encouraging the growth of ICT. This paper provides a benchmark for the present study: despite the fact the respondents were educators; it is the only Malaysian study to explore the readiness of health personnel for e-learning. As mentioned earlier, the sample was also too small to represent the whole population.

Similarly, Atack and Rankin (2002) also reveal that most (67%) of the nurses prefer to learn from home and only three (8%) of them chose to learn in the workplace. The workplace was not conducive to study because of the inaccessibility of computers and the internet, and lack of time. Some (31%) of those who preferred learning from home also faced issues of having to compete with others for access to the telephone line. About one-third of the nurses rated themselves as beginners in computer skills and internet use. Most of them had improved their ICT skills by the end of the course.

Gregg et al. (2003) conducted a survey among nurses in Tianjin Municipality, China, to evaluate the facilitators of web-based learning and the barriers to this method; hence it also examines the feasibility of implementing web-based learning for the Asian region. Two groups of registered nurses were recruited randomly for the study, namely nurses working in a hospital and those undertaking an associate degree course. Stratified cluster sampling was administered to randomly select nurses from urban, pre-urban and rural hospitals. Stratified random sampling was use to select five staff nurses and five clinical nurses or management positions from each hospital. The final samples comprised 498 staff nurses. The data were

collected using four scales: Sources of practice knowledge and attitude toward computer questionnaire, computer and internet confidence scales and the computer and internet comfort level scales. Attitude towards computer questionnaire assessed four dimensions of attitudes: comfort, efficacy, interest and utility. The researcher added affordability in their questionnaire. The entire tools used in this study were assessing for the validity and reliability, only the Cronbach alpha for subscale was reported in this article for both attitude towards computer and internet (table 2.3) range from .53 to .86.

Table 2.3

Cronbach Alpha for the Attitude towards Computer and Internet

Scales	No of items	Subscales	Cronbach alpha
Attitude towards computer	26	Comfort	.74
		Efficacy	.85
		Interest	.77
		Utility	.72
		affordability	.64
Attitude towards internet	25	Comfort	.73
		Efficacy	.86
		Interest	.87
		Utility	.87
		affordability	.53

This research reported that only 23% of the samples had computer at home and 16% of them were ready to buy one six months later. Main source of technical support were from friends, peers and family members.

The study revealed that the majority of them obtained information or participated in distance learning via the conventional method such as face to face and paper based learning. Only less than 5% of them had ever retrieved information from internet or databases. The rate on using computer was reasonably high at 74%. Among them 24% of them used computer at work place, however only 19% of them

used it every day. The nurses were most frequently used computer at work place followed by home. The purpose of using computer at home was mainly for education, learning and entrainment. The usage of internet was very limited (17%) among the Chinese nurses although three quarter of them experience using computer. Only 46% of the internet user had e-mail address and four of them used it for searching information in English or Chinese. The most frequently place for them to access internet was at home, followed by public access area, institution and work place. The most common internet connection was using telephone line. As in computer usage the support system was family member and friends. This study is robust not only for the Chinese community but also set as reference for developing and under developing country. The main concern of this study was the physical preparation of learner (computer and internet access and ICT skills); it was lacking in the opinion for the content and the social interaction component.

Yang and Tang (2003) research examined the impact of social networks on students' performance in using networking as supplementary to face-to-face learning. A sample of 40 students enrolled in online courses via Management Information Systems (AMIS), were recruited.

The social networks in this study that positively correlate with performance were friendship and advice network. Advices network includes relation exist where individuals share resources for example information, assistance and guidance in completion of task. Friendship network is social network that students will be able to discuss and exchanges information at forum. The findings may not be generalizable to other settings as the representativeness of the sample is questionable because only one class recruited and the participants were graduate students in a university in Taiwan.

Vaughan and MacVicar (2004) undertook a case study which was an empirical enquiry to seek answers about the acceptance level of bank employees towards e-learning. They used qualitative and quantitative research design. The aim of the study was to ensure the implementation of e-learning is successful by investigating the attitude and perceptions of management and employees. For the purpose of the present literature review, the researcher will describe only Stage 2 of the study: the employees' attitudes towards e-learning. Stratified random sampling was used to select 80 out of 3000 employees. Data were collected via electronic self-completion questionnaires through e-mail (hard copy was sent to employees without an e-mail account). The response rate was 73% (n=58). The finding showed that only two-thirds of the employees were aware of the availability of e-learning in the organization; however the support from employers was reasonably good, as more than half (53%) felt their managers were supportive. More than one-third (40%) preferred to use telephone conversation as personal contact, follow by face-to-face contact (28%) and only 16% favored e-mail or chat rooms. A reluctance to use e-mail and chat rooms for personal communication may reduce the effectiveness of e-learning. About half the respondents preferred instructor-led learning to e-learning. Only 38% of the employees opted for e-learning over other forms of study. Almost all (95%) of the employees favored post-course evaluation, followed by discussion with a manager, and appraisal (64% and 57% respectively). Two-thirds felt that pre-training in ICT skills or a hands-on orientation course would be beneficial before embarking on e-learning.

In contrast, a Hong Kong study by Sit et al. (2005) found more favorable conditions in that more than half (55.1%) of the respondents were familiar with using a computer and 96% of them used electronic communications such as forums,

e-mail and chat. The factors affecting e-learning and employees' attitude to it will be discussed in the following sub-section. This study provides much valuable input for the present study. The logistics of implementation, for example, is appropriate to cite in the present study, because the sample comprised working adult learners who had time constraints, just as nurses do. The weaknesses of this study were a lack of clarity on the e-learning methods, and that staff ICT skills were not explored.

Meepan's (2006) study found that more than one third of students preferred to undertake e-learning from home, 20% of them chose the workplace and 26.5% wanted to learn from both home and the workplace. A US study also found that students preferred to study at home to maintain more privacy and convenience; and often they were not allowed to do their course-related work in the workplace (Willging and Johnson, 2004). Meepan (2006) also reported that about one-third of respondents liked to study on weekdays and two –third of them preferred to study at weekends. Almost all (98.5%) of the respondents agreed that the primary objective of participating in CPE via e-learning was to acquire new knowledge and technical skills. A high percentage (86%) of them wanted to improve their competency, two-thirds of respondents felt it would improve their performance, and finally two thirds of them also wanted to obtain a continuing nursing education unit for re-licensure.

In term of subjects preferred by nurses, about three quarters of them most wanted to study critical care nursing, emergency nursing and nursing administration, which was very clinically based and oriented towards acute care. About half of the respondents were interested in studying both theory and practice, while studying theory alone lacked popularity, at 43.5%. Two-thirds of respondents expected an online course lasting less than four weeks; compared to just 24% who wanted courses running for longer than four weeks. Perhaps each session should not exceed

two hours, as Gabriel and Longman (2004) explain that many students find a two-hour program tiring and uncomfortable. The preference of e-learning method was fairly distributed between asynchronous (29.75%), synchronous (14.75%), both asynchronous and synchronous (27.25%), with 24.25% preferring self-directed learning without communication.

In a Netherlands study, Akar, Ozturk, Tuncer, and Wiethoff (2004) set out to evaluate learners' perceptions of a collaborative virtual learning environment designed for technical robustness and social interaction. Sixteen students participated, who had enrolled for an information-based course. The tool used for this study was developed by Akar et al. (2004), with sub-headings on the usability and usefulness of the course, users' experience of group interaction, perceived quality of the course, international environment, and problems faced by students while using the software. The reliability test was not presented in this paper. The findings found that students had positive perceptions of the usability and usefulness of the information-based system, and positive experiences of the group work. Statements under the heading Usability and Usefulness include, "*I think it is easy to upload a file into InfoBase*" and "*Learning to use InfoBase is difficult*". Discussion of the perception of group work included how well information is shared among team members. This study attempted to evaluate the courses in great detail; however, the sample size was too small to provide a robust representative sample.

In his empirical study of Malaysian students' perceptions of the benefits and limitations of e-learning, Wong (2008) aimed to compare the difference in perception between full-time and working adult students. The study was conducted in two private open universities which utilized hybrid e-learning (e-learning complemented by face-to-face learning). Purposive sampling was used to select 520

students with at least six months' experience of e-learning. Of 520 students, 204 were working adults and 316 full-time students. Data were collected using a structured questionnaire developed by the author. Two experts in e-learning from Malaysia were invited to validate the tool, and a pilot study was administered to test for the reliability of the tool, although the reliability index was not reported. This study found that the two most common methods used in e-learning were on-line tutorials (24.1%) and e-mail (23.2%), followed by discussion forums (17.4%). Less commonly used methods were courseware (15.2%), electronic chat (10.6%) and video conferencing (9.3%). The strength of this study was that the sample size was large enough to provide representative data but it was limited to a private university and an open distance university. The findings may therefore not reflect public and traditional methods of learning. Since this is a Malaysian study, it may provide some valid data to support the present study. The perception benefit and limitation of e-learning will be presented in the following section.

Another national survey in Taiwan (Tien and Fu, 2008) had examined 3083 first-year college students at 12 four-year universities. The response rate was 88.2% (n=2719). The sampling method was not reported in the article. The undergraduates used computers for entertainment besides fulfilling their academic requirements and searching for information. They spend about 19 hours per week using a computer, and of this, five hours were related to academic work. They also exhibit middle average level of knowledge in ICT. This study found that students' knowledge of and commitment to using computers for related academic work had a moderate effect on their learning. Knowledge of software was the most helpful to students. The limitation of this paper is that the author did not report the validity and reliability test of the tool. Data was collected from full-time students, which may not

be suitable to compare with the present study; it may, however, provide information on the importance of ICT knowledge to learning.

Schreurs and Moreau (2008) undertook an e-learning readiness survey for 10 Flemish hospitals before implementation of e-learning to replace the traditional learning methods. The researcher had established an instrument to measure e-learning readiness in the hospitals. It consist of 80 questions covers two main components, enabling and result criterion. The questions include the learning situation preferred, self-assessment of ICT skills, motivation and experience using computer and infrastructure to support the e-learning. The tool was tested for its validity and reliability but the finding was not presented in the report. The respondents were doctors, radiologist, nurses, nurse administrators and the ICT director. The sampling method was not explained in the report.

The finding of this study was only in mean scores. Most of the employees had little or no experience of e-learning (mean= 1.00), despite good utilization of ICT in the workplace. The nurses exhibit good experience with work processing (mean =3.5), however they are more motivated to learn via traditional course. According to them to accept e-learning, the support for ICT is very important (mean =3.25). The facilities such as computer with multimedia, internet access, printer and telephone should be well equipped (mean= 3.75). The evaluation of ICT facilitations for most of the hospital were unfavorable, as most of the hospitals had insufficient support, such as incompatibility of system (mean 2.5), online package only available at certain times (mean 1.75), e-learners having no personal computer (mean =2). They also felt preparatory course is crucial before stat of with e-learning especially for those who have no experience. The e-learning course were lacking in social

interaction platform such as chat room and discussion forum (mean=3.2). The employee felt the e-learning course should provide clear learning objectives (mean=4.0) and come along with an overview of the course topics (mean =4.0) and should end with summary of the course (mean=3.75) and they also believe in personalized learning need of the learner (mean =3.5). The assessment of readiness in this study is viable as it facilitates the effectiveness of e-learning to staff and ensure the learners benefit from the new learning style. The data from this study is good to generalize for Flemish healthcare environments due to its wide coverage of 10 hospitals that yield quite homogenous results. The present study has adopted some of the criterion set for readiness assessment. The weaknesses of this study were lack of clarity in sampling method and the presentation of data was unclear.

Interestingly, a more recent study undertaken by Hsu, Hou, Chang, and Yen (2009) of Taiwanese and Korean nurses on factors influencing their computer literacy found that the mean scores for computer literacy on a 5-point Likert scale were 3.24 and 3.06 respectively for Taiwan and Korean nurses which is considered medium level. The study design was survey carried out by the head nurses in two hospitals. A total of 203 nurses were recruited using convenient sampling with 99 from South Korea and 104 from Taiwan. The researcher develop a questionnaire based on previous literature which consist of five parts, namely demographic information, computer education, experience of computer, personal innovativeness in IT, and self-appraisal measurements of computer literacy. There were 97 items in the questionnaires and it was translated into Chinese and Korean languages. The content of the scale was validated by experts in IT management. All the subscales yielded Cronbach alpha of more than 0.8 which given a high reliabilities of this scale. Nurses from both countries had rated highest in attitude toward computers

(mean =4.02 SD=0.47) and principle of computer applications (mean 3.34 SD=0.62), whereas two lower score were concept of hard ware, software (mean =3.02 SD=0.54) and networks and program design (mean= 2.6, SD=0.61). Skill in computer use (3.2, 0.62) and limitation of computer (mean=3.30, SD=0.67) was not an issue. The factors that affect overall computer literacy were personal innovativeness in IT, computer education and age of the nurses. These findings indicate the pre IT education is important to enhance the computer literacy before nurses enrolled in e-learning. Finding from this study provide a yardstick for assessing Asian nurses' computer literacy. The comprehensive instrument was able to explore the magnitude of computer literacy of nurses. The limitation of this study was using convenience sampling may raise the issues of bias and given only two hospital would not give a good representative of data.

In another recent study in the UK, McVeigh (2009) undertook a survey to determine the factors that may influence the utilization of e-learning in post registration nursing, midwifery and health visiting students. Design employed in this study was qualitative focus group interview and survey using questionnaire, however this paper present mainly the survey findings. Non probability convenience sample was use to selected 88 students who had enrolled for a specific module via e-learning. Content validity and reliability of tool were not explained. The findings showed that high proportion 65.5% of the students acquired ICT were self-taught. The proportion of them having acquired these skills at school, college or university was less than 30%, only 15.7% of them having learned ICT skill in the workplace. Only one respondent had no ICT skills.

Less than half of the students (43.5%, n=30) had experience of e-learning as CPE activities. About half (46.4%) of those with e-learning experience had no training g before the course begin and on third of them (36.7%) did not possess the necessary skills. Students perceive the interactive communication in the e-learning package was not well established. More than three quarter (70%) of the students felt ability for independent learning was important to engage with e-learning. The proportion for perceived skill and relevant training was respectively 50% and 63.3% which indicate ICT education before e-learning course is crucial. Computer availability was good at home (95.7%) as well as workplace (92.9%) similarly to internet availability. However most of the students felt more at ease of accessibility of computer and internet at home than work place. The main barriers in e-learning as perceived by students were lack of support at work place, insufficient of protected time and high demand on work commitment. Some of the respondent's perceived e-learning as time-consuming, as they have to compete with household chores. Ninety percent of the respondents rated highly on the flexibility of e-learning that enable them to learn at own pace and sense of self direction and the scope of accessing is wider. Overall the respondents felt adequate support is essential to ensure learner make best used of the e-learning course. Finding from study provided valuable information to change strategies to improve the course for future students. The sample size for this study was too small to make generalization and it was drawn from a specific module.

Koch, Andrew, Salamonson, Everett, and Davidson (2010) surveyed nursing students' perception of web-based intervention to support learning at a university in metropolitan Sydney. All the students were invited to access the site provided to support the teaching and learning of biological sciences. More than three quarter of

the students (85%) who had registered for the course accessed the learning support site. The perception of students was obtained via web-based survey. The response rate was only 22% (n=123). Most (89%) of the students accessed the internet at home and a high proportion (83%) of these students had broadband access off campus. Three themes emerge from the finding of nursing students' perception of web-based learning: *enhance my learning, study at own pace* and about the *activities: what I like /disliked*. Students perceived web-based learning intervention did work well to supplement the traditional learning which facilitate learning and improve their language proficiency students were not ready to let go the traditional face to face learning in spite of the value of interactive multimedia. The response rate was too small and it might not give good representative because the participants may potentially benefit from the intervention. Overall, there was evidence of high utilization of this module, which reflect the acceptance of web-based learning as supplementary to face to face learning.

2.3.2.2 Motivators and deterrents. Kenny (2002) reported that students expressed their satisfaction with the feasibility of on-line learning that they were able to access the formal learning at any time and place to their convenient. Gabriel and Longman (2004) support the finding that a majority (76%) of participants preferred to work at their own pace, and about half made positive reference from the module. They also could access the on line material anytime they wish to do so (Kenny, 2002) and able to review when they need to do so (Gabriel and Longman, 2004). Students complained the on-campus computer and internet was not reliable and always contacted with virus. Lack of technical support was also perceived as an area that affects the computer confident(Kenny, 2002) and affect the information

storage and file sharing(Atack, 2003) in contrary, Atack and Rankin (2002) study found technical support was rated highest, Lack of computer skills caused frustration to some of the students (Gabriel and Longman, 2004; Kenny, 2002) and inadequate preparation of ICT skill before embarking in e-learning contributed to most of the withdrawals (Atack and Rankin , 2002).

Atack (2003) held a focus-group discussion (FGD) with nurses enrolled for online course following the survey in 2002 to explore the in depth perception of their experience in online learning. Twenty (51%) of the nurses were participated in the FGD. The interviews were held at midterm, end of course and post course. The key finding of the FGD were nurses encounter difficulty at beginning of the course as they were novice in ICT skills and adaptation period of learning from home and work place. Adaptation in learning had in fact cause frustration in some of the nurses, which increased withdrawal rate. The learner acceptance level of e-learning improved when they reached the midterm of course which they developed relationship with peer and facilitator. This is consistent with Gabriel and Longman (2004) study on health worker, which also found that e-learning is interactive with real-life scenarios. In contrast, Akar et al. (2004) found ineffective communication with instructor and group members due to time limitation, schedule problem and no feedback from instructors. Most of them agreed that e-learning is convenient and they were at ease and interested in using technology to learn in future(Atack, 2003). These qualitative data is robust given the sample size of 20 for FGD, with the duration of 60 minute each session for three sessions to give a better view of nurses' perception in e-learning (Atack, 2003).

A USA online survey was developed by Willging and Johnson (2004) to explore the factors that influence students' decisions to drop out of online courses. Twenty eight students who dropped out of the university program were selected to participate in this study. A semi-structured open-ended questionnaire was used to collect data. Only ten (36%) of the samples completed the online survey. The reason for participated in an online course was due to its flexibility and convenience and effectiveness, the fit to the personal goals and for professional development. There were many reasons for leaving the course which were quite similar to others study such as financial commitment, time constraint, schedule and family problem. They also face the challenge of lack of support from the employer and difficulty in balancing work and study; they were unsatisfied with the course content and the learning activities. They also found the assignment were too demanding on them and very often overloaded with information. Similar problem can be seen in the Netherlands study that students were confronted with time pressure for having unrealistic pressure from group members (Akar et al., 2004). The limitation of this study was to tracking down the dropout students and the responses rate via online survey was low. Hence it needs to be careful when the result of this study is generalized. However the unique feedback given by dropout students should be used to promote retention of students. To considered future study on students who stay and completed their course.

Similarly, Gragg et al. (2003) also found that Chinese nurses were motivated to learn via web-based learning as 70% of them perceived it would be worthwhile for them to acquire ICT skill (using computer and access to internet) as means of distance learning. However, despite their enthusiasm for learning it, there were barriers which hindered them from web-based learning, such as financial constraints

on purchasing a computer and subscribing to an internet account, or restrictions on internet connection by using a telephone line. Most of the Chinese nurses were uncomfortable with the English language, which may put them off as most of the internet is English-based. Other Asian countries where English is not a primary language may share the same problem. This finding further affirmed by Akar et al. (2004)'s study that the Dutch and Turkey students perceived language difference and cultural difference were a problem to them.

Vaughan and MacVicar (2004) claimed that more than half of the employees (53%) in their study stated that their employers were supportive in the provision of training via e-learning. Only about 30% reported that management personnel had not given any support for their CPD activities – the reason given was shortage of staff for learning or training activities. Time constraints were a barrier to e-learning, for example work commitments and family pressure. Other factors reported were lack of budget, inadequacy of infrastructure intermittent internet availability, software and hardware maintenance and lack of ICT skills. Three factors motivated the employees most were it would help them to achieve lifelong learning and the course was relevant and up to date for their future career development. They also felt e-learning enabled them to access learning any way and could be accessed easily. It is also self-paced and user friendly.

Abramczyk et al. (2005), in a case study of e-learning pilot project for Polish community nurses was aim to evaluate the proposed e-train-diabetes system before implementing it to the nurses. They used Gallagher's (2007) seven possible pitfalls of distance learning to evaluate the proposed e-learning course. They attempted to overcome pitfall 1, by treating a directed learning (DL) course like a traditional face-to-face course, by beginning with a pilot study and improving the learning package

based on the feedback given. For pitfall 2, jumping straight to the course content, the research used set induction with computer games or other interesting illustrations to attract the learner attention before beginning with the content. They proposed that the learning package should be implemented under the support of the health and social care ministry to prevent pitfall 3, lacking the necessary support structure. The strategies to avoid pitfall 4, lacking motivation and manager support, were to develop the course under the official ordinance of the health and social care ministry. The nurses were rewarded with the incentive of increased wages. The research team was also well aware of pitfall 5, not planning for technology problems, and seriously considered technological support to ensure the effectiveness of e-course.

With regard to pitfall 6, failure to consider cultural and regional difference, it was not applicable to this country as it involved only Polish nurses. Finally, the plan to overcome pitfall 7, not enough time for discussion and teamwork, was to develop tools that were required to enhance discussion and teamwork. The researcher in this study had set to ensure all necessary strategies to ensure the smooth implementation of an e-training course. The lesson of this case study is to assess the readiness and feasibility of implementing an e-learning course before embarking on one. The weakness of this study was that no clear description of the study design or sampling method was given.

In a similar study in Taiwan (Yu et al., 2007) the aim was to explore the feasibility of adoption of e-learning for public health nurses continuing education. A cross sectional survey was used with random sampling of 233 nurses participates in this study. A structured questionnaire using reasons for adopting or rejecting an e-learning scale was used to determine the reason for PHN to adopt or reject e-

learning. The scale comprises 20 items (11 items for adopting and nine items for rejecting). The content was validated by six experts in the area of distance learning. The internal consistency for both subscale were respectively 0.88 and 0.78 for adopting and rejection e-learning. This study found the most common reason for PHN to adopt e-learning were achieving life learning, fulfilling personal interest, time saving based on the job needs, the diversity of information, flexibility , learning at own pace, cost-effectiveness and finally less impact on family duties and life. Those who had rejected e-learning (11.1%, n=26) as a method of CPE cited reasons for non-participation such as lack of competency with computers, inaccessibility of computers and the internet, heavy workload and family duties, personal preference, financial burdens, low motivation and self-control. This study provided valuable insight in motivation factors for adopting or rejecting e-learning. The findings may not be generalizable to other settings, as the sample size was too small to represent all nurses. On the whole this study shows that e-learning is feasible for nurses.

Wong (2008) suggested that working adults perceived moderately (mean = 3.47, SD=0.9) that one of the benefits of e-learning is efficiency, as it provides a digital library service, cost and time saving, and the ability to receive rapid feedback. They also feel the benefit of interaction in gaining knowledge. E-learner rate overall effectiveness with mean score 3.45, the items under effectiveness were multimedia improves learning, stimulation; electronic assessment and interaction improve understanding. Perception on flexibility was rated higher with 3.8 as they can learn anywhere and anytime on their own pace. They were also able to maintained working and learning just enough to apply for their job. They also found it was adaptability and repeatability. In term of limitation of e-learning, technological limitation was main concerned with mean value of 3.77. The highest

rate was necessity of computer hardware (mean=3.89) followed by inaccessibility of e-learning service (3.76) and limited internet bandwidth (mean=3.68). Personal limitations were seemed to affect most (80%) of the adult learners. The most prominence limitation was self-discipline (mean 4.11) that might lead to postponement of studies (mean=3.65). Learning new skills and technology was also rated high (mean = 3.78) and they also felt strongly preparatory training is important (mean =3.55).

With regards to physical limitations, working adults perceived e-learning was not suitable for hands on laboratory (mean=4.00), it was also lack of physical interactions (mean=3.76). Design limitation was rated with value of 3.64, students who are novice in ICT might face difficulty in adapting e-learning as courseware design was main concerned (mean =3.83) they also agree quite strongly ignorance of ICT novice needs (mean =3, 52) and appropriateness of course ware (mean =3.56). This study had also examine the perception of benefit and limitations for full time students, however for the purposed of present study where the respondents were working nurses hence only the finding for working adult were considered for references.

Schreurs and Moreau (2008) also reveal that e-learning opportunity would promote employees jab satisfaction with career development. Flexibility in learning is also seemed to motivate employee to accept e-learning. Furthermore it would save cost by reducing traveling, resulting in fewer overheads than a traditional course. Schreurs, Ehler, and Moreau (2008), on the other hand highlighted the barriers that might hinder the implementation of e-learning, such as paying high costs for customized learning activities and course contents. It was too expensive to customize to individual needs. Maintenance of hospital infrastructure will also incur

huge costs. Besides that, language was a main concern, as most of the Flemish preferred to use their national language rather than English.

2.3.3 Attitudes towards and experience of e-learning. Gould et al. (2007) in their effort benchmark best practices in web-based nursing courses adopted a flashlight program Current Student's Inventory Toolkit (CSI) to evaluate online nursing education. The flash light program is the national evaluation program of the American Association of Higher Education (AAHE), which focuses on educational technology. It has created a bank of validation questions on educational technology for researchers to use. (Gould et al., 2007) developed a tool with a 52-item call Evaluating Educational Uses of the Web in Nursing (EEUWIN) to validate an educational model with nursing students across three universities. Forty items of the scale was related to students' perception of specific outcomes, educational practices and use of technology. Two open questions seek opinions on the best things about the course and how to improve future courses. The final content was review by the nursing faculty from the research setting. The reliability test yields the consistency of Cronbach's alpha for the total tool of 0.85, but with no report for the sub-scales. About half of the students (42%) indicate they enrolled for the course because it was offer online, this explained the online course make education accessible to all. Mean score for web course are convenience was high (m= 3.7., SD= .79). Overall, students were satisfied with the web course (mean= 3.2, SD =1.18). Isolation and lack of connectedness was their main concern (mean 3.6, SD=1.08). Students' computer proficiency was significantly improved during the course when compared to at the beginning of the courses. Students were found to spend six to ten hours engaging with the task. They felt they were able to learn actively and were satisfied with their

contribution to the course. They were happy with the feedback given to them during the course. Interaction among peers and with instructors was somewhat less favorable than face-to-face learning. Students from this study did not seem to agree on the adequacy of technology support (mean 2.6, SD=1.07). The instrument used in this study was subsequently employed in later studies to investigate generational differences between nursing students across six universities using a revised EEUWIN with an additional five items (Billings, Skiba, and Connors, 2005); it was also adopted by a Hong Kong study (Sit et al., 2005). The EEUWIN was modified to better fit the nursing education, and it proved comprehensive and suitable to evaluate technology in education; caution is needed, however, when using it in current practice. ICT advances rapidly that some of the items in the tool may not be relevant to present practice.

Kenny (2002) qualitative study using focus-group interview in Australia found that students expressed their satisfaction with the feasibility of on-line learning. They said they were able to access the formal learning at any time and place of their convenience. They also could access the online material any time they wished to do so. Students in this study felt that they were able to learn actively via online learning, which provided good social interactions with peers, and learning was fun and interesting. These factors increased their enthusiasm and motivation to learn. This experience is supported by Atack and Rankin (2002), as most of the nurses had positive perceptions of the course design, resources and interaction with teacher and peers.

A study from Malaysia (Abas et al., 2003) conducted pre-online course assessment of 80 educators from the Ministry of Health to determine their readiness

to participate in an online module. The researchers developed a scale to evaluate beliefs and attitudes towards online learning based on the literature. The scale comprises 13 items, for example, "*make me more nervous*", "*something that I can cope with*", "*allow me to interact with online course facilitators*" and "*provide a flexible learning environment suitable for me as a full time employee*". The content validity process and psychometric test of the scale were not reported. Overall, most of the respondents agreed or strongly agreed with the items, with of range of 58% to 94.2 %. Three items that scored highly were: "*allows me to interact with the online course facilitators"* (95.5%); "*a positive experience*" (94.2%); and "*an interesting delivery medium to use"* (90.8%). The less favorable items were: "*easy to use*" (58%); and *"make me more anxious*" (57%). The findings of this study show a positive belief and attitude among educators towards e-learning; however, this may not reflect the attitude among nurses in clinical practice, as educators are more exposed to learning technology. This study has emphasized the importance of pre-learning assessment in ensuring effectiveness of an e-learning module.

In a survey of Chinese nurses, Gragg et al. (2003) combined and made minor modifications to existing scales which measured attitudes toward computers (ATC) in order to develop a new scale of attitude towards the internet. The word "computer" in the ATC scales was substituted by "internet". The original item has four dimensions of attitudes: 1. Comfort (*feeling of comfort with computer and it use*); 2, Efficacy (*feeling of competence*) with computers; 3. Interest (*extent to which participants are interested in learning about using computers*); and 4. Utility (*belief that computers are useful*).Gragg et al. (2003) added one further dimension, affordability. All the items had similarly good to excellent reliability except subscale

affordability (α =0.53). The scale was translated into the Chinese language and validated.

The Chinese nurses had positive attitude towards e-learning. About 70% of them expressed they ability to pick up computer skills and felt it was worthwhile learning about computers. The Chinese nurses' responses to the computer and internet comfort and confidence scales showed they experienced higher level of anxiety using the internet than when using computers. It was found that those who could read English used computers more often than those who were less proficient. Nurses with more experience at work were more likely to use a computer at work; the same was true of internet use. Respondents with higher scores for comfort and confidence in using both computers and the internet had a better attitude towards both.

Vaughan and MacVicar (2004) further support the finding that employees had a very positive attitude towards e-learning. The authors developed a scale to measure attitudes toward e-learning based on the literature. The items in the questionnaire comprise close-ended questions on employees' awareness of e-learning, who decides on learning, barriers to e-learning, attitudes to e-learning and other items .Two open-ended statements discuss how to overcome past barriers to e-learning and suggestions for improvement of future e-learning modules. A description of questionnaire and content validity and reliability test was not provided.

Most of the statements in the scales measuring attitude scores had 90% agreement, for example, e-learning must be focused on learner need, have an effective evaluation process, be interesting and interactive, and that learning is essential to update learner skills to face technological and industrial change.

Personal contact during learning makes learning experience more effective. Positive attitude alone will not accelerate learning; it needs strong support from management. Unfortunately this was not reported in this study.

In a Hong Kong study of registered nurses' perception of the experiences of online learning, Sit et al. (2005) used a self-reported online learning experience questionnaire comprising 27 items. This was developed based on the evaluation framework of the Current Student Inventory (CSI) of the flashlight program (Gould et al., 2007), and the findings from the preliminary focus-group discussion. The final questionnaire consisted of six subtitles: 1. Access to information and learning materials; 2. Flexibility and convenience; 3. Opportunity for interacting with peers; 4. Opportunity for interacting with teachers; 5. The value of the supplementary face-to face resource session; and, 6. Overall satisfaction with online learning. The content of the tool was validity by a team of educators and the internal consistency and test retest reliability of the CSI were administered, but this was not presented in the article.

Four hundred part-time post-registration baccalaureate nursing degree students were recruited in this study; only 198 (49.5%) returned complete questionnaires. More than half (56.7%) of the respondents were satisfied with the online learning. There are seven variables that explained 54% of the variance in overall satisfaction with online learning, confidence to tackle difficult tasks, ability to understand the concept taught in the subject, and taking up responsibility for one's own learning. The interactivity of the online learning material, supplementary face to face tutorial and use of technology in developing learning package and convenience was the most important factors that determine learning satisfaction.

Inadequate opportunity to discuss with teachers and peers' support led to lower levels of satisfaction among the nurses. The findings from this study may not be generalized to other settings on account of its small sample size and limitation to nurses from just one university; however its favorable outcome serves as a good reference for other nursing educators developing e-learning modules.

A Taiwanese study (Yu and Yang, 2006) investigated public health nurses' attitudes towards web-based learning using a tool developed by the authors based on the literature and expert panel interview. The tool was divided in to two subscales, basic computer competence (26 items) and attitude toward WBL (16 items). The tools were tested for reliability; the Alpha α coefficients for basic computer competence scale and scale for attitude towards WBL were 0.92 and 0.87 respectively, which is good in both scales. Random sampling was used to select 329 PHNs from the population of 2398 PHNs in Taiwan. Overall, the PHNs had a positive attitude toward WBL, especially rural nurses who were more positive than their urban counterparts. PHNs with computer skills and access to a computer at the workplace tended to have a more positive attitude. The findings from this study have naturally added value in the e-learning literature; however, its limitation to PHNs means that its findings cannot be generalized to other categories of staff. The results nevertheless provide an important guideline for future study.

2.3.4 Readiness for e-learning. E-learning modules require students to learn independently most of the time, hence self-discipline and self-regulation skills are important to success. A learner with self-directed learning readiness (SDRL) will exhibit self-discipline and self-regulation. A learner who exhibits a significant level

of self-directed learning (SDL) is an active learner with a strong desire to learn, good problem-solving skills, capable and with ability to participate in independent learning activity and able to manage their own learning autonomously (Candy, 1991; Fisher et al., 2001; Guglielmino, 1977; Hiemstra, 1994; Knowles, 1975; O'Shea, 2003). In the present study, SDLR was used to assess prospective learner readiness for e-learning.

In their case study, Chou and Chen (2008) examined six empirical studies to explore the relationship between self-directed learning and academic performance in a web-based learning environment. Six studies, three from the USA and three from Taiwan, with a sample range from 17 to 401, were considered. Of the six, three showed a significant positive relationship between SDLRS and academic performance, where students with high level of SDLR had better performance in the examination (American Nurses, 2004, as cited by Chou and Chen, 2008; Bernstein, Rieber, Stoltz, Shapiro, and Connors, 2004; Claflin, 2005). The three remaining studies found no significant relationship due to their small sample size, and the lack of reliability and validity of the instrument used (Alexander, Chadwick, Slay, Petersen, and Pass, 2002; Chou, 2003; Hegney, Tuckett, Parker, and Eley, 2008, as cited by Chou and Chen, (2008)). This case study (Chou and Chen ,2008), reflects the positive impact of SDLR on online learners' performance. In fact, Long (1951) points out those e-learning course facilitators should utilize assessment tools such as SDLRS to evaluate prospective learners' abilities for self-directed learning and implement relevant instructional strategies according to individual needs. Therefore it would be necessary to assess the nurses' SDLR before developing and implement e-learning. The subsequent studies presented are related to registered and student nurses' SDLR.

A study in Indonesia (Djenta, 2006) investigated educational intervention to improve nursing students' SDLR. A mixed-method design with experimental control group and FGD was used. Forty seven second-year nursing students in the intervention group and 54 in the control group were randomly selected. Pre- and post-test SDLR scales developed by Guglielmino were administered to evaluate the difference in mean SDLR score between the two groups. Overall the majority of the students' SDLR was below average. The intervention group had significantly better scores, which were above average, than the control group, whose SDLR remained sub-standard. The FGD finding showed that the perception of the intervention group improved. They found SDL increased their confidence, they learned better, had a sense of direction in learning, and were more active compared to the control group. The methodology for this study was rigorous as the scale used was tested for reliability and validity for its appropriateness with Cronbach alpha of 0.91. The instrument was translated into the Indonesian language. The findings from this study will provide a good reference for the present study due to the similarly in cultural practice. It also provides evidence that sound educational strategies would improve learner SDLR.

In an Australian study, Smedley (2007) assessed the SDLR of beginning BN students from a private college. The data collected were then compared with an earlier study of students in a public university in Sydney. The author also attempted to examine the validity and reliability of the scales developed by Fisher et al. (2001). The Cronbach alpha score for this study corresponded with the data provide by Fisher et al. (2001). The Cronbach alpha for self-management (13 items) was 0.81, desire for learning (12 items) 0.78, and self-control (15 items), 0.844. All 67 students returned the self-reported SDLR scales. The overall mean score was

151.09, which was higher than the cut-off point of 150 suggested by Fisher et al.'s (2001) score of 150.55. The mean score for all subscales were also similar to Fisher's scales. It was also found to be significantly different in SDLR score by age; younger students are less ready for SDL than older students, and those who have work experience were more ready for SDL. It shows that SDL improves with life experience. (Smedley, 2007) recommended a screening mechanism to assess students prior to enrolment on any course that requires a significant level of SDL, for example online learning or distance courses. Without this ability, students will not able to cope with the course, putting them at risk of failure. Pre-entry assessment will help to identify students required to develop SDL skill and provide them with preparatory training before embarking on tertiary study.

Huang (2008) used a two-stage mixed-method design to examine the factors influencing SDL among Taiwanese nursing students. In stage one, the outcome from semi-structured interview of eight undergraduate nursing students found that they experienced more SDL in tertiary study, and that they perceived that the factors influencing SDL activities were interaction between teacher and students, facilitation process and learning resources. Huang (2008) adopted Fisher's SDLR scale to evaluate 369 students SDLR in a cross-sectional survey. The tool was translated into Chinese, test-retest was carried out to check the reliability of tools, the Cronbach alpha for overall scale was 0.92, and all the subscale readings were consistent with Fisher's findings. The overall SDLR score for the entire sample was142.2, which was lower than the cut-off point of 150 suggested by Fisher et al. (2001). This study also supports Smedley's (2007) finding that students with work experience exhibit better SDLR than their counterparts. This study employed rigorous psychometric testing to ensure the tools used were valid and reliable to

provide evidence of the appropriateness of using the tool established in Australia by Asian nurses.

In a Turkish study, Kocaman, Dicle, and Ugur (2009) undertook a longitudinal analysis of student nurses' SDLR level throughout a four-year course. Fifty out of 59 students enrolled in a PBL integrated program in September 2002 were assessed for their SDLR level at five points, at the beginning of the each academic year and at the end of the course. This study also employed the SDLR scale developed by Fisher et al. (2001). The scale was translated into Turkish and tested for validity and reliability, though the Cronbach alpha value was not reported. The SDLR for students increased significantly from time point one (160) to time point five (185). The SDLR for first-year students was higher than the cut-off point of Australian students of 150 (Fisher et al., 2001). This study set a good indication of nursing students' SDLR scale increase, with maturation alongside the program that facilitated the development of SDL skills such as PBL. The longitudinal study with five-point measurement provided strong supporting evidence. The causative effect of PBL may be weak due to lack of comparison with nursing students enrolled in conventional didactic learning.

In her phenomenological study of Thai nurses' self-directed learning in clinical practice, Nokdee (2007) found that nurses in Thailand possessed good self-directed learning ability. This qualitative study aimed to explore the nurses' perception of the process of self-directed learning in clinical practice. Purposive sampling was conducted to recruit seven nurses from seven wards and four nurse educators from four departments of a general hospital with 500 beds. The data collection method was semi-structured interview, observation of participant and

memo for seven months. The author used inductive analysis, from which four themes emerged: independent learning; effective in learning; accepting of responsibility for learning; and able to use problem-solving skills. They were able to make inventory of learning needs and decide their own learning method. Nurse educators play an important role in guiding and supervising nurses to establish and strengthen SDL opportunity in clinical practice. This study confirms that nurses do have SDLR and capable of participating in distance learning, however the magnitude of generalization to other settings may be questionable as the study was undertaken in one hospital.

Another Thai study by Klunklin, Viseskul and Sripusanapan (2010) investigated the readiness for SDL of nursing students from Chiang Mai University. Stratified proportional stratified sampling was use to recruit 272 nurses from the total population of 552 students undertaking a four-year degree program.

The researcher used Guglielmino's SDLR scale, which comprise of 58 items to collect data. It was translated to Thai language and was modified for Thai nursing students. The scale was then validated by five experts for its content validity and clarity. The tool was also piloted and tested for reliability with Cronbach alpha of 0.93. The overall mean score of SDLR was 3.68 (high level). The SDLR score in year 4 was significantly improved from the previous years at p value of less than 0.05. The finding from this study strengthens the evidence that Asian nurses and students nurse do possess high level of SDLR. The limitation of this study was it did not compare the SDLR between an SDL integrated program and a traditional program to yield a stronger effect of learning method using SDL.

O’Shea (2003) in her literature review on SDL readiness had reveal that most of the nursing researchers had adopted Guglielmino (1977) SDLR scale to addressed self-directed learning readiness (Marshall and Merritt, 1986; O'Kell, 1988; Prociuk, 1990; Wiley, 1983).

Guglielmino (1977) developed the SDLR scale for her PhD project using Delphi survey. The author obtained a pool of items for inventory from literature review and sent to a panel of 14 experts. The Delphi technique was administered to finalize the sets of items to come to agreement on the characteristic, which is prominence of SDL. The characteristics identified include attitude, abilities and personality. The final set of items was tested by 307 students in Georgia, Canada and Virginia with reliability of 0.87. the final SDLR scale were then expanded to 58 items under eight factors, openness to learning opportunities; self-concept as an effective learner; initiative and independence in learning; informed acceptance of responsibility for one’s own learning; love of learning; creativity; positive orientation to the future and ability to use basic study and problem solving. In 1988 the compilation of 3151 respondents who responded to SDLRS was tested for reliability using Pearson split-half reliability estimate, which yielded a finding of .94.

There are studies which challenge the reliability of the Guglielmino’s SDLRS when used in different racial and class populations (Long and Agyckum, 1984; Straka, 1995). Furthermore, Long and Agyckum (1984) were not able to validate the SDLRS when comparing SDL readiness scores and teacher ratings and concluded that it was possible that the SDLRS does not measure self-direction in learning. In supporting the weakness of this tool, there are researchers (Candy, 1991; Field, 1989; Fisher et al., 2001; Straka, 1995) query about the reliability, construct validity and cost of this tool.

Guglielmino's SDLRS are not readily available and involve cost for it usage beside of the questions on its reliability and validity. As a result of these problems, Fisher et al. (2001) have set to device a SDLR scale for nursing education. They used the Delphi technique with a panel of 11 nurse educators to assess the content and construct validity of a number of items perceived to reflect self-directed learning readiness. The questionnaire was then administered to a convenient sample of 201 undergraduate nursing students. The statistical analysis justify the resulting scale is valid and suitable to assist nurse educators in diagnosing learner needs. This scale had been used in many nursing research (Huang, 2008; Smedley, 2007). This instrument comprised of 40 items using a five point Likert scale (1-50) of strongly disagrees to strongly agree. The tool was divided into three subscales namely self-management (13 items), desire for learning (12 items) and self-control (15 items). The scale was tested for its reliability with Cronbach alpha 0.92, and for the subscale were 0.85, 0.85 and 0.83 respectively. Fisher et al., (2010) undertaken a cross sectional survey of 227 first year undergraduate nursing students to re-examine the factor structure of the subscales of the SDLRS and provide evidence of its validity. Three one model congeneric models were used to examine the factor structure. The factors structure fit the model well and 11 items need to be removing from the 40 items scale because they failed to provide good fit with their subscale. The authors suggest that the 40 item SDLRS should be used until further investigation of the relationships between variable (items) across factors in different samples.

2.4 Summary of the Literature Review

The literature review has covered an overview of this study. The role of CPE has been discussed and debate on how it could improve patient care which had call for MCPE around the world. Even though CPE is well accepted, the definition of CPE is varies across the globe and MCPE remained controversy on how far could it improve the nurses knowledge and make them more competence. Despite this argument, the support for CPE is apparent. There are many methods of CPE nurses could access, for example conference, seminar, workshops and etc. Most of the time, it refers to the conventional type of face-to face learning which time consuming, costly and limited access. These could be leading to the barrier that deters nurses from participating in CPE. Thus e-learning should be an alternative to encourage nurses to engage in CPE activities as it is also easily accessible, no space or time limitation.

The definition of e-learning is not conclusive, it always used interchangeable with on-line learning, web-based learning and net-learning. E-learning can be conducted as supplementary or complementary or independently with synchronous or asynchronously. Before embarking in e-learning the educator needs to consider many factors to ensure the learner are ready in order to achieve the desire outcome. Physical readiness such as computer and internet access are the most important factors as it set a base to initiate web-based learning. Learners should equipped with minima ICT skills and have positive attitude towards e-learning. Organizational support in terms of budget and infrastructure in IT are crucial to ensure successful e-education. The relevant pedagogy in e-learning for nurses is adult learning, emphasizing self-directed learning and constructivism, in others words nurses are expected to determine their own learning needs and able to build up their learning

from their previous experience. Finally, e-learning are claimed to be more effective and cost effective than the conventional learning method.

This chapter has identified the gaps in the CPE practice among Malaysian nurses and e-learning practice. It has lack of study on assessing the nurses' future needs about CPE and they were no evaluation on CPE practice after the implementation of CPE. This chapter also reveals no study has been undertaken to determine Malaysian nurses' readiness for e-learning. Most of the nursing studies were focusing on pre-registration than post registration students. Only two studies have explored the readiness of learner before developing the e-learning module and an individual need was neglected.

The extensive literature review had provided a yard stick in developing the conceptual framework for the present study which clearly describes the aim and objective of this study. The literature also provide evidence to justify the significant benefit to undertaken this study. The following chapter will be presenting the conceptual frame work, aim and significant of this study to nursing profession.

CHAPTER 3
CONCEPTUAL FRAMEWORK AND RESEARCH DESIGN

3.1 Overview of Chapter

This chapter is organized into five major sections. The first section presents the conceptual framework that underpins the study. Follow by the objectives and research questions. The subsequence section describes the research plan which explains the research design for the entire study. Finally the last section presents the justification or significant of the present study.

3.2 Conceptual Framework

Figure 3.1 presents the two main concepts that will be applied in this study. There are the concept of continuing professional education (CPE) and the concept of e-learning or online learning.

3.2.1 The concept of Continuing Professional Education. Continuing Professional Education (CPE) is the education of professional practitioner

that follow their preparatory curriculum and extend their learning, or assimilation of information and idea that can contribute to the quality of their daily work/performance, throughout their career (Queeney, 1996, P.698). It has been an accepted notion that CPE is important in promoting the professionalization process for nurses as whole. Therefore it is the nurses who should take the responsibility to ensure their education needs are met. Nurses should realize that in order to cope and be sustainable in their workforce they must be able to face the challenge of ever changes world. Advancement in technology and information communication

technology has made the healthcare system become dynamic. What nurses learnt during training may be obsolete in today's practice. As many advocates have emphasized, these changes require innovative, flexible and knowledgeable practitioners who are life-long learners to be committed to their professional development (Audit Commission, 1991)(English National Board for Nursing Midwifery and Health Visiting, 1990; Orme, 1992; United Kingdom Centre Council for Nursing Midwifery and Health visiting, 1986). Health delivery reformation demanded an adaptable workforce, thus practice nurses need to continue update skills to face this demand.

3.2.2 The concept of E-Learning/Online Learning. E-learning is defined as "education created and delivered by using technologies related to computer, the internet and telephony, in combination or in isolation (Chadha and Kumail, 2001). Another definition by e- learner.com, (2000), Para 2 as cited by Piskurich (2003) a form of learning that utilizes a network for delivery, interaction, or facilitation (in a few years you might not even use the computer). The network could be the internet, a school or college LAN or even a complete WAN. The learning could be place individually (guide or instructed by a computer) or as part of a class. Online classes meet either synchronously (at the same time) or asynchronously (at different times), or some combination of the two. E-learning can be illustrated as learning that occurs as a result of information obtained via an electronic means and that the process may include diverse formats and procedures.

3.2.3 Self-directed learning. Self-directed learning (SDL) is considered important in adult learning. SDL skills are expected to be an outcome of various learning models, including online/e-learning (Hiemstra, 1994). Few assumptions about SDL readiness have been made. Firstly, adults are inherently self-directing, it means readiness to learn is in a person to certain extent along the continuum of learning. Secondly, competencies required for self-direction can be developed to some extent and behaving autonomous is the best way to learn. Finally, the ability to learn independently in one situation of context can be generalized to other settings (Candy, 1991; Guglielmino, 1989). Fisher, King, and Tague (2001) clarify that the final assumption should be held carefully, as an individual who hold the high level of SDL readiness in a given situation may not maintained the same level of SDL readiness in an unfamiliar place. In spite of skill and personality characteristics would be transferable to a different situation. Yet, an individual needs to be equipped with a certain level of knowledge before he or she could be ready for SDL in a specialized area of content. A self-directed learning readiness scale (SDLR) developed by Fisher Murray Conceptual Frame work for this study is structured based on the three concepts mentioned above.

This study was conducted in two phases. In the first phase, a cross-sectional survey was conducted the dependent variable is CPE practice. The independent variables are the factors that affected the CPE practices and demographic data. The findings of this survey provide the background of the next phase of this project.

The second phase survey is a needs analysis to assess the nurses' readiness for e-learning and their SDL readiness. Learners' attitudes towards e-learning were also assessed. Recommendations to the Malaysia Economic Unit generally and the Malaysia Nursing and Midwifery Board specifically was drawn to give suggested to

improvements for CPE practice among nurses, and implementation of e-learning as part of the CPE program.

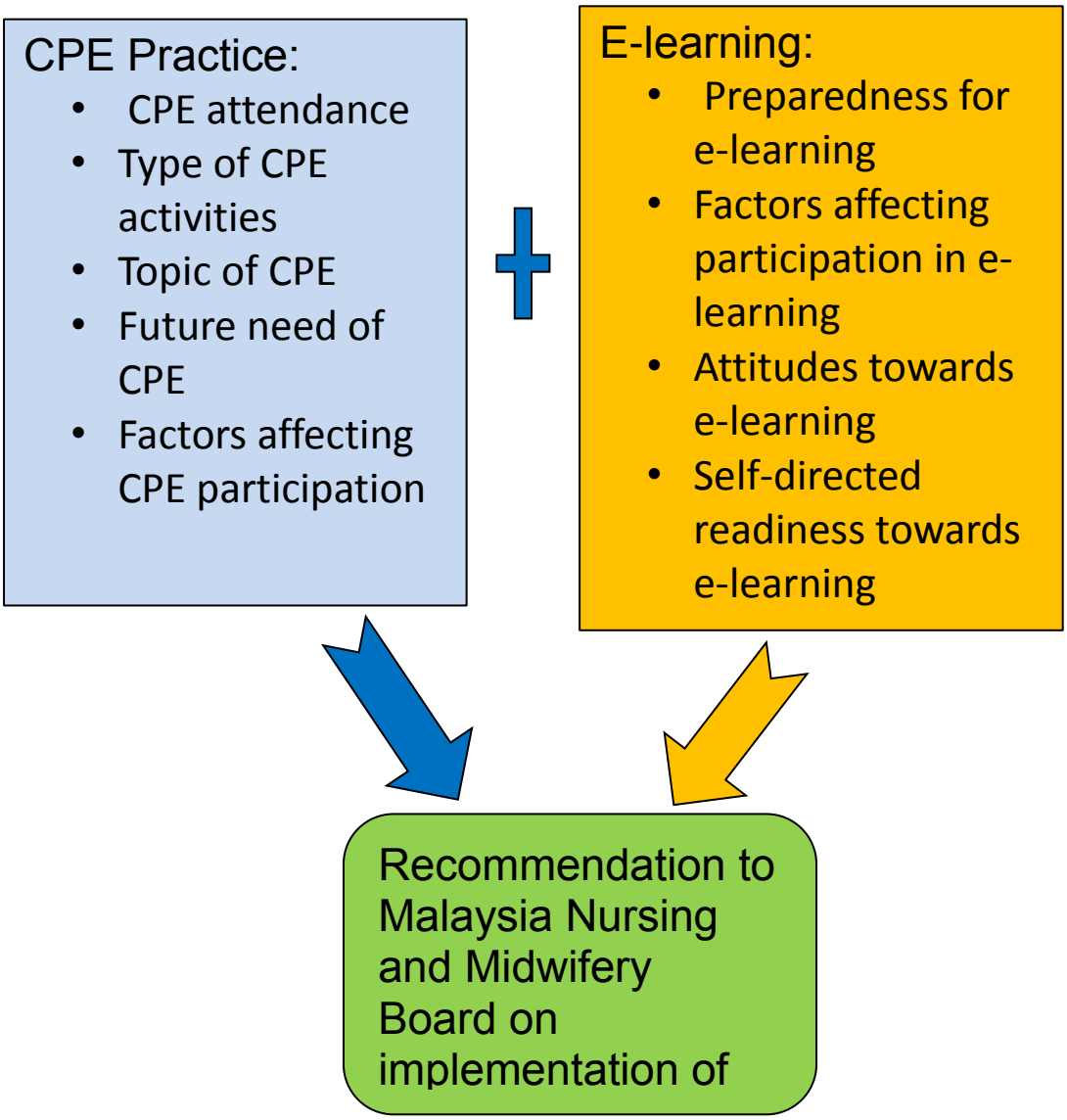

*Figure 3.1.*Conceptual framework

3.3 Study Objective

3.3.1 General Objective. The overall study objective is to facilitate continuing professional education through e-learning to enhance the nursing professional standard.

3.3.2 Specific Objectives.

1. To explore the current practices of continuing professional education among registered nurses in Malaysia.
2. To determine motivation and deterrence factors that affect nurses' participation in CPE activities.
3. To investigate registered nurses' attitudes towards e-learning.
4. To investigate registered nurses' self-directed learning readiness to undertaking continuing professional education activities and courses by e-learning.

3.4 Research Questions

1. What are the current practices of CPE in Malaysia?
2. Are Malaysian nurses ready for e-learning?
3. What is the nurses' attitude towards e-learning?
4. Are Malaysian nurses self-directed learning ready to undertake CPE via e-learning?

3.5 Operational Definition

Continuing Professional Education (CPE) practice

CPE refers to educational activities, which are relevant to the nursing profession for developing, expanding and understanding knowledge to upgrade nursing practice by attending seminars, short courses, in-service education, workshop and conferences or online learning.

CPE Credit Point

The credit point for CPE in this study refers to the contact hours that nurse engaging with CPE activities as recommended by Malaysian Nursing Board. One hour of contact hour is given I credit points. RNS need minima of 25-30 hours for re-licensure.

Factors motivating participation in CPE

Factors that motivate nurses to participate in CPE for example give quality care to patients, update my knowledge, improve the nursing skills in clinical practice, increase competency and adhere to hospital policy.

Factors deterring participation in CPE

Factors deter nurses from participating I CPE such as work commitments, time constraints cost of courses and lack of support from supervisor and organization.

E-learning

It refers to learning process which uses computer-based technologies to create, foster, deliver, and facilitate learning, any time and anyway. The digitally delivered content /information will be presented in multimedia forms (text, slides, animation, and video, audio, graphic).

Preparedness for e-learning

It refers to the readiness of RNs for e-learning. RNs will be assessed on their readiness to use e-learning in CPE. The readiness includes access to and use of computer and internet facilities. The nurse's interest and opinion on prospective e-learning module. RNs readiness also refers to ICT skills and SDLR.

Factors effecting participation in e-learning activities

Factors that motivate RNs participation in CPE via e-learning are Achieving lifelong learning, flexibility in time and space, broaden one horizon with diversity and latest knowledge, self-directed learning and cost –effectiveness.

Deterrent factors that prevent RNs are lack of support from supervisors, lack of ICT support, lack of access to computer with an internet connection and difficulties with understanding English and computer vocabulary.

Attitudes toward e-learning

RNs attitudes toward e-learning were measure using a scale which consist of 28 items under three subscale of use of computer, convenience and flexibility, interaction with facilitator and other students, access to knowledge, positive learning experience and improve nursing care.

Self-Directed Learning Readiness

This refers to an individual's readiness for SDL which were measured using 40 items scales with three subheading, self-management, desire for learning and self-control.

Registered Nurse (RNs)

It represents the nurses, who have undergone a three year diploma in nursing or four years degree in nursing and registered with the Malaysian Nursing Board and who currently have a license to practice as a state registered nurse (SRN) and who are currently working in a hospital in the fourth region of Malaysia.

3.6 Research plan

To address these issues, the current study plan was divided into two phases:

3.6.1 First phase. To survey the CPE Practice among Malaysian nurses in order to achieve the first and second objectives of this study:

1. To explore the current practices of Continuing Professional Education among registered nurses in Malaysia.
2. To determine motivation and deterrence factors that affect nurses' participation in CPE activities.

This phase is presented in Chapter Three, which consists of methodology, study setting, sample and sampling method, instrument, pretesting, ethic consideration, data collection procedure, data analysis, results, discussion, summary.

3.6.2 Second phase. To survey the readiness of Malaysian nurses to participate in CPE via learning mode in order to achieve the third and fourth study objectives:

3. To investigate registered nurses' readiness for and attitudes towards E-learning.

4. To investigate registered nurses' self-directed learning readiness to undertake continuing professional education activities and course by e-learning mode.

This phase is presented in Chapters Four, which consist of methodology, study setting, sample and sampling method, instrument, pretesting, ethic consideration, data collection procedure, data analysis, results, discussion, and summary.

3.7 Significance of the study

This study will certainly be significant for patient care, the nursing profession, healthcare institutions, and the healthcare delivery system of the Malaysian nation as whole. First of all, the significant impact of MCPE will be discussed, followed by that of e-learning.

3.7.1 Personal development. The study finding will be able to show the level of awareness among RNs in the public and private sectors of importance of mandatory CPE participation that they need to obtain minimal contact hours of continuing professional education as implemented by Nursing and Midwifery Board Malaysia. The stakeholder will then be able to impose appropriate measures to create awareness among nurses. Nurses should inculcate the culture of CPE and take

responsibility themselves for seeking knowledge and improving their skills in order to be competent in practice.

First of all, as explained by Piskurich (2003), for more than 50 years adults have cited two major obstacles to continuing to learn: lack of time and lack of money (or the cost is too great). E-learning addresses both of these obstacles. It provides temporal as well as geographical independence for the learner. Nurses will be able to access study material at any time and at his or her own pace (Gomez and Lush, 2006).

In asynchronous modes learners are not obliged to meet with an instructor or trainer at a specific time. Nurses can learn while they travel and work at different locations, without being required to engage in traditional place-based educational or training activities (Piskurich, 2003).

E-learning provides unlimited opportunity to practice different applications. Virtual realities based programs as used in healthcare also provide safe practice opportunity that would not be readily available in other modes. Thus, the availability of similar practice and review opportunities will vary with the kind of e-learning you choose.

It is readily apparent that e-learning encourages and requires self-responsibility. If nurses are the type of person who needs the structure of a definite meeting time and place, as is common to traditional learning, they may need to change their lifestyle and preferences to accommodate the new freedom associated with e-learning.

E-learning allows the motivated learner who is comfortable with the asynchronous mode to use e-learning in an autodidactic manner that frees them from

the expectations, requirements, and routines of other more powerful people. They choose the topic, they determine the time, and they set the criteria for success, and so forth. In short, this study will certainly enlighten existing nurses with an alternative learning method that could provide them with the latest information rapidly just with a click.

3.7.2. Nursing organization. The study also hopes to provide a guideline for the Nursing and Midwifery Board Malaysia in planning strategy for CPE activities according to the nurses' needs, based on adult learning. The planning will then be based on nurses' individual needs, and the content of the courses on the desired learning outcome, in order to ensure the positive impact of the CPE in improving patient care and not merely to achieve the required credit hours. It will enable the nursing division to overcome the deterrent factors that discourage nurses from participating in CPE programs, and reinforce the behavior that motivates them to do so. Strategic CPE planning will certainly benefit not only the nurses themselves, but also healthcare institutions and patients.

Nurses will have greater job satisfaction, which could improve retention rates. They are likely to be more competent and able to perform effectively. Nurses' efficiency will increase the quality of patient care, thus shortening hospitalization times. In the long term, it will reduce the cost of treatment. Eventually, in an era of e-knowledge, CPE will facilitate the efforts of Malaysian nurses to achieve professional status.

The findings on readiness for and attitudes to e-learning will provide valuable information to assess whether Malaysian nurses are ready to learn via

online courses. The findings on nurses' attitudes towards computers and e-learning will allow stakeholders to assess the feasibility of developing e-learning for Malaysian nurses. Nurse educators will be able to develop a relevant model based on the data collected. Nurses need to be self-directed learners when undertaking e-learning, as they will be required to study on their own for most of the time. Thus the findings on SDLR will assist educators in structuring learning according to the learners' ability to learn independently. Finally, the evaluation of the model will help educators to improve the model when necessary. E-learning for nurses should be supported, as the completion of this study will set a milestone for the nursing profession in Malaysia and bring our nurses to a higher level in the provision of patient care. Why e-learning? The following reasons should be sufficient to justify nurses' engagement in e-learning and provide reasons for organizations to support it.

3.7.3 Institutions and policy-makers. This study aims to provide the principal policy-maker, the Ministry of Health, with information that could be referenced for any future CPD plan for the healthcare system, particularly for nurses. It could also assist the healthcare delivery system in developing the knowledgeable and competent human capital that would contribute to a high level of efficient healthcare.

Various justifications have been identified for e-learning. The following are the reasons why e-learning is well accepted by the institution as suggested by (Piskurich, 2003):

1. International business: the trend toward global business the stage for the delivery of nursing training and education via electronic means.

2. Speed of development and delivery: many corporations have found that paper- and platform- (classroom) based training was obsolete by the time the courseware was developed and distributed. Electronic-based material meets the just-in-time learning needs of the corporation better than much of the formally provided classroom instruction. This is crucial for nursing as health information and technology advance rapidly which require them to be more sensitive to the access of information.

3. Flexibility: e-learning can be used by managers and other employees according to their own schedules and at dispersed locations.

4. Cost savings: the prospect of savings has attracted great attention. IBM is reported to have estimated saving s of $175 million in 1999, computed at $490 per student day in avoiding such expenses as travel, course fees, and other efficiencies of classroom instruction. Cisco Systems reportedly saves at least $240 million annually, allocated at $12,000 per year for each employee who previously would have attended four classes a year. One training research organization estimates that companies experience a 40–60% cost saving when moving from classroom – to technology-based training (Terry, 2000, cited in Piskurich, 2003). The DOW Chemical Corporation devised a corporate wide training system known as learn@dow.now in 1999. The system cost $1.3. Million initially and requires $600,000 in annual maintenance cost. Over forty thousand employees took and passed a six-hour course between October 2000 and February 2001 at a saving of nearly $2.7 million (Overby, 2002, cited in Chadha and Kumail, 2002, "From the Ohio Board of Nursing: continuing nursing education," ; Piskurich, 2003).

3.8 Summary

In this chapter presented the overview of the present study. The conceptual framework describes the concept of CPE, e-learning and e-learning readiness. CPE was found to be important to update knowledge to enhance skill and improve competency in nursing practice. The main obstacle to participation in CPE are time constrain, lack of support from superior, work and family commitment and geographical constraints. E-learning may be an alternative mean for CPE as explained in the following section. E-learning is defined as electronic learning using computer and internet. E-learner can learn any way and any time.
E-learning readiness's assessment was used to gauge the feasibility of implementing e-learning mode to learner. Concept of SDLR is integrated in the present study as evidence shows student with good SDLR score performed better in their e-learning courses.

The present study is divided into two phase. First phase of the study was a CPE survey of Malaysian nurses and second phase was the survey to explore the nurses' readiness towards e-learning. First and second phases of the study will be elaborate in chapter four and five respectively. The operation terms were clearly described for the purpose of the present study. The finding of the present study will be able to set a breakthrough for the future of nursing education in Malaysian.

CHAPTER 4

PRACTICE OF CONTINUING PROFESSIONAL EDUCATION AMONG MALAYSIA NURSES

METHODOLOGY, RESULT AND DISCUSSION

4.1 Overview of Chapter

This chapter presents the first phase of the study which was designed to survey the CPE practices of Malaysia nurses. The main objective of the survey was to identify current practices and the factors affecting nurses' participation in CPE activities. The chapter is organised into three main sections. The first section describes the methodology used to conduct the survey; the second section presents the results, and the third section is a discussion of key findings.

4.2 Methodology

The description of the study methodology includes details of the research design, study setting, target population and sample selection, instrumentation, and data collection procedures. Also included is a description of ethical considerations and data analysis strategies.

4.2.1 Study design. A quantitative cross-sectional survey design was used for this first phase of the study to obtain information on the CPE practices of Malaysian nurses and the factors that motivate and deter CPE participation. Burns et al.(2007)defines survey research as "a systematic method for gathering

information from (a sample of) entities for the purposes of constructing quantitative descriptors of the attributes of the larger population". According to Polit and Beck (2004) the survey approach is an effective method for collecting information on the prevalence, distribution and interrelationship of variables from large populations.

Thus a survey approach was considered appropriate for this phase as it required the collection of data from a large sample of Malaysian nurses. In addition, a cross-sectional quantitative survey allows the researcher to describe current CPE practices and identify factors influencing CPE participation. According to (Nieswiadomy, 2008) with a cross sectional survey design subjects are studied at one point in time. In this way a large amount of data can be collected in a relatively short period of time at minimal cost.

4.2.2 Study setting. This survey was confined to nurses working in Peninsula Malaysia. The reason for the decision not to include West Malaysia was time and cost constraints that would be incurred if all Malaysian nurses were surveyed. Peninsular Malaysia was chosen as it includes 80% of the population, offers more health care services, and employs more nurses. The decision to only survey nurses working in government hospitals and community health clinics was because a greater proportion of nurses are employed in the government sector. The other reason is that continuing professional development (CPD) activities are managed by nursing administrations according to CPD unit guidelines specified by the Malaysia Nursing Board (Nursing and Midwifery Board Malaysia, 2008a).

Peninsula Malaysia is divided into four regions that include 11 states and 2 federal territories: Northern region (Perlis, Kedah, Penang and Perak), East Coast

Region (Kelantan, Terengganu, Pahang), Central Region (Selangor, Federal territories of Kuala Lumpur and Putrajaya), and Southern Region (Negeri Sembilan, Malacca, Johor). See Figure 4.1(Wikipedia, 2011).

*Figure 4.1.*States and territories of Peninsula Malaysia

4.2.3 Population and sample.

4.2.3.1 Target population. The target population for this study was 32,000 registered nurses employed in government hospitals and community clinics from four states of Peninsular Malaysia. The states are located in four regions namely north, south, each and west of Peninsular Malaysia. (Stefanik et al., 1994). The criteria for inclusion in the survey were that nurses had at least one year of nursing experience and were currently working as an RN in Malaysia. Nurses who were on leave from their employment at the time of the survey were not included.

4.2.3.2 Sample size estimation. The purpose of drawing a sample is to make an inference about the population parameters from the information collected from it (Scheaffer, Mendenhall III, and Ott, 2006). Scheaffer et al. (2006) further explained that a survey design that produces a precise estimation of parameters for a fixed sample size would be able to yields a savings in cost to the researchers. The sample size doesn't change much if the population size is larger than 20000 (Chinna, Karuthan, & Choo, 2012; Chua, 2013). the population for this study is 32000 registered nurses which is consider large sample therefore the formula by Rea and Parker (2005) was used to calculate sample size ,

$$n = \left(\frac{za\sqrt{\rho(1-\rho)}}{ME\rho}\right)^2$$

The parameters used to calculate the sample size were:

Za = the accepted range of standard deviation or Critical Z score. For this study it was set as between - 1.96 and 1.96 at 95% level of confidents. This decision was

made because for education and social sciences studies, the p value for sample size determination is 0.05 at 95% level of confidence (Chua, 2013).

P = proportion in terms of response distribution, this is set base on the finding from previous study, for example the proportion of nurses attended CPE from random sampling of 100 people ,60 said yes and 40 said no, then the proportion set for those who had attended CPE would be 0.6. Rea and Parker (2005) suggested that the most conservative way of handling unknown proportion to calculate sample size is to set a value of proportion at 50% (0. 5)to obtain the higher sample size. For this study , the value for proportion was set at 50% due to big variation of proportion for previous studies to ensure a representative sample size.

MEp = Margin of error is the amount of error that can be tolerated. The value margin of error often set at 5% (Rea and Parker,2005), however due to the inconsitency in marginal error shown in CPE literature, the researcher decided to use a smaller *MEp* for sample size calculation , therefore the values used for this study is 4% (<5%) to yield a more precise findings.

To obtain the appropriate sample size for this study was:

Za = 1.96

P = 0.5

MEp = 4%

$$n = \left(\frac{(1.96)(0.5)}{0.04}\right)^2 = 600.25$$

Ω 601

The calculated n was rounded to the next highest whole number so the size of 601 nurses was required for this study.

It is suggested by Punch (2003) that estimates of sample size take into account the non-response rate which is commonly found to be as high as 60% with mailed questionnaire surveys. Thus the decision was to recruit an additional 400 participants which given to a sample of 1000RNs

4.2.3.3 Sampling method. To obtain a representative sample of 1,000 RN's a multistage cluster sampling method was used. This method of probability sampling involves randomly selecting elements of the population in successive stages, progressing from the largest element or natural group through to the smallest sampling unit. Multistage cluster sampling was chosen for this survey as it is considered by Polit and Beck(2004) to be "more economical and practical than other types of probability sampling, particularly when the population is large and widely dispersed" (Polit and Beck, 2004, p. 298).

For this study a three stage cluster sampling method was used. The first stage was to randomly select one state/territory from each of the four Peninsula Malaysia regions: Penang (Northern region), Johor (Southern region), Pahang (Eastern region) and Selangor (Central region). For the second stage all government hospitals and district health offices in each selected state were identified (see Table 4.1), from which one primary hospital, one secondary hospital, one tertiary hospital and one health office from each state were randomly selected.

Table 4.1

Distribution of Government Hospitals and District Health Offices by State

State	Primary hospital	Secondary hospital	Tertiary hospital	Health district offices
Selangor	5	3	2	11
Penang	3	2	1	7
Pahang	6	2	1	10
Johor	3	5	3	8
Total	17	12	7	36

For the third and final stage, proportional random sampling was used to select a sample of 1000 registered nurses from selected hospitals and district heath offices based on an estimated average registered nurses population for each of the four types of institutions. Table 4.2 shows the sample sizes for each site across the four states.

Table 4.2

Proportional Sampling by Site for Each of the Four States

	Tertiary Hospital	Secondary Hospital	Primary Hospital	District Health Office	*Total sample size by site*	*Total sample size (x4)*
Estimated nurse population	1000	500	100	80		
Sample	135	65	30	20	250	1000

4.2.4 Data collection instrument. A self -report questionnaire was designed for this study to obtain four sets of measures: socio-demographic details; participation in CPE activities; the importance of CPE for professional/career development; and factors influencing CPE participation. A description of each set of measures is given below. The five point Likert scale which is originally devised to determine the opinion or attitude of a respondents with a value of 1 assign to the most negative response and the most positive response will be given a value of 5(Burns and Grove, 2005). The present study used agreement statement, '1= not at all, 2= a little, 3= somewhat, 4= moderately, 5 = a great deal' for opinion scale for important of CPE and factors affecting CPE, and factors affecting CPE via e-learning. Agreement statement such as '1= strongly disagree, 2= disagree, 3= uncertain, 4= agree, 5 =strongly agree' was used in the attitude towards e-learning scale and SDLR scale. Five point Likert scales were used as it produce more homogeneous scales and yield reasonably high validity and reliability (Burns, 2000). According to Burns and Grove (2005) respondents may avoid deciding on the positive and negative statement by choosing the neutral statements. They further argued that five points scale would be better than the force choice method (even choices) as it would irritate the respondents and leave the statement without response (Burns and Grove, 2005). Using five point Likert scale for the present study allows the researchers to compare and contrast with previous studies because most of the related studies used the similar scale (Abas et al., 2003; Fisher et al., 2001; Hegney et al., 2010; Lee, 2004; Yu and Yang, 2006).

4.2.4.1 Socio-demographic information. The first part of the questionnaire recorded the socio -demographic characteristics of the sample which included gender, age (in years), marital status (single, married, divorced or separated and widowed), number of children, and monthly household income (in Malaysia Ringgit). Also requested was information on number of years of experience as a registered nurse, highest professional nursing qualification (e.g. nursing diploma, Bachelor of Nursing) and the institution (tertiary hospital, secondary hospital, primary hospital, health clinic) and state in which participants were working. These items were selected as they were thought to be factors that could influence participation in CPE.

4.2.4.2 Continuing professional education activities. The second part of the questionnaire requested information on the type and frequency of CPE activities undertaken in the last 12 months. Participants were presented with a list of nine CPE activities (e.g. in -service education, workshops, advance nursing course, conference attendance, research) with the option to add other activities not listed; and ask to specify the number, duration (in hours) and topic (e.g. specialty nursing, general nursing, indirect nursing) for each activity. The duration of the activities were then used to calculate the credit points obtained by respondents based on the Nursing and Midwifery Board of Malaysia's continuing professional development guidelines (Nursing and Midwifery Board Malaysia, 2008a).

4.2.4.3 Importance of CPE. This third section of the questionnaire, which included two parts, assessed respondents' perception on the importance of the CPE for their career development. The first part asked participants to rate the importance of the type of activity (e.g. in-service education, orientation programs, workshops, advance nursing courses, and conferences) using a five point rating scale ranging from 1= not at all, 2= a little, 3= somewhat, 4= moderately, 5 = a great deal. The second part asked them to use the same rating scale to indicate the importance of the topic of the CPE activity (e.g. specialty nursing, general nursing, indirect nursing, management, research). For both parts an option was given to add other activities and topics not listed.

4.2.4.4 Factors influencing CPE participation. The fourth part of questionnaire was also divided into two sections. The first section included an 18 item scale designed to identify factors that motivated participation in CPE activities (e.g. update knowledge, adhere to hospital policy, gain qualifications, increase self-esteem). The second section contained a 16- item scale to identify factors that deterred participation in CPE (e.g. cost, lack of organization support, time constraints, lack of access, family commitments). Participants were asked to rate each item on the two scales using a 5 point Likert scale ranging from of 1= not at all to 5 = a great deal to assess the extent to which the factor motivated or deterred them from participating in CPE activities. Each scale also included the option to rate other factors not listed. Selection of items and the design of the scales were informed by a review of the literature and the tool reported by Ryan(2003).

4.2.5 Content validity of the instrument. Content validity was examined using two strategies. The first strategy was a review of questionnaire items by a 10 member expert panel comprise three professor in nursing, two nursing lecturer, the director of nursing of MNMB, the president of Malaysian Nursing Association and two nursing officer from the hospitals. The panel members were with expertise in nursing education in general, CPE in particular, and questionnaire design. Panel members were asked to comment on the relevance and wording of items to the constructs being measured. The content validity index (CVI) developed by Waltz and Bausell (1983) was used to determine the relevancy, clarity, simplicity and ambiguity of each item. The experts were required to rate each item based on relevance, clarity, simplicity and ambiguity on the four –point scale (Waltz and Bausell, 1983). The overall CVIs for the present tools were 0.95. All items were acceptable with CVIs ranging from 0.85 to 1. According to Polit and Beck (2004) a CVI of 0.8 or more reflects a good content validity.

The second strategy was to pre-test the questionnaire for face validity on a convenience sample of 30 registered nurses working in a large Malaysian teaching hospital to confirm items were clearly worded and provided the information required. Participants were asked to complete the questionnaire and comment on any questions that were not clear, and to record how long it took to complete.

Following the result of the pilot study, along with independent comments by colleagues from local and international universities, minor amendments were made to wording of some items and general formatting of the questionnaire. A copy of the final questionnaire is included in Appendix C.

4.2.6 Procedure. Before commencing the study, permission to survey Malaysian nurses was obtained from the Malaysian Ministry of Health, the Economic Planning Unit of the Malaysian Prime Minister's Department, and approval from the Malaysian Ministry of Health Research and Ethics Committee and the Monash University Human Research Ethics Committee. See Appendix A for a copy of approval letters. Although formal approval to survey nurses was not required from selected institutions, the hospital Matrons and district health office Directors were contacted by the researcher to inform them of the study, obtain their help to recruit participants into the study, and to provide them with a copy of approval letters from Ministry of Health and the Economic Planning Unit to carry out the research.

The next step was to recruit the sample of registered nurses from the randomly selected hospitals and district health offices. To ensure the researchers had no knowledge of the participants' identity, an office staff member in each institution was asked to randomly select the specified number of registered nurses who met the selection criteria from the nursing staff list. A package that contained a letter of invitation, the questionnaire, and a reply-paid envelope was then forwarded to the selected nurses, through the internal mail system. The letter of invitation (see Appendix B) incorporated a plain language statement that detailed the purpose of the study and what it entailed; and provided assurances that participation was voluntary, that all participants would remain anonymous, and that the information provided would be treated in strict confidence and used for statistical purposes only. Nurses who agreed to participate were asked to return the completed questionnaire to the researcher in the replied paid envelope provided. Return of completed questionnaires would be taken as their consent to participate in the survey.

4.2.7 Data analysis. All completed questionnaires were collated and responses numerically coded and entered into SPSS for Windows (Version 20.0) for analysis. The frequency distributions of all variables were examined to check the accuracy of data input, and to identify out of range scores and missing cases. The database was further refined by recoding variables with low frequencies in some categories.Descriptive statistics (frequencies, frequency percentages, and numerical summaries) were used to describe the characteristics of the sample, CPE practices, and ratings on the importance of CPE activities, and to identify factors that can motivate or deter participation in CPE activities.

4.3 Results

This section presents the results from the survey on the current practice of CPE among Malaysia nurses. The first part provides a description of response rates and sample characteristics that includes demographic and nursing related details; the second part the analysis of frequency of CPE activities by type and topic of activity; the third part an analysis of the importance of CPE activities to career development.; and the fourth part the examination of factors that motivate and deter participation in CPE activities.

4.3.1. Response rates and sample characteristics.

4.2.1.1 Response rates. A total of 1000 questionnaires were distributed to participants, of which 792 were returned completed giving a response rate of 79.2%. As shown in Table 4.3, the highest response rate (92.8%) was recorded for nurses Selangor and the lowest rate from Penang nurses (66.4%).

Table 4.3

Responses Rate by States

State	Distributed	Returned	%
Selangor	250	232	92.8
Penang	250	166	66.4
Pahang	250	195	78.0
Johor	250	199	79.6
Total	1000	792	79.2

4.3.1.2 Sample characteristics. Table 4.4 presents a summary of the demographic characteristics of the sample. Result shows the majority of nurses were female (97.1%) and married (77.1%) with one or two children (52.2%). The age of nurses ranged from 23 to 56 years with a mean age of 33.89 with SD of 9.11. Examination of age groups shows a similar distribution across the three categories. A similar distribution is also noted across the four income categories, although 75% of nurses reported an income of RM4630.00 (USD 1450) or less per month which is consider low when compare to other professions.

Table 4.4

Demographic Characteristics (N = 792)

Characteristic	Frequency	%
Sex		
Female	769	97.1
Male	23	2.9
Age (in years)		
≤28.0	288	36.4
29-35	252	31.8
≥36	252	31.8
Mean: 33.89 (SD = 9.11)		
Marital Status		
Married	611	77.1
Single	166	21.0
Separated/divorced	6	0.8
Widow/widower	9	1.1
Number of Children		
0	80	12.8
1-2	327	52.2
3-4	183	29.2
≥**5**	37	5.8
Household income/month (RM)		
≤ 2914.00	202	25.5
2915-3980	215	27.2
3981-4630	177	22.3
≥ 4631	198	25.0
Mean:3941.40 (SD = 1633.38)		

A summary of sample characteristics by place of work, years of nursing experience and nursing qualifications given in Table 4.5 shows good representation by the state in which nurses were practicing. As expected, a higher percentage of nurses were working in a tertiary hospital (55.7%) and fewer in a community health clinic (8.8%). The mean years of nursing experience was 10.2, with a range from 1 to 35 years. The highest professional qualification for the greater majority of nurses was a nursing diploma (76.0%) and only 2.3% had a nursing degree. No participants had a Master Degree or PhD qualification.

Table 4.5

Nursing detail (N=792)

Characteristics	Frequency	%
Working Institution		
Tertiary Hospital	441	55.7
Secondary Hospital	164	20.7
Primary Hospital	117	14.8
Health Clinic	70	8.8
Years of Service		
≤ 3	203	25.6
4-8	234	29.5
9-14	164	20.7
≥ 15	191	24.2
Mean: 10.16 (SD = 8.54)		
Professional Education		
Diploma in Nursing	602	76.0
Advance Diploma in Nursing	172	21.7
Degree in Nursing	18	2.3

4.3.2 CPE practices. Overall, nurses' participation in CPE activities was high, with 71% of nurses attending at least one activity in the past 12 months.

4.3.2.1 Attendance by type of CPE activity. Examination of participation by type of activity (see Figure 4.2) shows the most frequent activity attended were workshops (43.6%), conferences (40.8%) and in-service education (36.7%). Least frequent activities attended were advance nursing courses (12.9%), undertaking research (5.5%), presenting a paper at a conference (9.2%) and undertaking tertiary education studies (1.3%).

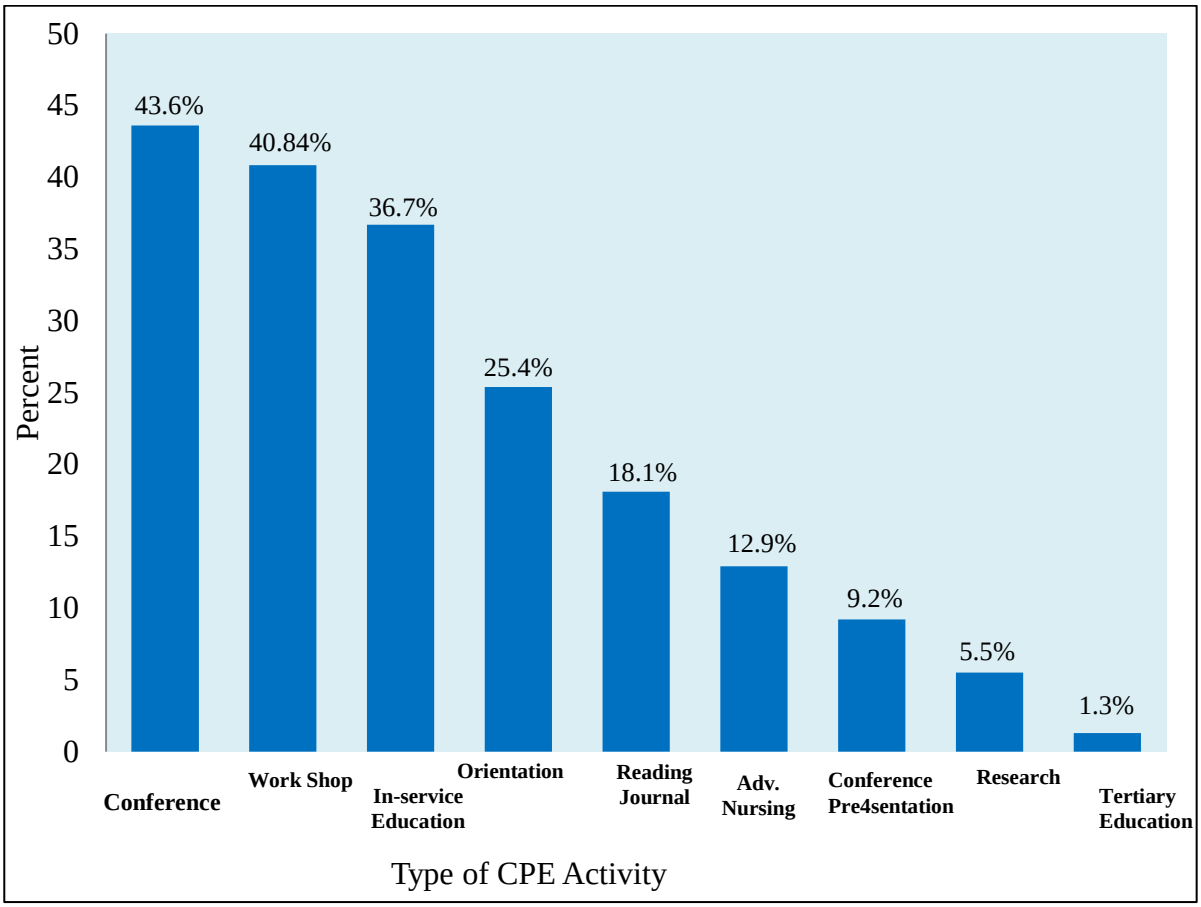

*Figure 4.2.*CPE participation by type of CPE activity (N=792)

4.3.2.2 Number of attendances by type of CPE activity. Respondents were asked to specify the number of times they had attended each type of CPE activity. Frequency of attendance for each activity during the last 12 months was coded as attended once or attended more than once. Results presented in Table 4.6 shows 7 of the 10 activities were attended only once by the majority of nurses (>50%). Of these activities no nurses attended an advanced nursing course, a tertiary education program or 'other' activity and only three nurses participated in a research study on more than one occasion. Conversely the activities attended more than once by the majority of nurses were in-service education (76.6%) and reading nursing journals (59.4%). The activities that the participant had put for "other" were attachments to other hospitals to learn specific procedures such as BCG injections for new born babies and to learn endoscopy skills.

Table 4.6

Number of Attendances by Type of CPE Activity

Type of activity	Number of attendances	
	N	%
Conference		
Attended once	206	66.8
Attended > one	117	36.2
Presented at a conference		
Attended once	47	64.4
Attended > one	26	35.6
In-service education		
Attended once	68	23.4
Attended > one	223	76.6
Orientation program		
Attended once	153	76.1
Attended > one	48	33.9
Workshops		
Attended once	196	56.8
Attended > one	149	43.2
Advanced nursing course		
Attended once	102	100.0
Attended > one	0	0.0
Tertiary education		
Attended once	10	100.0
Attended > one	0	0.0
Reading nursing journal		
Attended once	58	40.6
Attended > one	85	59.4
Carried out research		
Attended once	33	91.7
Attended > one	3	8.3
Other		
Attended once	4	100.0
Attended > one	0	0

4.3.2.3 CPE attended by topic. Figure4.3 shows the most frequently attended topic by nurses were specialty nursing (60.7%), General nursing (50%). Less frequently attended topics were research (19.1%), Management (16.9%), and teaching skills (8.1%).

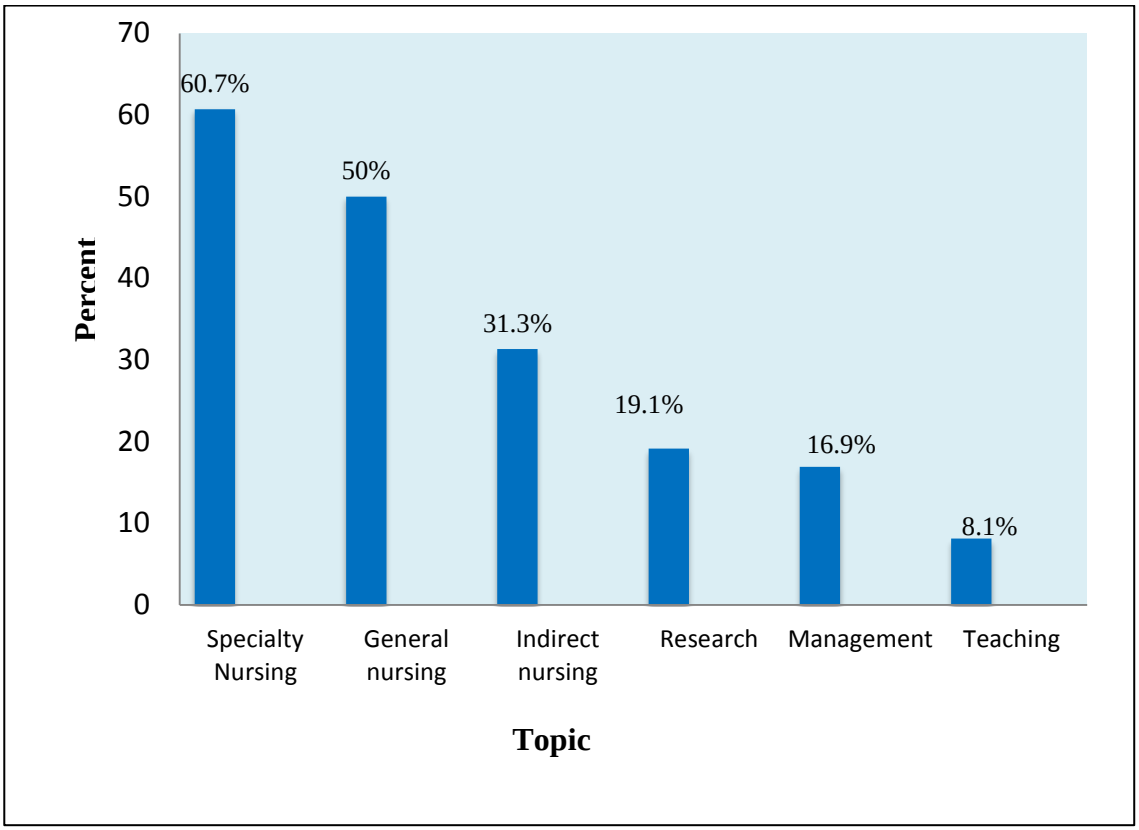

*Figure 4.3.*Attendance by CPE topic (N=792)

4.3.2.4 Credit points earned for CPE activities attended. The number of credit points earned for CPE activities during the last 12 months was calculated using the Malaysia Nursing Board CPD Credit Points system guidelines (see appendix J) which are based on the duration (hours) and type of CPE activity. For example, 20 credit points are awarded for attending three days conference, whereas

6 credit points are awarded for attending a one-day workshop. For each activity there is a maximum annual limit to the number of credit points that can be awarded. If a registered nurse attends two 3 day conferences in a given year she will earn a total of 40 credit points but only 20 points will be awarded for that activity. According to the guidelines, the minimum number of credit points registered nurses require to renew their practicing certificate is 25 points. Table 4.7 presents the mean number of hours and credit points for each CPE activity. The highest attendance hours was reported for advanced nursing courses (75.03), followed by research activities (11.29) and tertiary education studies (8.91). Fewer hours were earned for presenting at a conference (0.24), reading nursing journals (1.69) and attending orientation programs (3.72).

Examination of mean credit points for each activity identifies conference attendance (5.48), workshops (4.38) and in-service education (4.36) as the main sources of credit points. On average, fewer credit points were earned from participation in research activities (0.54), tertiary education (0.57) and presenting at a conference (0.24).

Table 4.7

Mean Number of Hours and Credit Points for Each CPE Activity

Activity	Mean number of hours	Mean credit points
Conference	7.66	5.48
Presented at a conference	0.24	1.40
In-service education	5.70	4.36
Orientation program	3.72	2.76
Workshops	6.89	4.38
Advanced nursing course	75.03	2.16
Tertiary education	8.90	0.57
Reading nursing journal	1.69	2.35
Carried out research	11.20	0.54
Other	0.13	0.08

The total number of credit points were calculated for each participant by summing the number of hours of attendance for each all activities attended during the last 12 months. Total scores for all participants were then grouped into three categories based on a minimum of 25 credit points for annual renewal of practicing certificates: 0 credit points, 1-24 credit points, and 25 or more credit points. Calculation of frequencies for each of the three categories (see Figure 4.4) found less than half (40.9%) of the nurses would qualify for re-licensure and 29, 0% had earned no credit points at all. Overall, the mean number of credit points earned was 24 (SD 24.22) with a range from 0 to 121.

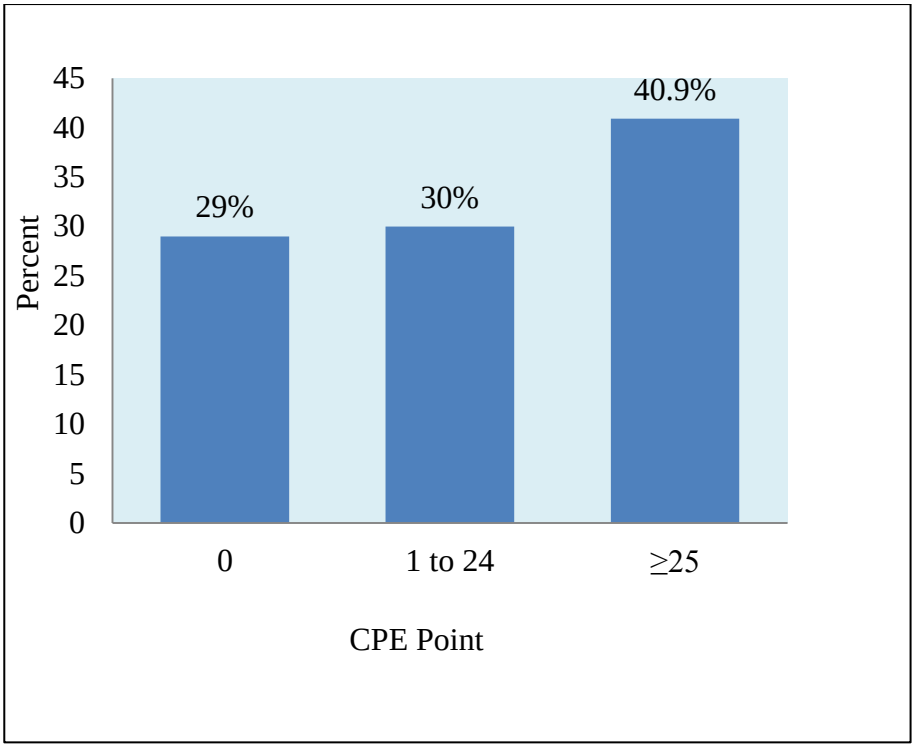

*Figure 4.4.*Distribution of CPE credit point categories (N=792)

4.3.3 Importance of CPE activities to career development. The importance of CPE activities was assessed in relation to both the type and topic of the activity using a 5 point Likert scale (*not at all, a little, somewhat, moderately, a great deal).* Scores on each item were summed and mean responses calculated.

4.3.3.1 Importance of CPE activities by type of activity. The respondents' ratings on the importance of the type of CPE activity are presented in Table 4.8. Examination of mean rating point show all activities were rated above the medium (>3), with the most important activities for career development being in-service education, advanced nursing courses, workshops and orientation program. The importance of these activities is also evident from the high percentage of nurses who recorded a rating of *moderately* or *a great deal.* Activities rated as least important were presenting at a conference and carrying out research.

Table 4.8

Importance of CPE Activities by Type of Activity (N=792)

Activity	Not at all		A little		Somewhat		Moderately		A great deal		Mean
	N	%	N	%	N	%	N	%	N	%	
In- service education	11	1.4	19	2.4	128	16.2	354	44.7	280	35.4	4.10
Advance nursing courses	40	5.1	36	4.5	114	14.4	292	36.9	310	39.1	4.01
Workshops	30	3.8	45	5.7	181	22.9	311	39.3	225	28.4	3.83
Orientation programs	22	2.8	44	5.6	188	23.7	351	44.3	187	23.6	3.80
Tertiary education	76	9.6	46	5.8	184	23.2	244	30.8	242	30.6	3.67
Attending conferences	24	3.0	87	11	199	25.1	295	37.2	187	23.6	3.67
Reading nursing journals	32	4.0	67	8.5	225	28.4	325	41.0	143	18.1	3.61
Accessing the internet	27	3.4	113	14.3	188	23.7	286	36.1	1778	22.5	3.60
Carrying out research	85	10.7	116	14.6	245	30.9	237	29.9	109	13.8	3.21
Presenting at conferences	111	14.0	96	12.1	239	30.2	227	28.7	119	15.0	3.19

4.3.3.2 Importance of CPE activities by topic. A similar set of findings were found for the importance of CPE activity topics (see Table 4.9), with all mean ratings above the medium. The three activities with the highest rating (4 or more) were specialty nursing, general nursing, indirect nursing and management. Teaching and research were also rated highly.

Table 4.9

Importance of CPE Activities by Topic (N=792)

Activities	**Not at all**		**A little**		**Somewhat**		**Moderately**		**A great deal**		**Mean**
	N	**%**	N	%	**N**	**%**	**N**	**%**	**N**	**%**	
Specialty nursing	14	1.8	27	34	117	14.8	270	34. 1	364	46.0	4.9
General nursing	5	0.6	8	1	126	15.9	310	39.1	343	43.3	4.2
Indirect nursing:	6	0.8	32	4	168	21.2	353	44.6	233	29.4	4.0
Management	15	1.9	25	3.2	150	18.9	335	42.3	267	33.7	4.0
Teaching	17	2.1	47	5.9	150	18.9	332	41.9	246	31.1	3.9
Research	47	5.9	94	11.9	230	29	285	36.0	136	17.2	3.5

4.3.4 Factors that motivate and deter respondents to participate in CPE activities. A 5 point scale was also used to identify factors that motivated or deterred participation in CPE activities. As with the ‘importance ratings’, scores on each item were summed and mean responses was calculated.

4.3.4.1 Motivating factors. Table 4.10 presents a summary of response frequencies and mean scores for each item. Results shows 11 of the 18 items were rated highly as motivators for participating in CPE activities as indicated by mean item scores > 4.3. The two most notable motivators were *to give quality of care to patients* and *updating knowledge*, with more than 50% of respondents rating these items as *a great deal*. Other items rated highly were to *improve skills in clinical practice*, *improve communication* and *obtain knowledge to achieve professional status*. No items had a mean rating less than 3.75. The two items rated lowest were *improving research skills* and *gaining a paper qualification*.

Table 4.10

Factors that Motivate Respondents to Participate in CPE Activities

Activities	Not at all		A little		Somewhat		Moderately		A great deal		Mean
	N	%	N	%	N	%	N	%	N	%	
Give quality care to patients	1	0.1	9	1.1	79	10	292	36.9	411	51.9	4.39
Update my knowledge	1	0.1	9	1.1	102	12.9	284	35.9	396	50.0	4.34
Improve my skills in clinical practice	2	0.3	9	1.1	108	13.6	292	36.9	381	48.1	4.31
Improve my communication skills	2	0.3	8	1	108	13.6	330	41.7	344	43.4	4.27
Obtain knowledge to achieve professional status	1	0.1	13	1.6	131	16.5	319	40.3	328	41.4	4.21
Improve my decision making skills	3	0.4	18	2.3	128	16.2	311	39.3	332	41.9	4.20
Be more critical in providing nursing care	5	0.6	17	2.1	136	17.2	337	42.6	297	37.5	4.14
Renew my license to practice	8	1.0	25	3.2	141	17.8	342	43.2	276	34.8	4.08
Increase my competency	6	0.8	21	2.7	163	20.6	328	41.4	274	34.6	4.06
Improve my management skills	14	1.8	23	29	140	17.7	344	43.4	271	34.2	4.05
Boost my self-esteem	5	0.6	25	3.2	171	21.6	330	41.7	261	33.0	4.03
Improve my teaching skills	11	1.4	38	4.8	173	21.8	324	40.9	246	31.0	3.95
Practice autonomously	8	1.0	29	3.7	215	27.1	325	41.0	215	27.1	3.9
Adhere to hospital policy	10	1.3	26	3.3	219	27.7	345	43.6	192	24.2	3.86
Prevent myself from getting Bored with routine.	15	1.9	38	4.8	202	25.5	325	41.0	212	26.8	3.86
Fulfil requirement for promotion	9	1.1	32	4	213	26.9	373	47.1	165	20.8	3.82
Gain more paper qualifications	7	0.9	36	4.5	230	29	349	44.1	170	21.5	3.81
Improve my research skills	20	2.5	50	6.3	230	29	301	38.0	191	24.1	3.75

4.3.4.2 Deterrent factors. The analyses of factors that deter participation in CPE activities have less of an influence that does motivating factors. As shown in Table 4.11, mean item scores ranged from a high of 3.54 to a low of 2.52. Factors considered the greatest deterrent were *work commitments* (3.54), *domestic responsibilities* (3.42) and *time constraints* (3.41) Less of a deterrent were *poor health* (2.52), *negative experiences with previous CPE programs* (2.70) and *emotional stress* (2.88).

Table 4.11

Factors that Deter Respondents from Participating in CPE Activities

Activities	Not at all		A little		Somewhat		Moderately		A great deal		Mean
	N	%	N	%	N	%	N	%	N	%	
Work commitments	36	4.5	75	9.5	226	28.5	336	42.4	119	15.0	3.54
Domestic responsibilities	46	5.8	73	9.2	266	33.6	317	40.0	90	11.4	3.42
Time constraints	30	3.8	87	11	291	36.7	293	37.0	91	11.5	3.41
Scheduling of CPE activities	37	4.7	82	10.4	284	35.9	303	38.3	86	10.9	3.40
Cost of courses	46	5.8	100	12.6	271	34.2	255	32.2	120	15.2	3.38
Geographic distance (time and travelling)	53	6.7	105	13.3	312	39.4	228	28.8	94	11.9	3.26
Lack of supervisor support	65	8.2	92	11.6	277	35	296	37.4	62	7.8	3.25
Lack of organization support	68	8.6	94	11.9	276	34.8	291	36.7	3	8.0	3.24
Lack of information about activities/programs	40	5.1	116	14.6	323	40.8	246	31.1	67	8.5	3.23
Lack of access to relevant CPE courses	39	4.9	122	15.4	307	38.8	265	33.5	59	7.4	3.23
Lack of peer support	73	9.2	101	12.8	301	38	276	34.8	41	5.2	3.14
Needs satisfied by on the job training	83	10.5	116	14.6	301	38	235	29.7	57	7.2	3.08
Lack of family support	129	16.3	106	13.4	218	27.5	276	34.8	63	8.0	3.05
Emotional stress	135	17.0	129	16.3	280	35.4	196	24.7	52	6.6	2.88
Negative experiences with previous CPE programs	171	21.6	131	16.5	279	35.2	187	23.6	24	3.0	2.70
Poor health	220	27.8	157	19.8	234	29.5	149	18.8	32	4.0	2.52

4.4Discussion

This section discusses the major findings from the survey of CPE practices among Malaysia nurses in relation to previous studies and key issues identified in the literature. Also discussed are the strengths and limitations of the survey and the extent to which findings support the need to survey Malaysian nurses' readiness toward e-learning. Strategies for improving participation in CPE activities and implications for CPE policy will be discussed in Chapter 5. Detailed discussions of key findings are presented below.

4.4.1 Strengths and limitations of the study. A cross-sectional survey approach was used to determine the current CPE practices and factors influencing participation in CPE activities of Malaysian nurses. The major strength of this survey was that is the first comprehensive survey of CPE practices of Malaysian nurses and one that was conducted after the introduction of legislation by the Malaysian Nurses Board to implement mandatory CPE for re-licensure. A search of the literature located only five studies that have investigated the CPE practices among Malaysian nurses (Abu Salim, 2001; P. L. Lee, 2004; Muthu, 2006; Pathan, 2008; Thuraisingham, 1994). None of these studies have been published, and all used relatively small samples recruited from one institution only. In contrast, the present survey used cluster sampling to obtain a large sample of 792 Malaysian nurses that was representative of registered nurses working in government hospitals and health clinics. Also of note is the high response rate of 79%, which is much higher than other studies which reported response rates less than 50% (Cullen, 1998). One limitation of the current study was that only nurses working in government

hospitals and health clinics in Peninsula Malaysia were surveyed. Therefore findings may not reflect the CPE practices of nurses working in the private sector and other areas of Malaysia.

4.4.2 CPE practices.

4.4.2.1 Participation rates. A major finding from this study was the participation in CPE activities, with 71% of nurses surveyed having attended a CPE activity in the last 12 months. This participation rate compares favourably with four of the five Malaysian surveys that reported participant rates ranging from 74% (Abu Salim, 2001) to 97 % (Lee, 2004). One explanation for the very high rate reported by Lee (2004) was that only nurses working in a private hospital were surveyed. The one exception to these studies was Pathan's (2008) survey of 75 RNs from one institution that reported a low rate of 21%. However, this rate referred to participation in short courses only and no other CPE activities. In short, findings from previous studies have shown Malaysia RNs are generally keen in participating in CPE even before the implementation of MCPE, however most of these finding were based on small samples, making it difficult to generalise to Malaysian nurses or to compare findings with the present study.

Compared with global trends, the participation rate of Malaysian nurses in the current survey was higher than those reported in the UK and China. For example, the participation rate in Thomson et al.'s (1999) survey of the continuing education needs of a selective sample of community nurses, midwives and health visitors in the UK who supervised students was less than 25%. Barriball's (1996) UK study, on the other hand, reported a higher participation rate, with 259 (68%) of the 449

RNs interviewed attending five or more study days over a three year period; 123(31.8%) RNs attended less than five or no study days, Likewise, Edwards et al.'s (2001) study of the CPE practices of Chinese nurses in Tianjin Municipality, found 75.5% of 200 nurses randomly selected from 14 hospitals participated in CPE activities over a two year period.

A disappointing finding from the survey was that 21 % of nurses had not participated in CPE despite the introduction of mandatory CPE for re-licensure by the Malaysian Nurse Board. Further, calculation of number of credit points earned shows that only 41% of nurses would have achieve the minimal 25 points required for practicing certificate renewal. This does not seem to be an isolated occurrence. As reported by Cullen (1998), in 1993 as many as 1971 RNs in Delaware, USA did not renew their license due to non-participation in CPE.

4.4.2.2 Types of CPE activities. For this study CPE activities were grouped into nine categories that ranged from in-service education, workshops and orientation programs through to advance nursing and tertiary education courses. Also included were conferences and research activities. Of these, the most common CPE activities attended were workshops, conferences and in-service education: a finding consistent with other studies Lee et al.'s (2005) but with percentage attendance notably higher. Pathan, (2008) also found 80% of Malaysian nurses attended in–service education, but fewer attended workshops (29.5%) and conferences (18.5%). The explanations Pathan gave for these findings was that CPE is offered weekly in the institute to allow nurses to attend and that no travel was

involved. The other contributing factor was that CPE participation was a requirement for annual pay increase.

CPE activities less frequently reported were reading journals, enrolment in tertiary education programs and advanced nursing courses, research, and conference presentations. Previous surveys of Malaysian nurses also reported a low percentage of nurses who read nursing journals (Lee et al., 2005; Lee, 2004; Muthu, 2006; Pathan, 2008; Thuraisingham, 1994) which confirms Wan's (2003) claim that Malaysian nurses have little interest in using this strategy to update their knowledge of nursing practices. One reason is that most articles are published in English language journals and therefore lack of English proficiency is a major obstacle. Therefore it is not surprising that the percentage of nurses reading journal articles is much higher in English speaking countries. For example, in Doyle's (2006) study of registered nurses' children in Ireland, 63.4% of nurses read journals monthly. However, 85% of Chinese nurses surveyed by Edwards et al., (2001) read nursing journals. It is not clear if these were articles published in Chinese journals. As noted by a number of authors, reading professional journals is an important way for nurses to kept up to date with professional knowledge, implement evidence based practice, and provide best possible nursing care (Pravikoff, Tanner, and Pierce, 2005). One other factor that may explain the low number of nurses who read nursing journals is the lack of research skills that comes with participating in advanced nursing courses and tertiary studies, and being involved in research activities. Survey results indicate that few nurses reported being involved in these CPE activities.

4.4.2.3 CPE Topics. CPE activities were also classified according to six topic area: general nursing, nursing specialty, indirect nursing, management, teaching and research. As anticipated, general nursing and specialty nursing were more popular among respondents in this study. Why these two topics were preferred could be due to the fact that the majority of the nurses surveyed had a diploma level qualification that may not be adequate for them to practice in the specialised unit, hence the need to top up their knowledge and skills to improve their competency. Lai (2006) also found that Hong Kong nurses preferred specialty nursing topics because they were working in hospitals that emphasised specialisation in nursing practice. In other studies, advance or postgraduate nursing courses were the preferred CPE option (Lee et al., 2005, Aucoin, 1998; Linda and Rosemary Ann, 1995; Simsen et al., 1995). Respondents in this study were less interested in indirect nursing topics (ICT and communication skills); a finding similar to the one reported by Lai (2006) where few nurses were interested in ICT topics, even though ICT skills were considered important by nursing administration. Management topics were also ranked less highly, which may be explained by the fact that the majority of the nurses surveyed did not have managerial responsibilities.

The least preferred topics were research and teaching. Although there has been an increasing emphasis on evidence based nursing practice globally and locally in Malaysia, only 19.1% of nurses participated in research related CPE activities. Again this is consistent with Lai's (2006) findings, but differ markedly to Anderson's (2001)study where 82% of the respondents had taken part in some type of research or development project, and 80% participated in research activities on their own initiative. The reason for low interest in research may also be due to the

small proportion of nurses with degree qualifications. Other possible contributing factors are that the number of credit points awarded for research activities is not commensurate with the importance of the topic, and that research has yet to be integrated as part of the workplace culture. In Malaysia, as in Hong Kong (Lee et al. (2005), a greater emphasis needs to be given to research in the basic nursing curriculum. The topic that generated the least interest was teaching, with only 8% of nurses attending teaching related activities. Although teaching is a fundamental part of the nursing role in promoting self-care and also part of registrant requirements, it was not assigned the same priority as specialist practice and general nursing topics. The other possibility is that teaching activities were designed more for nurse educators than for nurses working at the bedside.

4.4.3 Importance of CPE activities for career development. How important CPE activities are to a nurse's career development may determine which activity a nurse chooses to attend in terms of the type of the activity and the topic area. Examination of ratings for the various types of CPE activities showed all were considered important, with minimal differences in mean levels of importance. The one exception was in-service education which received the highest rating, this was not surprising as most of these activities are mandatory and are conducted in-house during working hours at no cost to the staff. The two activities rated lowest were presenting at conferences and carrying out research. This finding could be attributed to the small percentage of nurses who were surveyed who had a degree or a postgraduate qualification that emphasised the importance of nursing research.

A similar pattern of results was found for topic area, with all topics considered important. The two exceptions were the higher rating for specialty nursing and the lower rating for research. Lee, et al. (2005) found the majority of the nurses in their study chose specialization in clinical nursing as an important career goal. Likewise, the nurses surveyed by Glass and Todd-Atkinson (1999) had a stronger preference for courses designed to improve advanced medical and clinical nursing knowledge. In contrast to these findings, nurses in Thuraisngham's (1994) study rated communication the most important topic (categorised as indirect nursing in present study), followed by patient teaching and nursing. Communication was not considered an important topic, probably because of the increased emphasis on communication and interpersonal skills in the diploma of nursing curriculum (Nursing and Midwifery Board Malaysia, 2005). The low importance given to research is consistent with the low participation in research- related CPE topics, again emphasising the lack of awareness of the relevance of research to evidence-based nursing practice.

4.4.4 Factors influencing CPE practices. An important aim of the survey was to identify what factors motivate and deter nurses from participating in CPE activities. In general, the results showed considerable variation in the factors that motivate nurses to participate in CPE activities, irrespectively of the types of activities available. Likewise, there were a range of factors that deter nurses' CPE participation. Knowing what both these factors are is important for those who provide CPE for Malaysian nurses.

4.4.4.1 Motivating factors. From a list of 18 reasons for participating in CPE, the five considered to be the strongest source of motivation were; to improve the quality of patient care, to update knowledge. Improve clinical and communication skills, and to obtain knowledge to achieve professional status. Clearly these factors relate particularly to improving nursing care, level of clinical competence, and recognition of what nurses have to offer. This finding concurs well with findings from other studies. For example, a survey of Hong Kong nurses founds updating advance nursing knowledge and skills were important reasons to engage in CPE activities (Lee, et al., 2005; Lai, 2006; McDiarmid, 1998). Muthu (2006) reported similar findings for Malaysian paediatric nurses, with 90%of respondents acknowledging that CPE is essential for enhancing professional practice and a necessary requirement for providing quality patient care. To improve communication skills was also identified as a main motive for participating in CPE activities (Lee et al., 2005; Muthu, 2006; Thuraisingham, 1994)**.**

Two other factors rated highly as motivators were decision making and critical thinking skills: both high order attributes required for competent nursing practice (Lee, et al. 2005). In Harper's (2000) study of voluntary participation in CPE involving 318 RNS employed in suburban and community hospital, 96% of nurses agreed that CPE is necessary to maintain clinical competency. Interestingly, renewal of practicing licence as a motivating factor was rated lower than seven other reasons.

Factors considered less an incentive for CPE were to adhere to hospital policy, boredom, to meet requirements for promotion, obtain more paper qualifications, and to improving research skills. What these findings indicate is that

improving patient care is more an incentive for CPE than personal needs. However, in previous studies self-improvement and personal benefit were notable CPE incentives (Aucoin, 1998; DeSilets, 1995; Harper, 2000). It is surprising that promotion was not rated higher as a motivating factor, particularly when a degree qualification has been proposed by the Ministry of Health Malaysia as a prerequisite for promotion to professional and management positions.

4.4.4.1 Deterrent factors. Results from the survey identified a wide range of actors that can discourage nurses from participating in CPE activities. The five factors considered to be the greater deterrent were: work commitments, domestic responsibilities, time constraints, scheduling of CPE activities, and the cost of courses. Most studies have reported time constraints (Lai, 2006; Lee et al., 2005; McDiarmid, 1998), course costs (Curran et al., 2006; Kersaitis, 1997) and scheduling of CPE activities (Beatty, 2001; Kersaitis, 1997) as barriers to CPE participation. Who should pay for CPE was a contentious issue among Hong Kong nurses, with the majority of nurses only willing to spend 5% of their salary on CPE activities (Lai, 2006; Lee et al., 2005). In Malaysia most nurses believe it is the responsibility of the government or the employer to sponsor all CPE activities which is consistence with Adami and Kiger (2005) finding on nurses from Malta. Also identified in previous studies as major concerns were work commitments, having to work shift duty (Gould et al., 2007), and staff shortages (Pathan, 2008). The finding that domestic responsibilities were considered a major deterrent for the current sample is not surprising given that 77% of nurses were married, and that 81.4% of these had young children at home. Being women in a male domineering society such as Malaysia adds to the burden. Although considered less of a deterrent,

geographic distance can also contribute to the above factors as well as the lack of access to CPE courses. This is particularly the case for nurses working in non-metropolitan centres (Curran, et al., 2006).

Two other deterrents to CPE noted in previous studies were the lack of supervisor and organizational support (Beatty, 2001; Hegney et al., 2010). In the current survey these two factors were rated as moderate deterrents. In Beatty's (2001) study of rural nurses, 27% received no encouragement from their supervisors. Conversely, they found a positive relationship between supervisor encouragement and CPE attendance. Lack of organisation support has also been highlighted by Pathan (2008) in noting that most organisations impose a contract when nurses undertake CPE courses. For example, a nurse doing a one year CPE course is required to serve a five year contract with the organization. Lastly, the three factors considered to have little impact on the decision to participate in CPE activities were poor health, negative experiences of past CPE courses, and emotional stress. These findings are consistent with Lai's (2006) survey of Hong Kong's registered nurses who considered these factors to be less of a deterrent to CPE participation one explanation for the low ratings for health status, particularly emotional health status, is that health problems are often transient in nature and thus influences decisions on some occasions and not others.

4.5. Summary

This Chapter reported on a cross sectional survey of the CPE practices of Malaysian registered nurses working in government hospitals and health clinics across Peninsula Malaysia. Although the survey did not target all Malaysian nurses, 80% of Malaysian nurses work in Peninsula Malaysia. Similarly, government hospitals and health clinics are the major employer of Malaysian nurses. The study included a large representative sample of 792 registered nurses that allows findings to be generalized to the broader population. A response rate of 79% also confirms the importance of the topic and the need to conduct the survey. This survey is the first of its kind to be conducted following the decision of the Malaysian Nurses Board to implement mandatory CPE as a requirement for renewal of annual practicing certificates.

What this survey has provided is a comprehensive picture of Malaysian nurses' participation in CPE activities in terms of the type and focus of the activities and programs attended, why CPE is important, and the factors that motivate and deter CPE participation. One important finding was that 71% of nurses surveyed had attended one or more CPE activities over a 12 month period. It is reassuring to find that this rate compares favorably with other countries and is higher than rates reported for the UK and China. However, of concern is that 21% of nurses had not participated in CPE activities during this period. This trend will need to change as the mandatory CPE policy becomes fully implemented. It is also pleasing to see nurse's commitment to providing quality nursing care, as evident from the preference for CPE activities that focus on specialty and general nursing topics. Yet one area that does require greater emphasis is research-related activities, particularly

those that provide the knowledge and skill needed to implement evidence-based nursing care.

One other aim of the survey was to identify the factors that motivate and deter nurses from participating in CPE activities (table 4.12 present the five strongest motivation and deterrent factors). Knowing what these factors are is critical to increasing CPE participation rates and developing educational activities and programs that meet the educational needs of registered nurses. It is evident from the survey that there is a need to consider not only the topic areas being offered but also the modality by which CPE activities and courses are delivered. One such modality is the use of e-learning; an option that may better meet the CPE needs of registered nurses and alleviate many of the deterrents to participating in CPE activities. The first step in determining the value of this option was to conduct a second survey to explore the readiness of Malaysian nurses to participate in CPE offered through e-learning.

Table 4.12

Factors Motivate and Deter Nurses from Participating in CPE Activities

Five strongest motivation factors	Five greater deterrent factors
1. to improve the quality of patient care 2. To update knowledge. 3. Improve clinical and communication skills. 4. To obtain knowledge. 5. To achieve professional status.	1. Work commitments, 2. Domestic responsibilities, 3. Time constraints, 4. Scheduling of CPE activities 5. The cost of courses.

CHAPTER 5

SURVEY OF MALAYSIAN NURSES' ATTITUDES AND READINESSTOWARDS E-LEARNING

METHODOLOGY, RESULTS AND DISCUSSION

5.1 Overview of Chapter

This chapter presents the second phase of the study which surveyed Malaysian nurses' attitudes and readiness towards e-learning. The first part of the chapter describes the study methodology, the second the results from the survey, and the third part presents a discussion of the findings.

5.2 METHOD

As with the survey of CPD practices, this phase of the study used a cross-sectional descriptive survey design. Likewise, the study setting and target population for the survey were the same, focusing on registered nurses working in government hospitals and community clinics in Peninsula Malaysia. The following sections present a description of the sample, questionnaire design, procedure and data analysis strategies.

5.2.1 Sample. A sample of 300 nurses were randomly selected from the pool of 350 registered nurses from 12 hospitals and 24 health clinics who had completed the survey of CPE practices of Malaysian nurses and agreed to participate in a survey of Malaysian nurses' attitudes and readiness towards e-learning. The same selection criteria applied i.e. all nurses were registered with the Malaysia Nursing

and Midwifery Board, had at least one year experience as a registered nurse, and were currently working in a government hospital or community clinic. All 300 nurses agreed to do the survey. The exceptional response rate is likely to be related to nurses' interest in E-learning and their willingness to participate in research studies aided by the support given by nurse leaders.

5.2.2 Data collection instrument. A five part self- report questionnaire was used to collect a selection of measures relating to e-learning. These measures included demographic and nursing related details; access to and use of computer facilities; experience and opinions of e-learning; attitudes towards e-learning; and readiness to participate in e-learning activities. The selection of items and the design of the questionnaire were informed by a search of instruments used in e-learning studies. Of note were the instruments reported by (Billings and Kowalski, 2007; Billings and Rowles, 2001; Billings, Skiba, and Connors, 2005; Sit, Chung, Chow, and Wong, 2005; (Webster et al., 2003). A detailed description of each set of measures is given in the following section.

5.2.2.1 Measures.

5.2.2.1.1 Socio-demographic and nursing information. Socio-demographic information obtained included gender, age, marital status, number of children and household income. Nursing details included years of experience as a registered nurse, highest professional education, and the state and type of institution in which they were currently working.

5.2.2.1.2 Access to and use of computer facilities. Participants were asked a series of questions relating to their access to and use of computer facilities that included having a personal computer at home, access to a computer at workplace, average time using a computer, access to the internet, and reasons for using a computer (e.g. email, searching the internet, typing reports). Questions required a yes/no response or a response on a 4 point ordinal scale.

5.2.2.1.3 Experience and opinions on e-learning. This section of the questionnaire asked participants if they had experience of e-learning, and if so; the type of e-learning activity (e.g. specialty nursing, management), learning method (self-directed, asynchronous, and synchronous) and how e-learning activities should be evaluated (e.g. web-based tests, college-based exam, assignments). Participants were also asked to rate why they would chose to do CPE via e-learning and their opinions on what factors motivated or deterred their participation using a 5 point rating scale (1 = *not at all* to 5 = *a great deal*).

5.2.2.1.4 Attitudes towards e-learning. Nurses' attitudes toward e-learning were assessed using a 28 item scale designed specifically for this study. Twenty two items were positively worded and six negatively worded to avoid a response bias add ref). Participants were asked to rate the extent to which they agreed or

disagreed with each item using a 5 point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). After reverse scoring negatively worded items, responses were summed, in order to calculate a total attitude score, with higher scores indicating a more positive attitude towards e-learning. Selection of items for inclusion in the scale was based on a review of the e-learning literature, particularly the studies reported by Lee et al (2004) and Yu and Yang (2006). Item categories included use of computers for learning; convenience and flexibility of e-learning; interaction with teacher and other learners; access to knowledge, positive learning experience and improve patient care.

5.2.2.1.5 Readiness for e-learning. Readiness for e-learning was assessed using the Self-Directed Readiness Scale (SDRS) developed by Fisher, King and Tague (2001). Fisher gave permission for this tool to be used (refer appendix F) The SDRS is a 40 item self-report instrument that measures three major domains of readiness: self-management (13 items), desire for learning (12items) and self-control (15 items). Participants are asked to rate each of the 40 items on a 5 point Likert scale that ranged from 1 = *strongly disagree* to 5 = *strongly agree*. Responses to individual items are summed to provide subscale scores on each of the three domains and a total scale score, with higher scores indicating a greater level of readiness for e-learning.

Fisher et al (2001) reported the SDRS to have sound psychometric properties, with high internal consistency reliabilities for each of the three subscales ranging from .83 to .92. Subsequent studies have confirmed the validity and reliability of the scale when used with Australian (Smedley, 2007) and Turkish (Kocaman,

Dicleand and Ugur, 2009) undergraduate nursing student samples (Cronbach Alpha 0.81-0.84).

5.2.2.2 Content validity. To confirm the content validity of items and scales a copy of the questionnaire was reviewed by a panel of five experts with extensive experience in nursing education within the higher education sector, on-line teaching and questionnaire design. Two of the experts were from Malaysia (one professor in nursing with more than 20 years' experience in education, one professor in instructional design) and the other three from Canada (a Professor in nursing with on line learning experience), the United Kingdom (a Professor in nursing with experience in e-learning) and Australia (a Nurse lecturer with more than five years teaching experience and had developed e-learning for the nursing students). Each panel member was asked to comment on the wording and relevance of items, response format and overall design of the questionnaire. The overall CVI was 0.95 which indicates good and acceptable. The CVI for each items ranging from 0.82 to one.

Overall the questionnaire was deemed to be acceptable in terms of item selection and response format. Only a small number of items required re-wording to improve readability, and instructions for one section of the questionnaire was modified for greater clarity of meaning. It was also suggested by one panel member that a definition of technical terms or abbreviations (e.g. Asynchronous learning, ISDN) be added to ensure all participants understood what these meant.

***5.2.2.3 Pre-testing the questionnaire*.** The final step in the construction of the data collection instrument was to pre-test the questionnaire on a convenience sample of 34 nurses undertaking a post-registration course offered by a Malaysian university. These nurses came from different areas across Malaysia and had demographic characteristics similar to the target population. Participants were asked to complete the revised questionnaire and to note any problems with the wording of items, instructions and response format. They were also asked to record how long it took them to complete the questionnaire.

The questionnaire was well accepted by participants, taking between 15 to 20 minutes to complete, and required only minor amendments to correct typographic errors and to increase the font size used for some sections. See Appendix E for a copy of the final version of the questionnaire.

5.2.3 Procedure. Approval to conduct Phase 2 of the study was obtained from the Malaysia Economic Planning Unit, Ministry of Health Malaysia and the Monash Research Ethics Committee at the same time as the application to implement the survey of CPE practices was submitted. Likewise, the Matrons and Directors of participating hospitals and district health offices were fully informed of both phases of the study.

A cover letter and a copy of the questionnaire were posted to the 300 nurses randomly selected from the pool of nurses who agreed to participate in the e-learning survey. As with the first phase of the study, the letter incorporated a plain language statement that described the purpose of the survey and what it entailed, and provided assurances that completion of the questionnaire was voluntary and that

they would remain anonymous. Participants were instructed to complete the questionnaire and return it to the researcher in the reply paid envelope provided. Return of the completed questionnaire was taken as their consent to participate. In order to improve the response rate a brief reminder note was sent to all participants two weeks after the questionnaires were posted.

5.2.4 Data analysis. The same strategies reported for Phase 1 were used to analyse data for the e-learning survey. Prior to conducting the analyses questionnaire responses were coded and data entered into SPSS (Version 20.0) for analysis. The frequency distribution of all variables was examined to check the accuracy of data input and to identify and code missing values. The database was further refined by recoding variables as appropriate (e.g. collapsing options or reversing rating scale items) and computing scale scores for the attitudes and readiness for e-learning measures.

Two sets of analyses were conducted. The first was to calculate frequency and summary statistics to describe the characteristics of the sample and to examine the extent to which the sample was equivalent to the initial sample for Phase 1 of the study using appropriate parametric (e.g. t-test, AVOVA) and non-parametric (e.g. Chi-square, Mann-Whitney U test) statistical tests . The second set of analyses was to describe key measures using frequency and summary statistics. Prior to analysing attitudes to e-learning and self-directed learning readiness, the internal consistency reliabilities were confirmed by calculating the Cronbach alpha coefficients for both measures. A coefficient of .7 or above is considered acceptable for research purposes (George and Mallery, 2008).

5.3 Results

This section reports on the analysis of data obtained from the 300 registered Malaysian nurses who completed the e-learning survey. The results are organised into six major parts: sample characteristics, access to and use of computers; experiences and opinions on e-learning; factors that motivate and deter participation in e-learning; attitudes towards e-learning; and readiness for e-learning.

5.3.1. Sample characteristics . Table 5.1 provides a summary of the demographic characteristics of the sample. The majority of participants were female (95%), and married (74.3%) with 1 to 4 children (84%). Results showed a similar distribution by age and income categories, with a mean age of 34.94 years and a mean income of RM 3941.4.

Table 5.1

Demographic Characteristics (N = 300).

Characteristic	Frequency	Percent
Sex		
Female	285	95.0
Male	15	5.0
Age (in years)		
≤30	115	38.3
31-38	87	29.0
≥39	98	32.7
Mean: 34.94 (SD = 8.92)		
Marital status		
Married	223	74.3
Single	72	24.1
Separated/divorced	1	0.3
Widow/widower	4	1.3
Number of children (N=228)		
0	22	9.0
1-2	106	47.0
3-4	83	37.0
≥5	17	7.0
Household income (RM)		
≤ 3870	101	33.7
3871-5000	105	35.0
≥ 5001	94	31.3
Mean: 3941.40SD:1633.38		

A summary of nursing details (see Table 5.2) shows the majority of nurses worked in Selangor State (34%) in either a tertiary (44.3%) or a secondary hospital (26.3%). Years of nursing service was equally distributed across the three categories, with a mean year of service of 11.04 years. The predominant nursing qualification was a diploma of nursing (60.3%), with only 7% of nurses having obtained a nursing degree.

Table 5.2.

Nursing Details (N = 300)

Characteristic	Frequency	Percent
State		
Selangor	102	34.0
Penang	51	17.0
Pahang	71	23.7
Johor	76	25.3
Working institution		
Tertiary Hospital	133	44.3
Secondary Hospital	79	26.3
Primary Hospital	37	12.3
Health Clinic	51	17.1
Years of service		
≤ 6	104	34.7
7-13	100	33.3
≥ 14	96	32.0
Mean: 11.04 (SD = 8.53)		
Professional education		
Diploma in Nursing	181	60.3
Advance Diploma in Nursing	98	32.7
Degree in Nursing	21	7.0

Comparison of sample characteristics with the CPE sample showed no statistically significant differences between the two groups by age, marital status, years of service and professional education. However, there was a slightly higher proportion of nurses in the e-learning survey who were male (5% vs. 2.9%), working in clinic (17% vs. 8.8%) and had a nursing degree (7% vs. 2.3%) however there were only slight difference. Similar proportions are also noted by the State and institution in which participants worked (refer Table 5.3 and 5.4).

Table 5.3

Comparison of Sample Demographic Characteristics betweenCPE (N=792) and E-Learning Survey (N = 300)

	E-learning (N=300)		CPE Survey (N=792)		Chi-square test
Characteristic	Frequency	Percent	Frequency	Percent	
Sex					
Female	285	95.0	769	97.1	$\chi 2(1)= 67.89$
Male	15	5.0	23	2.9	$P = 0.001$*
Age (in years)					
≤30	115	38.3	288	36.4	$\chi 2(1)=7.28$
31-38	87	29.0	252	31.8	$P =.29$
≥39	98	32.7	252	31.8	
Mean: 34.94 (SD = 8.92)					
Marital status					
Married	223	74.3	611	77.1	$\chi 2(1)=3.79$
Single	72	24.0	166	21.0	$P = 0.92$
Separated/divorced	1	0.3	6	0.8	
Widow/widower	4	1.3	9	1.1	
Number of children (N=228)					
0	22	9.0	80	12.8	$\chi 2(1)=56.94$
1-2	106	47.0	327	52.2	$P = 0.06$
3-4	83	37.0	183	29.2	
≥5	17	7.0	37	5.9	
Household income (RM)					
≤ 3870	101	33.7	202	25.5	$\chi 2(1)=4.88$
3871-5000	105	35.0	215	27.1	$P =0.30$
≥ 5001	94	31.3	177	22.3	
			198	25.0	
Mean: 3941.40SD:1633.38					

*P< 0.05 indicates significance value

Table 5.4

Comparison of Samples' Nursing Detail between Nursing CPE (N=792) and E-Learning Survey (N = 300)

Characteristic	E-learning survey Frequency	E-learning survey Percent	CPE Survey Frequency	CPE Survey Percent	Chi- square test
State					
Selangor	102	34.0	232	29.3	$\chi^2(1)=16.7$ $P=0.06$
Penang	51	17.0	166	20.9	
Pahang	71	23.7	195	24.6	
Johor	76	25.3	199	25.2	
Working institution					
Tertiary Hospital	133	44.3	441	55.7	$\chi^2(1)=89.39$ $P = 0.001$*
Secondary Hospital	79	26.3	164	20.7	
Primary Hospital	37	12.3	117	14.8	
Health Clinic	51	17.0	70	8.8	
Years of service					
≤ 6	104	34.7	203	25.6	$\chi^2(1)=0.46$ $P=81.27$
7-13	100	33.3	234	29.5	
≥ 14	96	32.0	164	20.7	
Mean: 11.04 (SD = 8.53)					
Professional education					
Diploma in Nursing	181	60.3	602	76.0	$\chi^2(1)= 43.3$ $P = 0.02$*
Advance Diploma in Nursing	98	32.7	172	21.7	
Degree in Nursing	21	7.0	18	2.3	

5.3.2 Access to and use of computer facilities.

5.3.2.1 Computer access. Results presented in Table 5.5 show most nurses had access to a personal or home computer (85.3%) and a computer at work (85.3%). The majority also had internet access at home (84%) and at work (71.8%). Fewer nurses had access to a library or college computer (43%), and 80.8% of them had access to the internet. When asked which type of internet connection they had, a higher percentage of nurses said ADSL (37%), followed by Wireless (22%) and Analog/ISDN (12.7%)

Table 5.5

Computer Access (N=300)

Item	N	%
1. Have a personal/home computer	256	85.3
With internet access	215	84.0
2. Access to a computer at work	255	85.3
With internet access	183	71.8
Access to a library/college computer	130	43.0
With internet access	105	80.8
3. Type of internet connection		
Analog/ISDN	38	12.7
ADSL	111	37.0
Wireless	66	22.0

5.3.2.2 Computer use. Figure 5.1 shows the average time (hours/week) that participants used a computer. One third of participants said 2-5 hours/week, a quarter said more than 10 hours/week and 0 - 1 hr. /week, and 17% said 6-10 hrs. /week

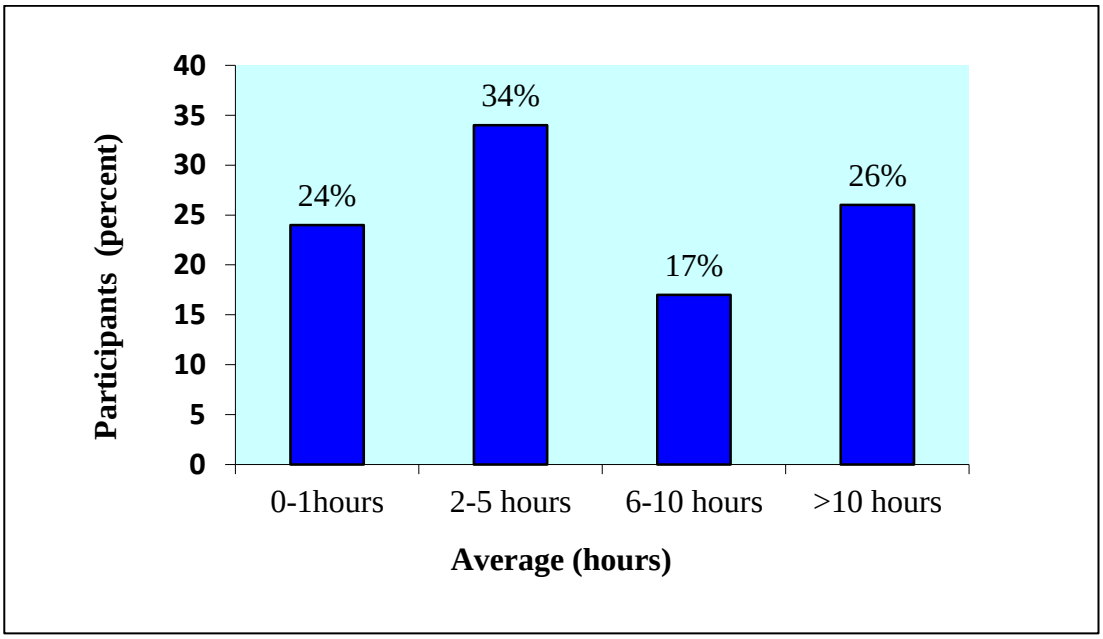

*Figure 5.1.*Average computer use per week (N=300)

Also examined was the average time participants used a computer for specific purposes. The summary of responses is presented in Table 5.6 Purposes of highest use (>6 hrs./week) were internet searches (30%) and typing reports (25%), whereas the main purposes for short-term use (0-1 hr./week) were on-line chats (75%), library searches (59%), emails (56%) and data analyses (54%).

Table 5.6

Time Using A Computer by Purpose (N=300)

Purpose	Average time used (hours/week)							
	0 –1 hour		2-5 hours		6-10 hours		>10 hours	
	N	%	N	%	N	%	N	%
Emails	167	55.7	85	28.4	27	9.0	21	7.0
Typing reports	142	47.3	82	27.3	41	13.7	35	11.7
Analysing data	163	54.3	77	25.7	37	12.3	23	7.7
Preparing presentations	143	47.7	101	33.7	33	11.0	23	7.7
Library search	176	58.7	83	27.7	23	7.7	18	6.0
Internet search	109	36.3	101	33.7	56	18.7	34	11.3
Chat on-line	225	75.0	48	16.0	21	7.0	6	2.0
Others usage	3	1.0	4	1.3	2	0.7	9	3.0

5.3.3 Experience and opinions of e-learning.

5.3.3.1 Experience of e-learning. Of the 300 nurses who completed the survey, only 52 (17%) had participated in e-learning activities. Of these, the main types of e-learning were complementary face-to face e-learning (51.9%) and supplementary face-to face e-learning (44.2%). Only two nurses had participated in a comprehensive e-learning activity.

5.3.3.2 Interest in e-learning. Nurses who had not participated in e-learning were asked to rate their interest in doing so. As shown in Figure 5.8, 46% were very interested, 40.3% were considering doing so, 9.7% were unsure, and only 4% said they were not interested.

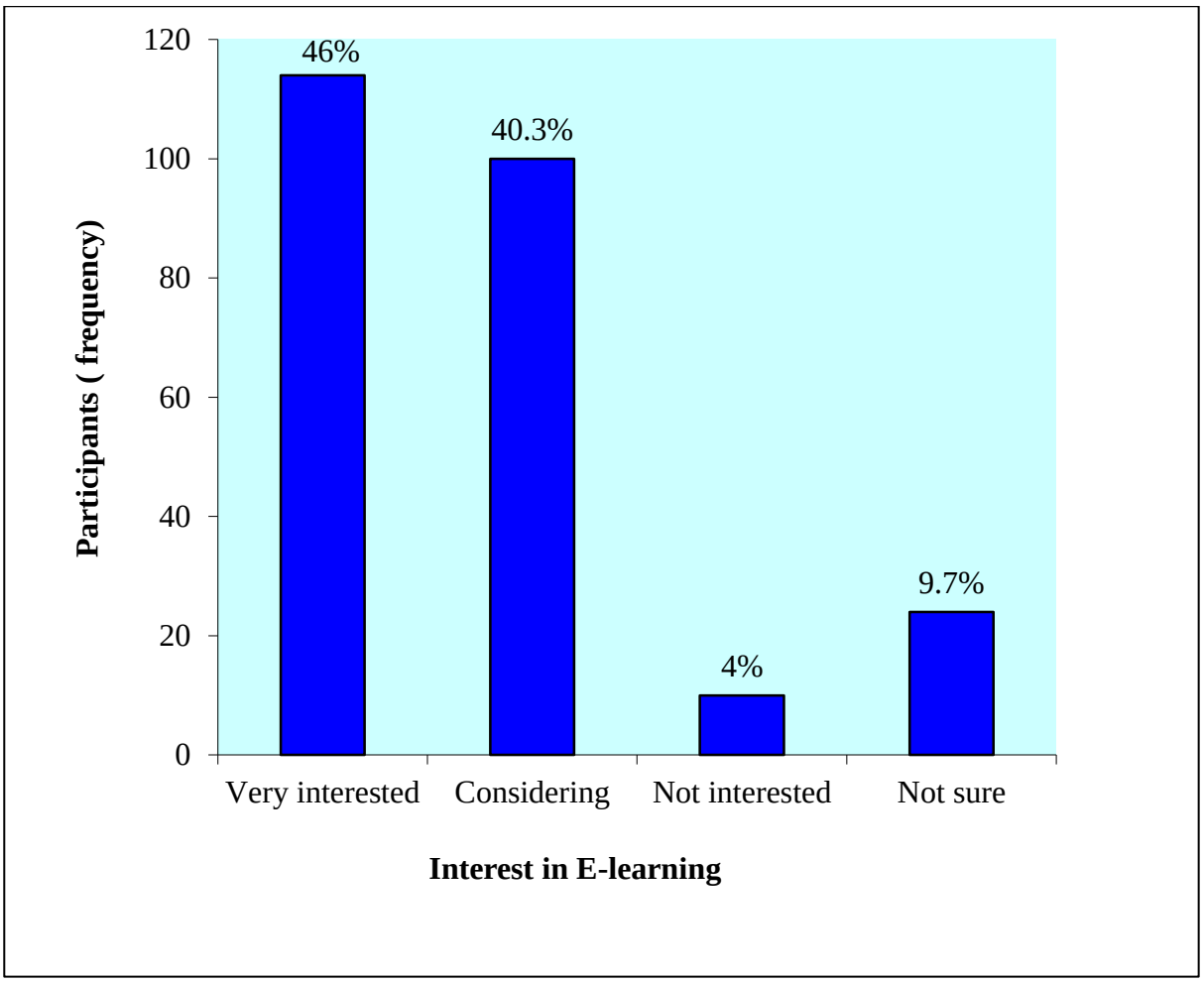

*Figure 5.2.*Interest in e-learning (N=248)

5.3.3.3 Opinions on e-learning. Participants were asked about where they would use a computer for learning, the most suitable day and time for learning, what should be emphasized in an e-learning program, duration of the course, and the main reasons for doing CPE via e-learning.

5.3.3.3.1 Place, day and time for computer learning. Opinions on where and when e-learning activities are best done are presented in Table 5.7. Results show a third of participants preferred working from home, a quarter preferred working at home and at workplace, and 18% selected workplace only as the best option. The remaining options were less popular, ranging from home, workplace and institution (7%) to home, institute and internet café (0.3%).

In terms of preferred days and time, the most popular options for learning were the weekends (43, 3%) and late at night (50.3%). Least preferred were weekdays (21.7%) and the evening (22%).

Table 5.7

Place, Day and Time for E-learning (N=300)

	N	%
Place		
Home only	100	33.3
Home and work place	73	24.3
Work place only	55	18.3
Home, work place and institution	21	7.0
Home and institution	16	5.3
Internet café only	11	3.7
Work place and internet café	6	2.0
Work place and institution	5	1.7
Home and internet cafe	4	1.3
Institution only	3	1.0
All sites	3	1.0
Home, workplace and internet cafe	2	0.8
Home, institution and internet café	1	0.3
Days		
Weekends	130	43.3
Weekdays and Weekends	105	35.0
Weekdays	65	21.7
Time		
Late at night	151	50.3
Morning	81	27.7
Evening	68	22.0

5.3.3.3.2 Program emphasis and course duration. Approximately half the sample (53%) preferred a theory emphasis for e-learning programs, a third preferred a practice focus, and only 14.3% said theory and practice.

For opinions on program duration the majority of participants (86%) said that the length of the program would depend on the objectives of the course. Less than 10% chose less than or more than 4 weeks options (see Table 5.8).

Table 5.8

Opinions on Program Emphasis and Duration (N = 300)

	N	**%**
Program emphasis	160	53.3
Theory	97	32.3
Practice	43	14.3
Theory and practice		
Program duration	258	8.7
Less than 4 weeks	26	5.3
More than 4 weeks	16	86.0
Depends on course objectives		

5.3.3.3.3 Reasons for doing CPE via e-learning. Table 5.9 provides a summary of opinions on the important reasons for participating in e-learning. Examination of mean ratings on each item shows that all five reasons were considered important, with slightly higher mean rankings for *increasing new knowledge and technical skills* (4.26) and *improving attitude towards nursing care* (4.22). The least important reason was to improve *networking* (4.07).

Table 5.9

Reasons for Participation in E-Learning (N=300)

Objectives	Not at all		A little		Somewhat		Moderately		A great deal		**Mean**
	N	%	N	%	N	%	N	%	N	%	
Increase new knowledge and technical skills	2	0.7	11	3.7	24	8.0	133	44.3	130	43.3	**4.26**
Improve attitude towards nursing care	1	0.3	11	3.7	39	13.0	119	39.7	130	43.3	**4.22**
Improve competency	2	0.7	10	3.3	39	13.0	140	46.7	109	36.3	**4.15**
Improve clinical performance	2	0.7	14	4.7	35	11.7	126	42.0	123	41.0	**4.18**
Improve networking	7	2.3	11	3.7	47	15.7	125	41.7	110	36.7	**4.07**

5.2.3.3.4 Interest in e-learning topic areas. Mean ratings presented in Table 5.10 show the e-learning topics of most interest were indirect nursing (4.17), general nursing (4.13) and specialty nursing (4.05). Slightly less interest was shown for management, teaching and research.

Table 5.10

Interest in E-Learning Topic Areas

	Not at all		A little		Somewhat		Moderately		A great deal		**Mean**
Topics	N	%	N	%	N	%	N	%	N	%	
Indirect nursing:	2	0.7	9	3.0	47	15.7	119	39.7	123	41.0	**4.17**
General nursing	5	1.7	9	3.0	41	13.7	131	43.7	114	38.0	**4.13**
Specialty nursing	14	4.7	12	4.0	38	12.7	118	39.3	118	39.3	**4.05**
Management	8	2.7	15	5.0	41	13.7	145	48.3	91	30.3	**3.99**
Teaching	6	2.0	13	4.3	55	18.3	130	43.3	96	32.0	**3.99**
Research	7	2.3	18	6.0	56	18.7	113	37.7	106	35.3	**3.98**

*5.3.3.3.5 Teaching/learning and evaluation methods.*Results given in Table 5.11 show the teaching/learning methods that should be included in CPE by e-learning were, in order of importance, synchronous learning (65%) - where the learner interacts directly with the facilitator to obtain direction and feedback, followed by asynchronous learning - which is less interactive (35%), and wholly self-directed (35%).

Participants were also asked to specify which of five types of evaluation they considered appropriate for e-learning activities. Results found a larger proportion of participants said formative evaluation (62.6%), 53.3% said internet tests and internet discussion forums, 44.7% said summative evaluation, and 41.3% said college-based tests.

Table 5.11

Opinions on Teaching/Learning and Evaluation Methods (N = 300)

Methods	N	%
Teaching/learning		
Self-directed (no communication)	108	36.0
Asynchronous	108	36.0
Synchronous	195	65.0
Evaluation		
Test through the internet	160	53.3
Participation in discussion forum through the internet	160	53.3
College based test	124	41.3
Summative evaluation (Final examination)	134	44.7
Formative evaluation (Continuous assessment)	188	62.6

5.3.4 Factors that motivate and deter participation in CPE via e- Learning.

5.3.4.1 Motivation factors. Table 5.12 presents a summary of opinions on the factors that motivate participation in e-learning activities. Examination of mean ratings on each item shows the highest rated motivators were achieving *lifelong learning* (4.10); *flexibility in time and space* and *to broaden horizons* (4.07); and self-*directed learning* (4.05). Items considered less motivating were *cost effectiveness* (3.90) and less *impact on family life* (3.91)

Table 5.12

Factors That Motivate Participation in CPE via E-Learning

Motivators	Not at all		A little		Somewhat		Moderately		A great deal		Mean
	N	%	N	%	N	%	N	%	N	%	
Achieving lifelong learning	2	0.7	13	4.3	36	12.0	152	50.7	97	32.3	**4.10**
Flexibility in time and space	3	1.0	11	3.7	56	18.7	122	40.7	108	36.3	**4.07**
Broaden one's horizon with diversity and latest knowledge	1	0.3	10	3.3	50	16.7	145	48.3	94	31.3	**4.07**
Self-directed learning	3	1.0	9	3.0	48	16.0	151	50.3	89	29.7	**4.05**
Meeting personal learning needs and interests	3	1.0	16	5.3	48	16.0	147	49.0	86	28.7	**3.99**
Meeting job needs	3	1.0	11	3.7	74	24.7	131	43.7	81	27.0	**3.92**
Less impact on family life	9	3.0	10	3.3	67	22.3	126	42.0	88	29.3	**3.91**
Cost –effectiveness	6	2.0	11	3.7	72	24.0	130	43.3	81	27.0	**3.90**

5.3.4.2. Deterrent factors. Analysis of factors that deter participation in e-learning (see Table 5.13) found no mean ratings above 4 for example no factors were considered to be moderate or major deterrents. Closer examination of mean

ratings identified the factors considered to be more of a deterrent were *limited tim*e (3.42), lack *of ICT support* (3.32), lack *of supervisor support* (3.27) and *limited understanding about network systems* (3.27). Factors least considered to be deterrents were *difficulties with understanding English and computer vocabulary* (2.91), *lack of knowledge about searching the internet* (2.96) and *limited ability to send and receive e-mails* (2.98).

Table 5.13

Factors That Deter Participation in E- Learning

Deterrents	Not at all		A little		Somewhat		Moderately		A great deal		Mean
	N	%	N	%	N	%	N	%	N	%	
Limited time	13	4.3	46	15.3	86	28.7	112	37.3	43	14.3	3.42
Lack of information communication technology (ICT)support	26	8.7	43	14.3	83	27.7	106	35.3	42	14.0	3.32
Lack of support from supervisors	23	7.7	48	16.0	98	32.7	88	29.3	43	14.3	3.27
Limited understanding about network system: LAN, internet, intranet	22	7.3	56	18.7	85	28.3	94	31.3	43	14.3	3.27
Lack of access to a computer with an internet connection	30	10.0	47	15.7	77	25.7	107	35.7	39	13.0	3.26
Lack of familiarity with using web board	34	11.3	50	16.7	87	29.0	88	29.3	41	13.7	3.17
Lack of knowledge about uploading and down loading information	39	13.0	55	18.3	72	24.0	90	30.0	44	14.7	3.15
Limited knowledge of computers	39	13.0	48	16.0	80	26.7	101	33.7	32	10.7	3.13
Lack of familiarity with online chat rooms	41	13.7	60	20.0	81	27.0	86	28.7	32	10.7	3.03
Limited ability to send and receive e-mail	54	18.0	48	16.0	80	26.7	87	29.0	31	10.3	2.98
Lack of knowledge about searching the internet	56	18.7	55	18.3	67	22.3	90	30.0	32	10.7	2.96
Difficulties with understanding English and computer vocabulary	45	15.0	64	21.3	92	30.7	72	24.0	27	9.0	2.91

5.3.5 Attitudes towards E-learning. Table 5.14present participants' ratings on each of the attitudes towards e-learning scale items grouped under each of the six subscales. For the purpose of description, responses were collapsed into three categories: disagree/strongly disagree, uncertain, and agree/strongly agree. After reverse scoring negatively worded items, mean item scores for the five point scale were calculated. Overall, the results showed participants had a positive attitude towards e-learning with average ratings greater than 4 on six items, 3.6 to 4.0 on 19 items, and 3 to 3.5 on two items. Only one item relating to convenience and flexibility (*Take time to learn and get used to it*) recorded a mean rating less than 3. Examination of item responses for each subscale showed the majority of participants (>75%) agreed/strongly agreed that all nurses should be able to use a computer to learn, computers stimulate the desire to learn, and they were interested in using a computer and internet learning (*Use of computer subscale*). Follow by, that e-learning would be a *convenient, efficient* and *a flexible way to learn and would make life easy* (*Convenience and flexibility*). Other statements, *allows interaction with e-learning facilitator and on-line discussion with other students* (*Interaction with facilitator and other students*). Finding also found *improves access to knowledge and information for nursing practice* (Access to knowledge). Respondents also found *e-learning is fun* and *offers a rick learning experience* (*Positive learning experience*); and last but not least they found *helps to improve continuity of care* and *inspires professional development* (*Improves nursing care*).

Table 5.14

Attitudes towards E-learning

Item	Disagree		Uncertain		Agree		Mean
	N	%	N	%	N	%	
Use of computer							
Using computers in learning situations stimulates one's desire to learn	13	4.3	56	18.7	231	77.0	3.90
I have positive experiences learning with computers	22	7.3	61	20.3	217	72.3	3.80
I am not interested in using a computer and internet learning*	227	75.7	40	13.3	33	11.0	3.98
All nurses should be able to use a computer to learn(e-learning)	10	3.3	32	10.7	258	86.0	4.26
Convenience and flexibility							
It makes life easy	19	6.3	50	16.7	231	77.0	3.93
A convenient way to learn	12	4.0	48	16.0	240	80.0	3.99
It makes learning more efficient	14	4.7	47	15.7	239	79.7	4.00
It provides a flexible learning environment that is suitable for full-time employees	13	4.3	48	16.0	239	79.7	4.05
Take time to learn and get used to it*	91	30.3	75	25.0	134	44.7	2.86
Interaction with facilitator and other students							
It allows for social interaction	12	4.0	73	24.3	215	71.7	3.87
Allows me to interact with the e-learning course facilitator(s)and tutor(s)	4	1.3	67	22.3	229	76.3	3.98
Generate E-learning interesting online discussion with others students	9	3.0	60	20.0	231	77.0	3.94
I felt I got to learn a great deal about the tutors in though online course	14	4.7	88	29.3	198	66.0	3.76
It provides a personal experience similar to the classroom	32	10.7	99	33.0	169	56.3	3.58
It allows me to express my feelings and learn the feelings of others	25	8.3	94	31.3	181	60.3	3.66
It provides reliable means of communication	16	5.3	82	27.3	202	67.3	3.75

*** Reverse scored**

Table 5.14
Continued

Item	Disagree		Uncertain		Agree		Mean
	N	%	N	%	N	%	
Access to knowledge							
It improves access to knowledge	7	2.3	44	14.7	249	83.0	4.06
It provides access to information for my nursing practice	6	2.0	36	12.0	258	86.0	4.12
Positive learning experience							
It is something I could handle and cope well with	16	5.3	78	26.0	206	68.7	3.79
It is fun and an interesting delivery medium to use,	11	3.7	58	19.3	231	77.0	3.93
It offers a rich leaning experience	7	2.3	46	15.3	247	82.3	4.05
I did not find the e-learning threatening to me	41	13.7	66	22.0	193	64.3	3.66
It makes me anxious*	139	46.3	85	28.3	76	25.3	3.33
It always go wrong*	201	67.0	70	23.3	29	9.7	3.77
It makes life difficult*	199	66.3	60	20.0	41	13.7	3.72
Improve nursing care							
It helps improve continuity of care	8	2.7	54	18.0	238	79.3	3.99
It inspires professional development	4	1.3	42	14.0	254	84.7	4.11
It detracts from patient care*	125	41.7	97	32.3	78	26.0	3.26

* Reverse scored

Attitudes towards e-learning were further examined by computing the mean score for each subscale and the total scale. Mean item scores for each subscale were also calculated to allow scores on each scale to be compared. Prior to conducting these analyses the internal consistency reliability of instrument used to assess attitudes was confirmed based on Cronbach alpha coefficients for each of the six subscales and the total scale. Table 5.15 presents mean scale and mean item scores, and Cronbach alpha reliability coefficients.

Results show the attitudes towards e-learning scale had high internal consistency reliability for the total scale (0.93) and the Interaction with facilitator and other students' subscale (0.91); and acceptable reliabilities (> 0.7) for *Access to knowledge, Convenience and flexibility, Positive learning experience subscales, Use of computers and Improve nursing care*. Examination of mean item scores shows minimum differences between the six subscale scores, with item means ranging from a low of 3.75 to a high of 4.09. Comparison of item means suggests a slightly more positive attitude for Access to knowledge and Use of computers

Table 5.15

Mean Scale and Mean Item Scores and Reliability Coefficients for Attitudes toward E-Learning Scale

Scales	No items	Mean scale score	Mean item score	Reliability coefficient
Use of computer	4	15.95	3.98	0.85
Convenience and flexibility	5	19.12	3.80	0.75
Interaction with facilitator and other students	7	22.56	3.80	0.91
Access to knowledge	2	8.18	4.09	0.79
Positive learning experience	7	25.19	3.75	0.72
Improve nursing care	3	11.36	3.78	0.90
Total scale	28	102.36	3.87	0.93

5.3.6 Readiness for E-learning. As for the analysis of attitudes towards e-learning, responses to SDRS items were collapsed into three categories (disagree/strongly disagree, uncertain, and agree/strongly disagree) and negatively worded items reversed scored before calculating mean item scores. Response frequencies and mean item scores are presented separately for self-management, desire for learning and self-control subscales. As can be seen from Table 5.16,

participants' recorded a moderate degree of readiness on self-management items, with more than 70% agreeing/strongly to being self-disciplined, able to prioritise and plan their own learning, and to be trusted to pursue their own learning. The only item where there was less than 50% agreement was being methodical. Responses to desire for learning items showed a high level of readiness, with the majority of participants agreeing/strongly agreeing on all items. Items with the strongest level of agreement (>90%) were the need to learn, wanting to and enjoying learning new information, the need to know why, and being able to learn from own mistakes. The responses to self-control items showed a similar pattern, with high agreement (71.7% to 90.0%) on all items. More than 80% of participants agreed/strongly agreed on 8 of the 15 items: prefer to set own learning goals, make and be responsible for own decisions, able to focus on problems, aware of own limitations, set own criteria for evaluation, and have a high belief in own ability.

Table 5.16.

Self-Directed Readiness towards E-Learning

Item	Disagree N	Disagree %	Uncertain N	Uncertain %	Agree N	Agree %	Mean
Self-Management							
I do not manage my time well*	205	68.3	85	28.3	10	3.3.0	3.77
I am self-disciplined	4	1.3	73	24.3	223	74.3	3.87
I am disorganized*	216	72.0	78	26.0	6	2.0	3.82
I set strict time frames	21	7.0	106	35.3	173	57.7	3.59
I have good management skills	12	4.0	112	37.3	176	58.7	3.63
I am methodical	18	6.0	133	44.3	149	49.7	3.52
I am systematic in my learning	23	7.7	101	33.7	176	58.7	3.59
I set specific times for my study	29	9.7	95	31.7	176	58.7	3.59
I solve problems using a plan	15	5.0	93	31.0	192	64.0	3.67
I prioritize my work	4	1.3	66	22.0	230	76.7	3.93
I can be trusted to pursue my own learning	6	2.0	77	25.7	217	72.3	3.84
I prefer to plan my own learning	9	3.0	54	18.0	237	79.0	3.90
Desire for learning							
I am confident in my ability to search out information	9	3.0	68	22.7	223	74.3	3.86
I want to learn new information	2	0.7	23	7.7	275	91.7	4.30
I enjoy learning new information	2	0.7	24	8.0	274	91.3	4.26
I have a need to learn	2	0.7	25	8.3	273	91.0	4.23
I enjoy a challenge	7	2.3	41	13.7	252	84.0	4.09
I did not enjoy studying*	242	80.7	54	18.0	4	1.3.0	4.06
I critically evaluate new ideas	11	3.7	70	23.3	219	73.0	3.88
I like to gather the facts before I make a decision	2	0.7	43	14.3	255	85.0	4.04
I like to evaluate what I do	3	1.0	42	14.0	255	85.0	4.04
I am open to new ideas	1	0.3	48	16.0	251	83.7	4.07
I learn from my mistakes	1	0.3	26	8.7	273	91.0	4.26
I need to know why	1	0.3	29	9.7	270	90.0	4.22
When presented with a problem I cannot resolve, I will ask for assistance	7	2.3	34	11.3	259	86.3	4.10

Table 5.16

Continued

Item	Disagree N	Disagree %	Uncertain N	Uncertain %	Agree N	Agree %	Mean
Self-control							
I prefer to set my own goals	2	0.7	32	10.7	266	88.7	4.13
I like to make decisions for my self	7	2.3	36	12.0	257	85.7	4.05
I am responsible for my own decisions/actions	2	0.7	29	9.7	269	89.7	4.15
I am not in control of my life*	243	81.0	48	16.0	9	3.0	3.99
I have high personal standards	8	2.7	76	25.3	216	72.0	3.85
I prefer to set my own learning goal	2	0.7	45	15.0	253	84.3	4.05
I evaluate my own performance	4	1.3	62	20.7	234	78.0	3.96
I am logical	4	1.3	60	20.0	236	78.7	3.97
I am responsible	3	1.0	24	8.0	273	91.0	4.20
I have high personal expectations	4	1.3	60	20.0	236	78.7	4.00
I am able to focus own problem	3	1.0	49	16.3	248	82.7	4.00
I am aware of my own limitations	2	0.7	47	15.7	251	83.7	4.06
I can find out information for my self	11	3.7	74	24.7	215	71.7	3.83
I have high beliefs in my abilities	5	1.7	52	17.3	243	81.0	3.98
I prefer to set my own criteria on which to evaluate my performance	4	1.3	55	18.3	241	80.3	3.96

* Reverse scored

Readiness for e-learning data were further examined by computing mean scale and mean item scores for the three subscales and total SDRS scale after first confirming the internal consistency reliability of the SDRS (see Table 5.17 for a summary of the findings). The results clearly demonstrate high reliability for all scales, with alpha coefficients ranging from 0.85 to 0.96. Mean item scores for the three subscales show a higher level of e-learning readiness for desire for learning, followed by self-control and self-management. For the total scale, the mean score

was 156.17 which are above the score of 150 specified by Fisher et.al (2001) as the cut-off point for an acceptable level of self-directed readiness.

Table 5.17

Mean Scale and Mean Item Scores, And Reliability Coefficients for SDRS Subscales

Scales	No items	Mean scale score	Mean item score	Reliability coefficient
Self-Management	12	46.43	3.73	0.87
Desire for learning	13	49.56	4.11	0.94
Self-control	15	60.18	4.01	0.95
Total scale	40	156.17	3.95	0.96

5.4 Discussion

Findings from the CPE survey indicate that many nurses have limited opportunity to attend traditional face to face CPE activities due to a range of problems such as lack of access, time constraints and family responsibilities. One way to overcome these constraints is to offer CPE activities by e-learning, and thus provide more nurses with the opportunity to participate in CPE. The aim of this survey was to determine Malaysian nurses' interest in and readiness to participate in CPE if offered by e-learning mode, and to identify the type of E-learning programs and activities that would best meet their learning needs. To achieve this aim 300 Malaysian nurses who participated in Phase 1 of the study were invited to complete the e-learning questionnaire. The final sample was considered to be representative of the target population as all 300 nurses participated (a 100% response rate). The sample characteristics were also similar to Phase 1 participants for gender, age, marital status, years of service, professional qualifications and where they were working. The only significant differences that were found were a slightly higher proportion of nurses who were male, working in the secondary and health clinic and had a nursing degree.

This section provides a discussion of the major findings from the survey in relation to the literature, and the extent to which findings support and inform the development of CPE via e-learning. The discussion of the findings presented below have been organised under six main headings: access to and use of computers; experience and interest in e-learning; opinions on the design of e-learning courses; motivators and deterrents to e-learning; attitudes towards e-learning; and readiness towards e-learning.

5.4.1. Computer access and use.

5.4.1.1 Computer access. A key requirement for e-learning is that the learner has access to a computer and the internet, and has the experience and competency to function efficiently. The findings from this study found most of the nurses surveyed (85%) had access to a computer at home and in the workplace, but fewer had access (43%) to a library or a college computer. Similar figures for home access have been reported by Yu, et al. (2006) and Meeparn (2006). According to Ipsos MORI (2006), while access to a computer at work is a valuable asset, those who have a computer at home tend to have better IT skills and confidence. Therefore, for e-learning, the home is perhaps the best place to start, particularly for learners who are married and have older children (Ipsos MORI, 2006). The one exception is when e-learning CPE activities are offered by the health care organisation. In this case, it is the responsibility of the organisation to provide the necessary infrastructure, computer access and IT support.

Access to the internet is an essential requirement for e-learning. This survey found that when nurses had access to computers most had internet access. Some nurses also had computer access at more than one site. For example, those nurse pursuing higher education that had access to the internet at college, at work, and at home. However, as reported in Koch et al.'s (2010) study of Australian nurses, students still prefer working on the internet off campus. The other important issue for e-learning is the type of internet connection that is available. It was encouraging to find that 70% of nurses surveyed had broadband on their home or personal computer, rather than analogue/ISDN or normal bandwidth dial-up. This percentage, which is comparable to nursing students in Australia (Koch, et al., 2010), is well

above the Malaysian broadband subscription rate of 7.8% (Internet World Status, 2010).

It is well known that a limited internet bandwidth can adversely affect e-learning. The type of problems that have been reported are a busy line when needing to engage in a virtual classroom activity (Hiltz, 1997); interrupted audio channels for e-learning conferencing (Akar, et al.2004); and restricted internet access, particularly in rural areas (Ono & Zavodny, 2007); Ti(UNITAR (University Tun Abdul Razak), 2011; Wawasan Open University, 2006)en and Fu, 2008). Although bandwidth and broadband coverage in Malaysia has improved over the years it remains a concern for Malaysian students (Wong, 2008), particularly for those who use normal dial-up bandwidths that range from 64 -128 kbps. The other problem is that the coverage for bandwidths of 2 and 4 Mbps is limited to urban areas (TM Net, 2010). Without good internet connection at home nurses may have to use a computer at work or in a learning centre: a situation that defeats the purpose of being able to learn “anywhere”.

5.4.1.2 Computer use. Asking nurses to specify the average number of hours/ per week they use a computer only provides a broad estimate of computer use. Results from the survey showed a higher percentage of nurses used the computer for 2 to 5 hours/week (33%), followed by more than 10 hours (26%), 0-1 hour (24%), and 6 to 10 hours (17%) per week. It is difficult to compare these finding to other studies because of the different measures used. For example, Ipsos MORI (2006) found 31% of nurses who had a computer at home used it every day.

A more detailed analysis of computer use was provided when participants specified the average time per week they used the computer for specific purposes. What the analysis showed was that computer time varied according to the purpose. Typing reports, doing internet searches and analysing data were tasks rated by more participants to require 6 or more hours per week, whereas a higher percentage of nurses estimated 1 hour or less/week for on-line chats (75%), library searches (59%), emails (56%), and analysing data (54%). Some of these findings are consistent with the results reported by Meepan (2006) where 92% and 78% of Thai nurses required more than 6 hours/week to type reports and conduct internet searches respectively.

5.4.2. Experience and interest in e-learning.

5.4.2.1 E-learning experience. Only 52 (17%) of the 300 nurses who completed the survey had participated in CPE activities offered by e-learning mode. Although this number appears low, it is notably higher that the 9.8% reported by Yu, et al. (2007) in their study of Taiwanese public health nurses. The main types of e-learning that nurses had experienced were complimentary or blended e-learning (Morrison, 2003) that includes a combination of internet-based and face-to-face learning; and supplementary e-learning (44%) that is designed to support campus-based learning with on-line activities. These results are consistent with nursing education trends in Malaysia. For example some private universities offer complementary e-learning programs (Wawasan Open University, 2006); whereas some public universities provide supplementary e-learning to support on-campus nursing programs (UNITAR, 2011). No respondents had experience of

comprehensive e-learning which is based solely on on-line activities. One limitation of the survey was that participants were not asked to specify the type of CPE e-learning activity they had completed (e.g. in-service education, specialty nursing course, tertiary studies). It may be that e-learning lends itself more to some CPE activities and e-learning formats and not to others.

5.4.2.2 Interest in e-learning. In a survey of this type it is important to identify the level of interest in CPE if offered via e-learning mode for nurses with no experience of e-learning. Findings clearly indicate that CPE by e-learning is a viable option, with 46% having a strong interest and 40% who would consider doing CPE by e-learning. Only 4% of nurses had no interest at all. A similar level of interest was reported by Chen et al.(2008) where 91.6% of Thai public health nurses said they were likely to participate in CPE if offered via web-based learning. Likewise, another Thai study by (Meeparn, 2006) found 61% of nurses would participate in e-learning and 27.5 % who were considering it. Ipsos MORI ‘s (2008) survey of a sample of social care workers that included nurses also reported that 88% of participants considered e-learning a practical option, despite limited employer support and lack of access to computers at work.

5.4.3 Opinions on the design of e-learning courses.

5.4.3.1 Where, when and duration of e-learning. The survey of opinions on the where and when for e-learning found the majority of registered nurses preferred to study from home (33.3%), at weekends (43.3%) and late at night (50.3%). Home-based e-learning has also been reported as the preferred place for Thai (Meepan (2006) and Chinese nurses (Gragg,2003; Edwards, et al.2001).

One reason for favouring weekends and late at night as the best time to study could be due to work and family commitments, given that a high proportion of nurses in the study who were married and had children. Meepan (2006) also found that one third of nurses in her study preferred to learn during weekend. In contrast to this finding, very few of the nurses surveyed by Schreursand Moreau (2008) were prepared to spend time on e-learning outside of working hours. In regard to the preferred duration of an e-learning activity, the majority of nurses did not specify a specific time, but instead said that it would depend on the objectives of the e-learning course/activity. This response is not surprising given the wide variety of CPE activities and programs that can be offered via e-learning. Other factors that could influence opinions on duration are personal and work responsibilities, and the organisation's willingness to provide time release over an extended period of time (Schreursand Moreau, 2008).

5.4.3 2 Objectives, topic areas and emphasis. In order to provide CPE programs via e-learning that best meets the learning needs of registered nurses it is important to ascertain nurses' opinions on learning objectives, topic areas and preferred emphasis of theory and/or practice. According to Schreurs and

Moreau(2008), the objectives and content need to be suitable for e-learning and of high value to the learners. In this study all specified objectives were considered important; with increasing knowledge and skills and improving attitudes towards nursing care marginally more important than improving competency, clinical performance and networking with colleagues. Likewise, there was little difference in nurses' ratings of topic areas of interest, with slightly higher interest shown in indirect, general and specialty nursing topics compared to management, teaching and research. The question is how appropriate are these objectives and topic areas for CPE courses offered via e-learning? An important issue is the emphasis given to theory and practice. More than half the nurses surveyed considered a theory focus more appropriate for an e-learning module than practice or a combination of theory and practice. The indication from these findings is that nurses question the feasibility of learning clinical skills on-line rather than in a skills laboratory. This view is supported by Wong (2008) who claims that e-learning is not suitable for learners who require hands-on practical experience. Although clinical skills can be taught on-line using computer simulation and virtual laboratory techniques, these may not be as effective as real world experiences (Bourne, McMaster, Rieger, and Campbell, 1997). As noted by Ipsos MORI (2006), it is inappropriate to learn clinical skills that involve patient handling in a pure e-learning environment, although blended learning packages may be an option. It is further suggested that a pure e-learning environment is more suitable for learning theory or content orientated material.

5.4.3.3 Teaching/learning methods and evaluation. The choice of teaching/learning approach and evaluation strategies are important considerations

when designing any CPE activity or program, but particularly so when offered by e-learning. The teaching/learning method preferred by the majority of nurses in the current survey was a synchronous learning approach that allows the learner to interact directly with the activity/program facilitator (Bonnel and Smith, 2010). Less preferred was the asynchronous approach where the learner interacts with pre-recorded information, or when learning is fully self-directed. The preference for a synchronous learning approach may be explained by the emphasis of Malaysian nursing education on traditional face- to-face teaching methods which tend to be teacher rather than learner-centred.

On the question of how best to evaluate e-learning activities, the survey found a slightly higher percentage of nurses considered tests and participation in discussion forums through the internet would be more effective for e-learning than tests conducted at the college. This is consistent with Meeparn's (2006)'s finding that most nurses preferred on-line tests, however not many favoured discussion forums. Wong (2008) also reported a moderate preference for on-line assessments. One reason for this finding is that very few institutions in Malaysia that offer e-learning use this kind of assessment. One exception to this trend is the Open University of Malaysia that provides students with an on-line quiz that serves as a self-test of their understanding of content. Survey participants were also asked how the effectiveness of e-learning activity or course is best assessed. The majority of nurses (63%) favoured continuous assessment (formative evaluation) and less than half (45%) a final exam (summative evaluation). The indication is that both types of evaluation are needed. Meeparn (2006) also reported that one third of nurses preferred formative evaluation

5.4.4 Factors that motivate and deter participation in CPE via e-learning.

5.4.4.1 Motivating factors. It is evident from this survey that multiple factors motivate nurses to participate in CPE activities/courses offered by e-learning, as evidenced by ratings well above the median on all potential motivators that were listed. Of the eight motives, three related to CPE in general (achieve lifelong learning, broaden horizons with diversity and latest knowledge, meet personal learning needs), and five specifically to key features of e-learning (flexibility, self-directed learning, meet job needs, less impact on family life, cost-effectiveness). These findings are consistent with previous studies for both general and specific motives. For example, important motives for e-learning reported in previous studies included life-long learning and broadening horizons with diversity (Yu, et al.2007) ; Schreurs and Moreau, (2008), allowing students to develop ICT skills to further enhance life-long learning (Mason & Rennie, 2004) and, through on-line forums and discussion boards, to keep up-to-date with the latest knowledge and technology (Koory, 2003). Wong (2008) also points out those e-learning materials can be readily adapted to meet individual learning needs and interests.

The high ratings on motivating factors specific to e-learning also match the findings reported by others. For example, the flexibility that e-learning offers in terms of time and space (Yu, et al. 2007; Schreurs and Moreau, 2008; Wong, 2008), less travel time (Igonor & Tang, 2003; Young, 2003), to be self-directed (Yu, et al. 2007), to work at own pace (Atack and Rankin, 2002; 2004; Beasley & Smyth, 2004; Cook et al., 2004); Gabriel and Longman, 2004; Kenny, 2002; Koch et al., 2010; Sit et al., 2005) and better able to transfer knowledge and skills to the workplace (Collins, Buhalis, & Peters, 2003; Garnett, 2001). Other studies have also found that e-learning was less effected by family responsibilities (Yu, et al., 2007)

and provided a more effective work /life balance (McVeigh, 2009). Although cost-effectiveness was also considered a strong motive for e-learning by public health nurses surveyed by Yu, et al. (2007), this may apply more to costs associated with travel and time rather than to direct costs such as fees. In Malaysia, there is little difference in tuition fees between on-line and traditional modes of delivery. The other problems for some nurses who choose e-learning are the cost of purchasing IT equipment and software.

5.4.4.2 Deterrent factors. In addition to identifying motivating factors, it is also important to know what factors deter nurses from participating in CPE via e-learning. It is evident from the findings from this survey that the computer knowledge and skills required for e-learning were not considered to be major deterrents. Likewise, access to computers and the internet were not a problem for the majority of respondents. However, two factors identified as deterrents were lack of IT support and support from work supervisors. As reported by a number of authors, computer literacy (Billings and Rowles, 2001; Yu et al., 2007), adequate and appropriate ICT infrastructure (Ipsos MORI, 2006; Yu and Yang, 2006) and a supportive learning environment (McVeigh, 2009; Schreurs and Moreau, 2008) are significant determinants of whether nurses decide to undertake and complete an e-learning course. Therefore the bonus is on those who offer CPE via e-learning to take into account potential deterrents and implement appropriate strategies such as screening for ICT literacy and computer skills (Hsu, Hou, Chang, and Yen, 2009); offer preparatory training either on-line or by face-to-face sessions (Abouchedidand Eid, 2004; Bird & Morgan, 2003); and provide an online manual and on-line helpdesk access (Schreurs and Moreau, 2008). Kember et al. (2001) also suggested

newcomers to e-learning should be offered an orientation program to enable them to adapt to the e-learning environment.

In this research, respondents' perceived limited time as a main concern that could hinder them from participating in e-learning. This could be due to doubts about using a computer and therefore the extra time needed to learn new skills. The other possible explanation is time pressure from work and family commitments, especially for nurses who have to balance work and household chores (Vaughan and MacVicar, 2004; Willging and Johnson, 2004). This explanation is consistent with the finding that part-time students who have heavy work commitment and family and other social obligation have difficulty finding the time needed for study (Tresman, 2002; Yum, Kember, and Siaw, 2001)). Ipsos MORI (2006) also found participants with work commitments and long working hours had difficulty allocating sufficient time to e-learning. Other studies have reported the negative effects of limited time, heavy workloads and family commitments on the ability of nurses to complete CPE by e-learning (Chapman, 2000; Yu et al., 2007).

5.4.5 Attitudes towards e-learning. Attitudes towards e-learning and use of computers in particular, are considered to be a major determinant of nurses' decision to participate in CPE offered via e-learning. As reported by previous studies **(**Billings and Rowles, 2001; Kenny, 2002; Leasure et al., 2000; Yu and Yang, 2006**)**, nurses with negative views of e-learning, fear the technology, and lack computer skills are less likely to participate in CPE by e-learning. Conversely, nurses who can see the benefits of CPE via e-learning compared to traditional modes of delivery are more likely to participate (Chen, et al. 2008).

The findings from this study shows that Malaysian registered nurses have a positive attitude towards e-learning, with strong agreement that e-learning is a convenient way to learn, offers a rich and flexible learning environment, provides ready access to knowledge relevant to nursing practice, allows interaction with the facilitator and other learners, helps improve continuity of care, and inspires professional development. The majority were also of the opinion that all nurses should use computers to learn. The only item where a negative attitude was expressed was high agreement that it takes time to learn and to get use to e-learning. This response may reflect a lack of computer literacy and low confidence using the technology. As reported by a number of authors, basic computer competency is considered a key determinant of attitudes toward e-learning (Chapman, 2000; Chen et al., 2008; Kenny, 2002; Yu and Yang, 2006). Therefore, basic computer training should be a prerequisite for participating in e-learning programs. The UK study by Wilkinson, et al. (2004) clearly demonstrated that registered nurses who completed a pre-course IT program had a more positive orientation to on-line and distance learning, and were more likely to complete the course.

The positive attitudes towards e-learning reported in this study compare closely to those reported in previous studies, irrespective of where the study was conducted and the primary focus of the study. Very few studies have been reported that specifically examine the attitudes of nurses towards e-learning rather than attitudes towards computers in general. Of particular relevance to the current study is the survey of Taiwanese public health nurses conducted by Yu et al. (2006). In accordance with other studies (Chang, Sheen, Chang, & Lee, 2008; Cragg, Edwards, Yue, Xin, & Hui, 2003); Wilkinson, While, and Roberts, 2009(Ann Wilkinson, While, & Roberts, 2009), nurses in the current survey agreed that web-based

learning facilitates new knowledge, saves travel time, provides flexibility and greater choice of courses, and is better able to meet individual learning needs Yu and Yang (2006) also found significant positive correlations between computer competency and access to computer facilities and attitudes towards e-learning. However, in Chen et al.'s (2006) study there was no significant relationship between attitudes and intentions to participate in web-based learning.

5.4.6 Readiness for e-learning. In addition to having a positive attitude towards e-learning and access to computer facilities, a readiness for self-directed learning is a key requirement for on-line and other forms of distant education. According to a national survey of trainers, professors, and learners who had participated in e-learning (Guglielminoand Guglielmino, 2003), the most important learner characteristics for success in e-learning were readiness for self-directed learning and confidence using computer technology. This research found the majority of registered Malaysian nurses surveyed had the interest and self-directed learning readiness to participate in CPE by e-learning mode. According to Fisher et al. (2001), a score of 150 or more on the SDRS indicates an acceptable level of readiness for self-directed learning. In this study 87.7% of nurses had a score of 150 or greater, with a mean score of 156 (range 126-200). Scores on individual items on the SDRS were also well above the median, indicating a strong desire for self-directed learning, and confidence in self-management skills and self-control. This level of readiness compares favourably with studies of first year undergraduate nursing students in Australia (Smedley, 2007), Taiwan (Huang, 2008) and Turkey (Kocaman, et al., 2009).

Results on each of the SDRS subscales provide further insight into the readiness of Malaysian registered nurses for e-learning, specifically in terms of their desire for a method of learning that offers unique challenges, and being in control and taking responsibility for managing their own learning. Whilst readiness scores were moderately high on all three scales, the mean item score was lower for Self-management than Self-control and Desire for learning. Surprisingly, subscales scores matched closely those reported by Fisher, et al. (2001), Huang (2008) and Smedley (2007). In all three studies self –management was rated lower. According to Harvey (2003) self-management, particularly time management and self-discipline, is critical in an asynchronous e-learning environment. The small difference between Self-control and Desire for learning scores indicate that both are equally important for successful e-learning. As noted by Duggan, Hess, Mogan, Sooyeon, and Wilson (2001), students who are in control of their learning have a more positive attitude towards e-learning. Conversely, nurses with low self-control are more likely to have a negative attitude towards computers (Wishart & Ward, 2002) and to reject e-learning (Yu, et al., 2007). Desire for learning, on the other hand, has been acknowledged as an important factor given the demands of e-learning compared with traditional face to face learning approaches (Harvey, 2003).

Although the majority of nurses in the current study demonstrated a high level of readiness for e-learning there may be some nurses who are less comfortable with the self-directed learning approach that underpins e-learning. As noted by Smedley(2007), those without the necessary readiness may find it difficult to successfully complete a CPE program offered by e-learning. Therefore it is important that the expectation for self-directed learning is made explicit, and that all students are screened for readiness before commencing an e-learning activity or

program. Some students may also need to undertake preparatory training or targeted exercises to further develop self- directed learning abilities.

5.5 Summary

In summary Chapter five has critically analysed Malaysian nurses readiness for e-learning, their needs assessment to gauge the prefer feature of the future course via e-learning, the factors that motivate or deter them from pursuing e-learning, and their attitude towards e-learning and SDLR towards learning on line. The researcher summarised the discussion of the findings based on seven component of good e-learning delivery from a study of Social Care Institute for Excellence(SCIE) as suggested by Ipsos MORI (2006). The seven components of good e-learning must be in place, without considering these components institutions will create barriers and inhibit the e-learning implementation. Each component is briefly explained and compared with the results of the survey.

The first component is a situational component which consists of elements related to “know how to use” and those elements affect the facilitation of e-learning within the organisation. The finding from this study found most of the registered nurses did not have experience in e-learning course although most of them had very good attitude towards e-learning. Most nurses preferred to learn via e-learning at home rather than at work place even though they have access to computer. Most of them had experience using computer to work for more than two hours per week. Since majority of them were novices to e-learning, appropriate guidance for the first time is essential to ensure they could manage the learning process well.

The second component concerns content suitability. It is important to ensure the course content designed is suitable to learner. In the case of this study, all subjects listed in the questionnaires are seemed to be relevant to them. The highest rate is on indirect nursing, this is concerning ICT course, information management system, protocol and policy of hospital, and communication skill. Research or evidence based nursing subjects were less favoured by the nurses. The inclination of registered nurses to indirect nursing courses may be due to a lack of ICT knowledge and skills as they understand the need of this skill for them to engage in e-learning. They also have clear objective to future learning as most of them has rated highly on the objective of participating in e-learning.

The third component is the technical component related to availability of hard ware to registered nurses, the internet connectivity and the flexibility of the system engaging with the entire web based material. Most of the registered nurses from the existing study had good access both at work place as well as home. The connectivity to internet at home was encouraging. However, most of them were ready to learn from home rather than at work place. It is possible that the work place is lack of flexibility in learning system and due to heavy work load at work place.

The forth component is the learning style component; this component stresses the organisation of e-learning to ensure a diversity of learning methods and resources that taking into account of students' learning style. In general nurses prefer synchronous learning with emphasis on theory rather than the practical. This may defeat the purpose of distance learning as synchronous learning is not flexible. The nurses' choice may be due to their apprehension as to the nature of the course. Despite the fact that they are in favour of synchronous learning, but they score high in attitude towards e-learning and SDLR which indicates they will be able to

undertake asynchronous learning. In addition, most of the registered nurses preferred to learn on weekends and late at night hence asynchronous learning will be suitable style of learning to them. The researchers firmly believe that they will be able to adopt this style of learning if proper introduction and preparatory training is given to them.

The fifth component is the instructional and network component which explains the requirement for a collaborative e-learning approach. The registered nurses had positive attitude to items related to the interactive nature of e-learning even though most of them had not attended any e-learning. However, they had identified the lack of technical and administrative support as deterrent to e-learning.

The sixth component is the organisational component. This component describes the organisation culture or attitude to e-learning. It is generally accepted that the organisation culture is good as the attitude of registered nurses in this study is generally good and they possess high level of SDL ability.

Finally, the last component is the personal component that stresses the need for the organisation to influence staff motivation. Base on the barriers to e-learning, it is apparent that organisations were not always supportive as there was limited release from the work place and lack of technical support. However, the registered nurses were very highly motivated despite of weak support from the organisations and lack of ICT skills. In short, it is feasible to develop e-learning course to Malaysian nurses and provide them with alternative to undertake CPE and foster lifelong learning skills.

CHAPTER 6

IMPLICATIONS, RECOMMENDATIONS AND CONCLUSION

6.1 Overview of Chapter

This chapter begins with an overview of the entire study, including the survey of CPE practice among Malaysian nurses and the survey to determine the readiness of Malaysian nurses to undertake CPE courses via e-learning. It will then highlight the implications of the surveys' findings for nursing education and the professional development of Malaysian nurses. Recommendations will be given for stakeholders regarding the provision of nursing education. Finally, the researchers will present the limitations of the study, and identify areas for future research that will be valuable for policymakers, nursing administrators and the registered nursing profession, and ultimately improve the quality of patient care.

6.2 The Study

This study comprises two stages: Phase One surveys the practice of CPE among Malaysian nurses, and Phase Two the readiness of Malaysian nurses to undertake e-learning.

6.2.1. Survey: Practice of continuing professional education among Malaysian nurses. This aim of this study was to identify the current practice of CPE and the factors affecting nurses' participation in CPE. The survey covered registered nurses from four regions of Malaysia, comprising 16 hospitals and 24

health clinics, using rigorous cluster sampling to reflect the general population of nurses in the public sector in peninsular Malaysia. The response rate was very encouraging for a mail survey. Interestingly, the registered nurse participation rate in CPE was considered low, as described in Chapter Three, despite the fact that MCPE was enacted in 2008. RNs in this study favoured topics that could facilitate their clinical practice over research topics. Most of them agreed strongly on the importance of CPE. They were highly motivated in CPE practice, and deterrent factors did not seem to be issues for them. However, where deterrent factors were present, these were mostly time restrictions, family responsibilities, and the cost of the courses.

6.2.2 Survey of Malaysian nurses' attitudes and readiness towards e-learning. This survey sought to investigate registered nurses' readiness and attitudes towards e-learning, and to examine their self-directed learning readiness to undertake CPE activities and courses through e-learning. The present study found that registered nurses are likely to adopt the e-learning model for their CPE, even though less than one fifth of them had yet participated in e-learning. Most of the respondents prefer to learn from home, during weekends and late at night. Most prefer synchronous learning, despite the fact they score highly on SDLR scales and have a very positive attitude towards e-learning. This may be due to the fact that the training they have received inclined to instructional pedagogy rather than student-centred learning. A lack of computer skills may also impact on their competence to engage in asynchronous learning. Moreover, other barriers included time limitations because of workload and family commitments... The researcher therefore believes that Malaysian nurses will be able to learn from an asynchronous e-programmes

since their SDLR are high and they are highly motivated, which will enable them to learn remotely in their own time and at their own pace. E-readiness assessment before commencing e-learning is important in order to ensure the preparation of an e-learning course that meets individual needs.

6.3. Implications and recommendations

6.3.1 CPE practice. They are only 41% of the registered nurses who had had obtained minimum CPE credit points that required by the Malaysian Nursing regulatory authority for re-licensure, despite of implementation of mandatory CPE. Most of the registered nurses acknowledged the importance of undertaking CPE activities to increase their knowledge and skills and improve competency in nursing practice. Among the factors motivating them to undertake CPE, improved research skills were perceived as the least important; they did not appear to acknowledge the importance of research in nursing. Despite the low participation rates, most of them were highly motivated. The barrier did not impact on nurses' participation in CPE, but time constraints, cost and geographical factors may affect some to certain extent.

This study found that the nurses attended instructional and face-to-face activities more readily than activities that required self-directed learning. For example, they were more in favour of attending conferences, in-service training and workshops rather than tertiary study, conducting research, reading professional journals and making presentations at conferences. The opportunities for CPE were often determined by the employer or nursing management, and the list of in-service topics – for example hand-washing, nursing process, diabetic management and wound care – was repeated every year. The main objective for nurses to attend such

courses was to obtain credit points to renew their practice license. Most of the nurses are diploma educated and post-registration degrees are commonly undertaken as the first step in upgrading qualifications. The fact that very few nurses attended tertiary study may be an effect of the lack of opportunity, arising from the limited number (fewer than 50 places of post-registration places available at public universities) (Universiti Malaya, 2010). In addition, the courses are full time and the universities are located in cities. Even though some public universities offer on-line course for nurses, the cost has deterred nurses from pursuing tertiary education. The scarcity of degree-level qualifications among nurses may affect their interest in research, as they may not have the skills to undertake research and learning independently. In short, the findings of this research imply that MCPE may not necessarily benefit nurses, the organisation and patients, if it is implemented without careful planning (Lee, 2004; Muthu, 2006 and Lai, 2006).

The providers of CPE courses must focus on need assessment to ensure that relevant and appropriate courses are planned for nurses, based on their needs, goals and expectations, to ensure that they receive timely learning experience that they will be able to apply to improve their current practice. As suggested by Lai (2006), the development of CPE should consider collaboration between the needs of the individual and the employer. The staff development and in-service unit should play an active role in providing a more structured programme base on nurses' learning needs, involving collaboration in three aspects of nursing: practice, education and research. Without proper planning and research, mandatory CPE is unlikely to deliver the anticipated development of reflective practice and critical thinking that is considered crucial to improving patient care. It is also imperative for CPE providers to examine critically the existing education approach and explore more innovative

teaching methods such as e-learning and self-directed learning, taking a problem-solving approach such as problem-based learning or evidence-based nursing. According to Hughes (2005), it is crucial for nursing professionals to adopt a problem-solving approach to face the challenging atmosphere of professional development in ordered to achieve advancement in health care services. These approaches will definitely benefit nurses with time constraints and family commitments.

Lack of access to CPE activities and information did not affect the participants in this study as the score for rating was low. While this finding is incongruent with the low participation rates, as Lai (2006) has explained, the provision of programmes that are easily accessible will increase participation in CPE activities. This is further emphasised by Glass et al. (1999), who state that, in order to reduce the cost and time constraints identified by nurses as deterrents, CPE providers should take the programmes to the participants, instead of demanding that they look for them elsewhere. Beside easy access, CPE providers also need to include informal or unstructured learning activities at ward level that focus on specific learning needs and work practices.

Respondents in this study reported a lack of support from their organisation and superiors; this, more than other deterrents, may be the factor that contributes to the low participation rate. Previous researches have highlighted the fact that the employer plays a major role in motivating and rewarding employees undertaking CPE activities (Beatty, 2001; Kersaitis, 1997). Employers are also responsible for providing the necessary support for CPE and inculcating it as part of the organisational culture of the workplace. On the other hand, a lack of managerial and organisational support may cause burnout and disempowerment among nurses who

are constantly affected by staffing, time and financial constraints that hinder their attempts to improve themselves.

Nurses in this study were less interested in undertaking research as a CPE activity. Nursing education should place more focus on research utilization and evidence-based nursing for pre-registered nursing courses rather than research methodology, as not all nurses are cut out to be researchers. Practice should be evidenced based and to understand and contribute to the evidence based is a necessary skill for all professional nurses (Burns and Grove, 2007; Parahoo, 2006; Polit and Beck, 2004). In practice, the clinical area should provide a supportive environment for nurses to undertake research after graduation in terms of protected time and technical support. A nursing research team should be developed. All nursing degree graduates should be motivated to become involved and share their knowledge in undertaking research. The importance of research should not be ignored, as it enables nurses to tackle issues in the nursing profession, in addition to giving nurses guidance in applying necessary measures to implement CPE successfully.

6.3.2 E-learning readiness. The registered nurses in this survey are ready to pursue e-learning CPE course. However, a few issues need to be addressed as most staff has access to a computer with an internet connection at home rather than in the workplace. Most of the nurses who have no experience of e-learning are willing to undertake CPE via e-learning in the future. While registered nurses have a generally positive attitude towards e-learning and possess good self-directed learning, they seem to be lacking in ICT skills. If an organisation or employer is considering e-

learning as a CPD strategy for nurses in the workforce, it should ensure increased access to ICT at work and provide evidence of its staff's readiness for e-learning and experience of ICT (Abboud, 1994).

This study has therefore developed a clear set of recommendations for the Ministry of Health Malaysia (MOHM). MOHM should initiate the promotion and introduction of e-learning as a potential strategy for CPD. It can disseminate and promote the present research findings so that the relevance and applicability of e-learning to nurses will be boosted and resistance to e-learning challenged. Table 5.1 present the summary of recommendations to MOHM.

Table 6.1

Strategy to Initial and Promote E-Learning

NO	Strategy	

1.	Support	• Provide support in ICT (reliable web page and loan to buy computer)in Home based "own time " e-learning
		• Work based learning
		  o Protected time.
		  o ICT infrastructure , reasonable access to internet
		• Funding source

2.	Need assessment	• Provide relevant course • Determine learning outcome • Appropriate instruction design • Learner centred learning • Educator role as facilitator • Inculcate SDL and lifelong learning. • Emphasised o real work experience.
3.	Preparatory training	• Assessments of ICT skills • Continuous support and feedback • New students require on campus orientation • Incorporated ICT skills training into nursing curriculum
4.	Develop learning skills	• Policy maker and educator instil time management skills, induce SDL value.
5.	Community interaction	• Course design should be interactive • Use online forum, space, Facebook and Skype.
6.	Professional organisation	• MNA play important role to promote e-learning • Nurses leader as role model
7.	Becoming effective asynchronous learner (Harvey, 2003)	• Effective learner • Embrace I CT • Establish a collaborative community • Optimise learning • Able to apply what is learnt

6.3.3 Support. The nurses who were surveyed in this study strongly supported the use of ICT resources in their own time as an option for learning and training. The researcher believes that home-based "own-time" e-learning could be promoted to employers and staff as an enhancement of current practices, provided that staff is offered the support and time in which to do it.

On the other hand, work-based e-learning should be encouraged, and may be the ultimate goal. The MOHM should therefore ensure sufficient and efficient ICT infrastructure such as increased access to computers with a reliable internet connection, in addition to which nurses should be given, protected time to learn during working hours. Work-based learning enables nurses to apply the latest knowledge instantly to practice. Employers should be encouraged to facilitate it by providing them with clear information of available funding sources (Ipsos MORI, 2006).

Ipsos MORI (2006) also reports that evidence from organisations specialising in training older people suggests that laptop loans and being taught by peers could be key to effective training for carers.

6.3.4 Needs assessment. Needs assessment was established in this study as being very important to the design of courses that are relevant to the learners' needs. Rowles and Brigham (1998, cited in Billings and Rowles, 2001) recommend the following steps to establish e-learning: determine learning outcomes; create an appropriate teaching strategy; consider how to implement the course; design closure for the class; and design formative and summative evaluation strategies. They further explain that learners' ability to learn is not static but shifts in response to previous experience and the use of different training approaches. The strength of e-learning is that it presents a new learning opportunity to those put off by previous educational experiences, by providing a more student-centred learning environment (Billings and Rowles, 2001).

Since e-learning focuses on student-centred learning rather than instructional learning, the faculty need to change their role, becoming facilitators instead of instructors or academics exercising control of the classroom. The faculty must also focus on the process and not just the content, while students are required to be more self-directed in their own learning (Anders, Robinson, and Monsivais, 2008, February). The construction of knowledge needs to focus on increased interactions, increased team projects and assignments, and to emphasise real-world tasks and problem-solving such as PBL in nursing. The outcome should be significant learning.

6.3.5 Preparatory training. When facilitating e-learning, nursing educators need to exercise caution that they do not implement it too hastily, without the appropriate technological support, knowledge and student awareness (McVeigh, 2009). Its strength relies on the ability to enhance and support teaching (Kenny, 2002). Teaching will only be cost-effective if the desired learning is achieved. It is recommended that adequate support of students through advanced preparation, pre-course assessment of IT skills, and continuous support and feedback, be addressed. Learning cannot be driven solely by technology; hence its successful integration into nurse education needs to be underpinned by an understanding of both its value and limitations, supported by good knowledge of both learner and educator (McVeigh, 2009).

Prospective students need to acquire ICT skills before engaging in e-learning courses, and must be provided with opportunities to develop ICT skills at the beginning of any course (Gilchrist & Ward, 2006).Work- or home-based ICT training is especially needed for senior registered nurses before they can become

disposed to e-learning (Ipsos MORI, 2006). Anders et al. (2008, February) recommend that all new students should be given on-campus orientation before they begin an e-learning course, and those who are not able to attend should be oriented via a web-based version. Similarly, Abas, et al. (2003) also recommend that training in ICT skills should be included as part of pre-course orientation programmes, and suggest at least one week's hands-on experience to develop a higher level of confidence, especially for irregular computer users.

In addition, appropriate opportunities to practice ICT skills can be incorporated into the nursing curriculum, for example the use of a variety of applications other than word processing for assignments, including statistical software packages, presentation packages, e-mail, social communication platforms and bibliographic databases (Gilchrist and Ward, 2006).

It is recommended that the Ministry of Health plan and implement strategies for training nurses in ICT skills, ensure reasonable internet access in the workplace, provide reliable continuing nursing education via e-learning, and award nurses with incentives for pursuing CPE such as credit points for re-licensure. Since students will be learning and working in isolation for most of the time, they need to be competent and confident that have the skills to access and navigate computer based systems and programs. Gilchrist and Ward (2006) also recommend that the e-learning provider should ensure adequate and accessible support and ICT training, including clear guidelines with frequently asked questions (FAQs), and those students should also be given opportunity to retrieve online material with good technical support. Wong (2008) indicated that working adult students place great importance on the design of courseware. They frequently cite difficulties with course materials as one of the main reasons for dropping out of distance education.

In short, poorly designed courseware may affect the learning capabilities of working adults and de-motivated them from e-learning (Newton, 2003). In addition, Gilchrist and Ward (2006) remind e-learning educators to consider creating e-learning resources to accommodate the diversity of students' learning methods, cultures and ICT skills. Yu,et al. (2007) suggest that these strategies will ensure the feasibility and success of continuing professional education for registered nurses and health-care workers.

Policy-makers and educators need to consider inculcating time-management skills, induce motivation, and improve the accessibility of e-learning, so that nurses may be able to participate in CPE via e-learning and improve their educational outcomes. RNs should also be taught generic skills such as how to be an active learner, a critical thinker and a creative individual, even though the present research findings show that RNs have good scores for self-directed learning readiness.

6.3.6 Community interaction. The main feature of e-learning is community interaction, which enhances learning by sharing information among learners, facilitators and experts. RNs from this study agree strongly on the impact of social interaction; most of them, however, rarely use e-mail and chat in their daily computer use. In view of this, educators should bear in mind the nurses' ICT skills when designing courseware or content. (James-Gordon, Young, & Bal, 2003) has pointed out that e-learning courses are basically designed for ICT savvies, and ICT novices may find it difficult to learn on-line. Internet-based teleconference software used to interact with students, for example, uses online forums, space, Facebook and Skype (Anders, et al., 2008, February).

Professional organisations need to acknowledge and place an important role on the promotion of e-learning in order to move towards an e-commerce state. The Malaysia Nursing Association can initiate the use of e-learning by organising its AGM via teleconferencing; by doing so it will provide its members with the opportunity to interact in real time and overcome geographical constraints, giving many more members the opportunity to participate. In 1999, for example, the American Organisation of Nurse Executives (AONE) conducted and broadcast across the United States an audio-conference on emerging topics of interest such as financing of health care. The participants in this program were able to interact with experts in the related field and apply what they learnt instantly in the work setting (Donna, 2001).

MNA also can use e-learning products to meet their members' need to keep abreast of rapid advances in health-care technologies and to overcome emerging professional issues. A nursing administrator or leader is required to be equipped with efficient ways of assessing the latest knowledge. In a rapidly changing health-

care environment, the nurse leader is expected to keep up-to-date with advances in the field, in addition to coping with the demands of the leadership role (Donna, 2001). They can also foster a culture of sharing e-learning experience and resources to support learners using online materials.

6.3.7 Becoming effective asynchronous learners. Harvey(2003) suggests that a learner who strives for success in e-learning andwho wants to gain the most benefit from the e-learning experience must inculcate the seven habits of a highly effective asynchronous learner: Cultivating a spirit of lifelong learning. A lifelong learner should be independent in learning, identify their own learning needs, and be able to choose and enrol in an online learning programme that is suitable to them.

1. Building self-motivation and self-directed learning. An e-learner needs extra motivation, persistence and perseverance due to the nature of the course portal, which does not have a human facilitator or expert. The learner should have a set of clear goals, be able to perform self-monitoring, and avoid the habit of procrastination.

2. An effective e-learner often exhibits good time management. Compared to traditional face-to-face tuition, e-learning demands more self-discipline in time management because the course is self-paced. Have a feasible working and study plan, and follow it closely.

3. The learner is required to embrace ICT, as it is the primary medium that enables interactive communication and transfer of knowledge. The continual evolution of ICT also requires the learner to adapt constantly to new technology in order to

benefit from the latest services and content. Learners should at least master the basic computer skills such as word processing, surfing the net and handling software and on-line communications.

4. E-learners need to establish a collaborative community that allows them to correspond with peers regardless of geographical constraints, sharing common aims or expected learning outcomes. Learners can learn from a diversity of learning experience and opinions. Collaborative learning improves networking and sharpens individual communication skills. The learning buddy, facilitator and experts facilitate, promote, motivate, validate and reinforce new experience.

5. Learners who apply accelerated learning techniques exhibit the ability to optimise learning time. Learners need to have a clear purpose of learning in mind and become active learners able to plan and monitor their own learning.

6. Taking action or applying what has been learnt in practice to consolidate understanding of a concept or cognitive level. Learners also need to synthesise what has been learn to gain ownership of the knowledge and proceed to translate the learning outcome to an emotional and physical level. The application of knowledge into practice is imperative in nursing, and it can be integrated in nursing education via reflective and problem-based learning.

6.4 Study Strengths

The research has answered the questions identified for survey in phase one as well as phase two. The research outcome can be used as a yardstick to measure Malaysian nurses' readiness for e-learning, especially in the public sector. Since multistage cluster sampling was used, the findings should to a lesser extent represent Malaysian public service RNs.

The data collected were comprehensive, presenting the nurses' readiness in depth. The future needs in e-learning were explored, providing a sense of direction for future the development of CPE modules. The nurses' attitude towards e-learning and SDLR scales provided strong evidence that e-learning can be considered to supplement the methods of CPE.

This research was approved by the applicable ethics committees and stakeholders such as the MOHM and Economic Planning Unit. Its recommendations will therefore be put in place to improve nurses' CPE participation. Successful completion of the study was also ensured by a research grant from University of Malaya, consecutively for two years, to the sum of RM 17,000.00 and RM 30,000.00.

The outcomes of this study will contribute to the existing literature, as few studies have been undertaken into the readiness of nurses for e-learning prior to courses, rather than evaluation of the e-learning after completion of a course or when the students have enrolled on a course.

6.5 Study Limitations

The researchers have strived to ensure the rigor of this study. However there were a few limitations that restricted the process of this study:

- Samples were recruited from Malaysian peninsular states only due to the researcher's geographical proximity and time constraints that limited her capacity to recruit from east Malaysia. The results of the study therefore may not be representative of nurses from east Malaysia.

- E-learning survey: since all the respondents in this study were voluntary, it can be argued that the sample may not represent the overall nursing population; it is possible that those who did not take part may have answered the questionnaire differently from those who responded (Parahoo, 2006; Polit and Beck, 2004). The researcher argues that even though respondents were voluntary, they were very committed, as evidenced by the 100% response rate and the fact almost all the questionnaires were completed. Since the questionnaire is comprehensive, we needed respondents who are reliable and committed to give valid answers. In terms of the representative nature of the sample, the respondents were drawn from the phase one pool, a cluster of 12 hospitals and four district health offices (more than 120 clinics), so the responses would be generalizable for registered nurses throughout Malaysia.

- Only nurses from the government sector were included in this study, so the findings may not represent the opinions of private nurses. The private health-care system was not included on account of inconsistency in ethical considerations, and time and cost constraints. As reported by Lee (2004),

nurses working in private health care system were motivated and self-driven to participate in CPE and willing to bear the cost of CPE.

6.6 Recommendation for Further Research

- Further research should be undertaken to explore organisation and employer e-readiness (Ipsos MORI, 2006).
- This study should be replicated for the private e-sector and East Malaysia (Borneo Malaysia) to obtain a result that is more representative of all Malaysian nurses.
- To undertake a comparison of readiness for E-learning in CPE across Asian countries.
- A model based on the need assessment should be developed and piloted in a single institution.
- An intervention study should be undertaken to test the attitude, SDLR and performance of learners' pre and post an e-learning course.
- An evaluation of the e-learning course should be conducted.

6.7 Conclusion

In the 21st century, globalisation means that organisations and institutions face challenging economic competition. Employees are expected to upgrade their competency to adapt to the constantly changing and dynamic work and life conditions of knowledge-based economic societies. Organisations and employees understand the need for continuing professional development if they wish to stand tall in a competitive world that demands innovation. This is especially true in the fast-changing health-care environment, in which professionals will need to update their competences rapidly in order to adapt to the constantly evolving environment (Bernhardt, Runyan, Bou-Saada, and Felter, 2003; Psycharis, 2005). Hence, continuing education is a lifelong commitment to professional and personal development (Carpenito, 1991). This carries the implication that it is at the pre-registration stage – not later, at diploma or degree level – that nursing education must produce self-directed learners who are enthusiastic and committed to lifelong learning and professional development. All nurses are responsible for sustaining and improving their competency after graduation. In addition to the efforts individual nurses, joint action by the Nursing and Midwifery Board Malaysia (NMBM), professional organisations, employers and educators is required to foster the lifelong learning culture that will enable nurses to face the future challenges in health care-delivery. In 2008, the NMBM acknowledged the important of CPE for registered nurses and enacted the mandatory CPE legislation for all categories of nurses. The initiation of mandatory CPE may not be successful without the support of organisations; Stefanik, et al. (1994) stated that organisations should integrate the continuing education component into their strategic plan because of its positive impact on the quality of patient care. Continuing nursing education has a direct

impact on quality of patient care, besides ensuring an adequate number of skilled nursing staff (Aitken and Patrician, 2000).

CPE provision should include a systematic planning process to assess learning needs and other factors that may facilitate or hinder the learning process. The assessment will provide the basis for selecting the appropriate activities to achieve the learning objectives, implement the learning package, evaluate the learning outcome and improve future learning plans.

The success of a CPE programme relies on the collaboration of registered nurses, nurse managers, educators, the organisation and the health services, and the ability to incorporate the ICT component. In other words, the introduction of e-learning will enhance the accessibility of CPE to registered nurses.

E-learning has become a valuable alternative learning method for CPE among the health-care profession (Bernhardt, et al., 2003), a view affirmed by a study of the adoption of e-learning for public health nurses' continuous education (Yu, et al., 2007).

E-learning provides opportunities for registered nurses to break away from the linearity of information and interact with it, and allows them to search for the latest information and resources via the internet. E-learning also has the potential to encourage learning at all levels, from pre-registration nursing students to postgraduate studies. Furthermore, it offers registered nurses both flexibility and convenience in the learning process. In short, it allows registered nurses of all ages to decide on their learning needs and to study at a suitable time and at their own pace.

The development of e-learning modules incur high costs, so they should be used appropriately and not treated merely as expensive substitution for the nurse educator e-learning should therefore be useful enough to offer learning opportunities that could not be provided by conventional methods, and focus on the needs of the users.

This research has shed light on the e-readiness of nurses, despite the lack of accessibility of e-learning training packages to Malaysian nurses. The researcher believes that this provides the nursing administration and the Ministry of Health with strong evidence for promoting the uptake of e-learning across nursing in Malaysia. Among the issues raised in this study is the need to improve the ITC infrastructure in the workplace, which will benefit RNs and provide them with learning time. A preparatory course to acquire ICT skills before registering for comprehensive or supplementary courses is needed to ensure successful e-learning.

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APPENDIXES

Appendix A: Ethical Approval Letter

MONASH University

Standing Committee on Ethics in Research Involving Humans (SCERH)
Research Office

Human Ethics Certificate of Approval

Date:	**13-November-2008**	
Project Number:	**2008001588**	
Project Title:	**A survey of the continuing professional education (CPE) practices of Malaysian nurses**	
Chief Investigator:	**Dr Kenneth Sellick**	
Approved:	**From: 13-November-2008**	**To: 13-November-2013**

Terms of approval

1. The Chief investigator is responsible for ensuring that permission letters are obtained and a copy forwarded to SCERH before any data collection can occur at the specified organisation. **Failure to provide permission letters to SCERH before data collection commences is in breach of the National Statement on Ethical Conduct in Human Research and the Australian Code for the Responsible Conduct of Research**.
2. Approval is only valid whilst you hold a position at Monash University.
3. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval and to ensure the project is conducted as approved by SCERH.
4. You should notify SCERH immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
5. The Explanatory Statement must be on Monash University letterhead and the Monash University complaints clause must contain your project number.
6. **Amendments to the approved project (including changes in personnel):** Requires the submission of a Request for Amendment form to SCERH and must not begin without written approval from SCERH. Substantial variations may require a new application.
7. **Future correspondence:** Please quote the project number and project title above in any further correspondence.
8. **Annual reports:** Continued approval of this project is dependent on the submission of an Annual Report. This is determined by the date of your letter of approval.
9. **Final report:** A Final Report should be provided at the conclusion of the project. SCERH should be notified if the project is discontinued before the expected date of completion.
10. **Monitoring:** Projects may be subject to an audit or any other form of monitoring by SCERH at any time.
11. **Retention and storage of data:** The Chief Investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.

[redacted]

Professor Ben Canny
Chair, SCERH

Cc: A Prof Lim Khatijah Abdullah; Ms Mei Chan Chong

Postal – Monash University, Vic 3800, Australia
Building 3E, Room 111, Clayton Campus, Wellington Road, Clayton
Telephone +61 3 9905 5490 Facsimile +61 3 9905 1420
Email scerh@adm.monash.edu.au www.monash.edu/research/ethics/human/index/html
ABN 12 377 614 012 CRICOS Provider #00008C

MONASH University

Standing Committee on Ethics in Research Involving Humans (SCERH)
Research Office

Human Ethics Certificate of Approval

Date:	**7 April 2009**	
Project Number:	**CF09/0699: 2009000298**	
Project Title:	**Malaysian nurses' attitudes and readiness towards E-learning**	
Chief Investigator:	**Dr Ken Sellick**	
Approved:	**From: 7 April 2009**	**To: 7 April 2014**

Terms of approval

1. The Chief investigator is responsible for ensuring that permission letters are obtained, if relevant, and a copy forwarded to SCERH before any data collection can occur at the specified organisation. **Failure to provide permission letters to SCERH before data collection commences is in breach of the National Statement on Ethical Conduct in Human Research and the Australian Code for the Responsible Conduct of Research**.
2. Approval is only valid whilst you hold a position at Monash University.
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[redacted]

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Translation copy of Approval Letter from Ministry of Health Malaysia

Ref. Number: (2) dlm KKM/NIHSEC/07/0705
Date : 11 September 2008

Ms Chong Mei Chan
Department of Nursing Science
Faculty of Medicine
University of Malaya

Madam,

Facilitate Continuing Professional Education for Malaysia Nurses via E-learning

With reference to the above matter.

2. We are pleased to inform you that Ministry of Health, Malaysia has no objection on your undertaking this research in hospitals and health clinics and these will be identified randomly. We understand that this research is an academic requirement for a doctoral program approved by the University of Monash.

3. It is requested that all information collected shall be kept confidential.

4. You are required to be registered with the National Medical Research Register (www.nmrr.gov.my) as stated in the circular from the Director General BIL. 9/2007

5. You are required to submit a copy of your research report and any publication to the NIH and MOH upon completion of this project.

Translated by.
Devikamani

You're sincerely

Dr. Maimunah Ahmad
Deputy Director General of Health
Ministry of Health Malaysia

DR. DEVIKAMANI MENON
SENIOR LECTURUR
FACULTY OF LANGUAGES & LINGUISTICS
UNIVERSITY OF MALAYA

PEJABAT TIMBALAN KETUA PENGARAH KESIHATAN
OFFICE OF DEPUTY DIRECTOR GENERAL OF HEALTH
(PENYELIDIKAN DAN SOKONGAN TEKNIKAL)
(RESEARCH AND TECHNICAL SUPPORT)
KEMENTERIAN KESIHATAN MALAYSIA
MINISTRY OF HEALTH MALAYSIA
Aras 12, Blok E7, Parsel E, Presint 1
Level 12, Block E7, Parcel E, Precinct 1
Pusat Pentadbiran Kerajaan Persekutuan
Federal Government Administrative Centre
62590 PUTRAJAYA

Tel : (03) 88832543
Fax : (03) 88895184

Ruj. Tuan :
Ruj. Kami : (2) dlm KKM/NIHSEC/07/0705
Tarikh : 11 September 2008

Pn Chong Mei Chan
Jabatan Sains Kejururawatan
Fakulti Perubatan
Universiti Malaya
Faks: 03-7949 4636

Puan,

Facilitate Continuing Professional Education for Malaysia Nurses via E-learning

Dengan hormatnya perkara di atas adalah dirujuk.

2. Sukacita dimaklumkan bahawa pihak Kementerian Kesihatan Malaysia (KKM) tiada halangan, ke atas pelaksanaan kajian tersebut di hospital dan klinik kesihatan yang dikenalpasti secara rawak. Pihak KKM mengambil maklum bahawa kajian tersebut merupakan syarat akademik program Falsafah Kedoktoran Kejururawatan di Monash University dan telah diluluskan oleh Monash University.

3. Segala data mengenai jururawat terlatih dan jururawat kesihatan umum yang diperolehi dari Lembaga Jururawat Malaysia dan maklumat dari soal-selidik adalah SULIT dan hanya digunakan untuk tujuan kajian dan semua isu serta prosedur mengenai *data confidentiality* mesti dipatuhi.

4. Kajian puan perlu didaftarkan di *National Medical Research Register* (www.nmrr.gov.my) bersesuaian dengan Surat Pekeliling Ketua Pengarah Kesihatan Bil.9/2007.

4. Laporan tamat kajian dan sebarang penerbitan dari kajian ini hendaklah dikemukakan kepada Urusetia NIH, KKM selepas tamatnya kajian ini.

Sekian terima kasih.

BERKHIDMAT UNTUK NEGARA

Saya yang menurut perintah,

[redacted]

(DR MAIMUNAH A HAMID)
b.p. Timbalan Ketua Pengarah Kesihatan
Kementerian Kesihatan Malaysia

Mail :: Inbox: National Medical Research Register acknowledge res... http://umpda.um.edu.my/groupmail/imp/message.php?Horde=64dcf...

Date: 8 Sep 2008 14:22:08 +0800 [02:22 pm MYT]
From: [redacted]
To: [redacted]
Subject: National Medical Research Register acknowledge research submission

Dear Mrs Chong Mei Chan

ID: NMRR-08-1319-2500
Title: Facilitating continuing professional education for Malaysia nurses through e- learning

Thank you for submitting your research to the NMRR.

Your research data and related documents have been successfully uploaded by the corresponding person who will receive future communications via e-mail

Your Register ID number is: [redacted]

This number will be emailed to all investigators concerned within 24 hours to confirm receipt of your registration/submission and validate the e-mail addresses provided.

The corresponding person should update this registration/submission by logging on periodically to NMRR at http://www.nmrr.gov.my where data and files on the research will be displayed and may be updated.

Please contact me by return email if you have any queries.

With warm regards,
National Medical Research Register Secretariat

Phone: [redacted]
Fax: [redacted]
http://www.nmrr.gov.my(

This is auto generated email)
(For office use : 2500)

UNIT PERANCANG EKONOMI
Economic Planning Unit
JABATAN PERDANA MENTERI
Prime Minister's Department
BLOK B5 & B6
PUSAT PENTADBIRAN KERAJAAN PERSEKUTUAN
62502 PUTRAJAYA
MALAYSIA

EPU

Telefon : 603-8888 3333
Telefax : 603-888

Ruj. Tuan:
Your Ref.:

Ruj. Kami: UPE: 40/200/19/2324
Our Ref.:

Tarikh: 23 September 2008
Date:

Chong Mei Chan
1 Jalan Indah 1/25
Taman Universiti Indah
43300 Seri Kembangan
Selangor

APPLICATION TO CONDUCT RESEARCH IN MALAYSIA

With reference to your application dated 18 June 2008, I am pleased to inform you that your application to conduct research in Malaysia has been approved by the **Research Promotion and Co-Ordination Committee, Economic Planning Unit, Prime Minister's Department.** The details of the approval are as follows:

Researcher's name	:	**CHONG MEI CHAN**
Passport No. / I. C No:		[redacted]
Nationality	:	**MALAYSIAN**
Title of Research	:	**"FACILITATING CONTINUING PROFESSIONAL EDUCATION FOR MALAYSIA NURSES THROUGH E-LEARNING"**

Period of Research Approved: **THREE YEARS**

2. Please collect your Research Pass in person from the Economic Planning Unit, Prime Minister's Department, Parcel B, Level 4 Block B5, Federal Government Administrative Centre, 62502 Putrajaya and bring along two (2) passport size photographs. You are also required to comply with the rules and regulations stipulated from time to time by the agencies with which you have dealings in the conduct of your research.

3. I would like to draw your attention to the undertaking signed by you that you will submit without cost to the Economic Planning Unit the following documents:

a) A brief summary of your research findings on completion of your research and before you leave Malaysia; and

b) Three (3) copies of your final dissertation/publication.

4. Lastly, please submit a copy of your preliminary and final report directly to the State Government where you carried out your research. Thank you.

Yours sincerely,

[redacted]

(**MUNIRAH ABD. MANAN**)
For Director General,
Macro Economic Section,
Economic Planning Unit.
E-mail: [redacted]
Tel: [redacted]
Fax: [redacted]

ATTENTION

This letter is only to inform you the status of your application and **cannot be used as a research pass**.

C.c:

Pejabat Timbalan Ketua Pengarah Kesihatan
(Penyelidikan dan Sokongan Teknikal)
Kementerian Kesihatan Malaysia
Aras 12 Blok E7 Parcel E
Pusat Pentadbiran Kerajaan Persekutuan
62590 Putrajaya
(u.p: Dr. Maimunah A Hamid) (Ruj Tuan: (2) dlm. KKM/NIHSEC/07/0705)

Appendix B: Invitation Letter and Explanatory Statement for CPE Survey

MONASH University
Medicine, Nursing and Health Sciences

August, 2008

Dear Sir/Madam,

My name is Chong Mei Chan. I am currently a PhD student at Monash University (Australia) School of Nursing and midwifery. As for the total requirement of the degree, I am conducting a study titled "Facilitating continuing professional education(CPE) for Malaysia nurses through E- learning." Under the supervision of Dr. Kenneth Selick, a senior Research Fellow at Monash University, and facilitated by Associate Professor Dr. Khatijah Lim Abdullah, Head, Department of Nursing Science, Faculty of Medicine, University of Malaya. The aim of this study is to survey the current practice of continuing professional education in Malaysia. Malaysia nurses are required to attend 25 to 30 hours of continuing professional education yearly in order to renew their license to practice. It is mandate and effective from year 2008. The finding of study will deem to seek opinion and suggestion that will improve the implementation of CPE activities to nurses. This survey has been approved by the Director of Economic Planning Unit Malaysia, Director of National Medical Research Register, Director of Nursing, Nursing and Midwifery Board Malaysia, Monash University Ethics Committee and the Head of Department of Nursing Science, Faculty of Medicine, University of Malaya.

You are requested to complete a survey questionnaire attached with this letter. The information required is demographic data, the practice of CPE for year 2006-2007. The factors that motivate and deter (prevent) you to/from participating in CPE. The questionnaire takes about 15 to 20 minutes to complete and has been designed so that all participant will remain anonymous. You can answer the questionnaire at the time convenient to you and return the form to the researcher using the envelope with return postage given to you. The questions are simple to understand and all you need to do is to select the write answer.

The finding of this study will directly and indirectly benefit nurses in term of better opportunity in CPE as recommendation will be given to the stake holder in planning of CPE activities. The findings from this study will be reported in a thesis and presented at conference, however participant will remain anonymous. A summary of the findings from the study will also available on request.

During the course of the study all completed questionnaires will be kept in a locked cabinet at University of Malaya and information stored on a password protected computer. Only I Dr. Kenneth Sellick and Associate Professor Dr. Khatijah Lim Abdullah will have access to this information. On completion of the study all questionnaires will be shredded and data files stored for a period of 5 years as prescribed by Monash University, and then destroyed.

Any questions you have regarding the study or your participation can be directed to me or my Supervisor Dr. Kenneth Sellick and A/P Dr. Khatijah Lim Abdullah (contact details given below). If you have any queries or complaints that have not been answered to your satisfaction you can contact the Secretary of the Monash Ethics Committee, citing the project number xxxxx, at the following address:

Secretary
The standing committee on Ethical in Research Involving Humans (SCERH)
Building 3 D
Research Grants and ethics Branch
Monash University VIC 3800
Tel: 9905 2052 Fax: 99905 1420 email: scrh@adm.monash.edu.au

I do hope you can support m study by providing agreement to participate by completing the attached form and returning it to the stated address on the envelope.

Your sincerely

Chong Mei Chan

PhD student, Monash University
Lecturer
Department of Nursing
Faculty of Medicine
University of Malaya
50603, Kuala Lumpur
Tel: [redacted]
email: [redacted]

Dr.Kenneth Sellick
School of Nursing & Midwifery
Monash University, Gipsland
School of helath Sciences
Churchill, VIC 3842 Australia
Tel: [redacted]
Email: [redacted]

Associate Professor Dr. Khatijah Lim Abdullah,
Head,
Department of Nursing
Faculty of Medicine
University of Malaya
50603, Kuala Lumpur
Tel: [redacted]
Email: [redacted]

Please retain this letter for your reference

Appendix C : Instruments for Survey

MONASH University
Medicine, Nursing and Health Sciences

Survey of Continuing Professional Education (CPE) Practices of Malaysian Nurses

STRICTLY CONFIDENTIAL

Part A: Demographic Information

Please answer all questions listed below by placing (√) in the box where applicable or write answer where necessary.

1.	Gender: Female ☐ Male ☐	2.	Age: ☐ years.
3.	Marital status: Married ☐ Single ☐ Separated/divorced ☐ Widow/widower ☐	4.	Do you have any children? Yes ☐ No ☐ If yes, how many? ☐
5.	What is your total household (e.g. husband and wife) income per month? RM_____	6.	How long have your been a registered nurses? ☐ years
7.	Highest professional education: Diploma in Nursing ☐ Advanced Diploma in Nursing ☐ Bachelor in Nursing ☐ Master ☐ Other (please state): _____ _____	8. 9.	In which Institution are you working? Tertiary Hospital (>500 beds) ☐ Secondary Hospital(150-500 beds) ☐ Primary Hospital(<150 beds) ☐ Health Clinic ☐ In which State are you working? Please specify :_____

Part B: Continuing Professional Education (CPE) Activities:

Please answer all questions listed below by placing (√) in the box where applicable or write answer where necessary.

	Have you participated in any of the activities listed below in the last 12 months? If yes, specify the number and duration of each activity.			Please specify the topic of each activity in the space provided. e.g. **Specialty nursing** (Midwifery, CCN, Renal nursing etc.) **General nursing** (nursing process, assessment skills, health promotion etc), **Indirect nursing** (information technology, communication skills) **Management**, **Teaching, Research** (Research methods, evidence based nursing).
	Activities	Number attended	Duration (hours)	
1	Attended a conference			
2	Presented at a conference			
3	In-service education			.
4	Orientation programs			
5	Workshops			
6	Advanced nursing course			
7	Tertiary education e.g.			
8	Read a nursing journal			
9	Carried out research			
10	Other (Please state):			

Part C Importance of CPE Activities

I Please rate how important the following **activities** are to your professional/career development by circling the appropriate number.

	Activities	Not at all	A little	Somewhat	Moderately	A great deal
1	In- service education	1	2	3	4	5
2	Orientation programs	1	2	3	4	5
3	Workshops	1	2	3	4	5
4	Advance nursing courses	1	2	3	4	5
5	Tertiary education e.g. degree, postgraduate diploma	1	2	3	4	5
6	Reading nursing journals	1	2	3	4	5
7	Accessing the internet	1	2	3	4	5
8	Carrying out research	1	2	3	4	5
9	Attending conferences	1	2	3	4	5
10	Presenting at conferences	1	2	3	4	5
11	Other (Please state) :	1	2	3	4	5

II Please rate how important the following **topics** are to your professional/career development by circling the appropriate number.

	Topics	Not at all	A little	Somewhat	Moderately	A great deal
1	Specialty nursing	1	2	3	4	5
2	General nursing	1	2	3	4	5
3	Indirect nursing:	1	2	3	4	5
4	Management	1	2	3	4	5
5	Teaching	1	2	3	4	5
6	Research	1	2	3	4	5
.7	Other (Please state)	1	2	3	4	5

Part D: Factors that affect your participation in CPE practice.

I Please rate the extent to which each of following **motivate** you to participate in CPE activities by circling the appropriate number.

	Factors	Not at all	A little	Somewhat	Moderately	A great deal
1	update my knowledge	1	2	3	4	5
2	improve my skills in clinical practice	1	2	3	4	5
3	give quality care to patients	1	2	3	4	5
4	obtain knowledge to achieve professional status	1	2	3	4	5
5	gain more paper qualifications	1	2	3	4	5
6	renew my license to practice	1	2	3	4	5
7	improve my communication skills	1	2	3	4	5
8	boost my self-esteem	1	2	3	4	5
9	fulfill requirement for promotion	1	2	3	4	5
10	prevent myself from getting bored with routine.	1	2	3	4	5
11	adhere to hospital policy	1	2	3	4	5
12	increase my competency	1	2	3	4	5
13	practice autonomously	1	2	3	4	5
14	be more critical in providing nursing care	1	2	3	4	5
15	improve my decision making skills	1	2	3	4	5
16	improve my research skills	1	2	3	4	5
17	improve my teaching skills	1	2	3	4	5
18	Improve my management skills	1	2	3	4	5

II Please rate the extent to which each of following **deter** you from participating in CPE activities by circling the appropriate number.

	Factors	Not at all	A little	Somewhat	Moderately	A great deal
1	Cost of courses	1	2	3	4	5
2	Lack of supervisor support	1	2	3	4	5
3	Lack of peer support	1	2	3	4	5
4	Lack of organization support	1	2	3	4	5
5	Lack of family support	1	2	3	4	5
6	Work commitments	1	2	3	4	5
7	Domestic responsibilities	1	2	3	4	5
8	Time constraints	1	2	3	4	5
9	Scheduling of CPE activities	1	2	3	4	5
10	Geographic distance (time and traveling)	1	2	3	4	5
11	Lack of information about activities/programs	1	2	3	4	5
12	Lack of access to relevant CPE courses	1	2	3	4	5
13	Negative experiences with previous CPE programs	1	2	3	4	5
14	Emotional stress	1	2	3	4	5
15	Poor health	1	2	3	4	5
16	Needs satisfied by on the job training	1	2	3	4	5
17	Other deterrents (Please specify)	1	2	3	4	5

Thank you for participating in this survey.

We are also planning a second study to survey nurses opinions on e-learning as a strategy for facilitating CPE. Please indicate your willingness to participate in this survey by placing a (√) in one of the boxes below.

Yes ☐ No ☐

If you said yes, please provide contact details:

Name: _____

Address: _____

_____

Tel : _____

Appendix D: Invitation Letter and Explanatory Statement forSurvey on ReadinesstoE-Learning, Attitude towards E-Learning and Self-Directed Learning Readiness

MONASH University
Medicine, Nursing and Health Sciences

February, 2009

Dear Sir/Madam,

My name is Chong Mei Chan. I am currently a PhD student at Monash University (Australia) School of Nursing and midwifery. As for the total requirement of the degree, I am conducting a survey on "readiness of Malaysia nurses towards E- learning." Under the supervision of Dr. Kenneth Selick, a senior Research Fellow at Monash University, and facilitated by Associate Professor Dr. Khatijah Lim Abdullah, Head, Department of Nursing Science, Faculty of Medicine, University of Malaya. The aim of this study is to determine the readiness of nurses in e-learning, nurse's attitude towards e-learning and nurses self –directed learning readiness. The finding of study will deem to seek opinion and recommendation to the Ministry of Health in developing the CPE model to nurses. This survey has been approved by the Director of Economic Planning Unit Malaysia, Director of National Medical Research Register, Director of Nursing, Nursing and Midwifery Board Malaysia, Monash University Ethics Committee and the Head of Department of Nursing Science, Faculty of Medicine, University of Malaya.

You are requested to complete a survey questionnaire attached with this letter. The information required is the readiness of nurses on e- learning, attitude towards e-learning and self-directed learning readiness. The questionnaire takes about 15 to 20 minutes to complete and has been designed so that all participants will remain anonymous. You can answer the questionnaire at the time convenient to you and return the form to the researcher using the envelope with return postage given to you. The questions are simple to understand and all you need to do is to select the write answer.

The finding of this study will directly and indirectly benefit nurses in term of better opportunity in CPE as recommendation will be given to the stake holder in planning of CPE activities. The findings from this study will be reported in a thesis and presented at conference, however participant will remain anonymous. A summary of the findings from the study will also available on request.

During the course of the study all completed questionnaires will be kept in a locked cabinet at University of Malaya and information stored on a password protected computer. Only I Dr. Kenneth Sellick and Associate Professor Dr. Khatijah Lim Abdullah will have access to this

information. On completion of the study all questionnaires will be shredded and data files stored for a period of 5 years as prescribed by Monash University, and then destroyed.

Any questions you have regarding the study or your participation can be directed to me or my Supervisor Dr. Kenneth Sellick, Professor Karen Francis and A/P Dr. Khatijah Lim Abdullah (contact details given below). If you have any queries or complaints that have not been answered to your satisfaction you can contact the Secretary of the Monash Ethics Committee, citing the project number xxxxx, at the following address:

Secretary
The standing committee on Ethical in Research Involving Humans (SCERH)
Building 3 D
Research Grants and ethics Branch
Monash University VIC 3800
Tel: 9905 2052 Fax: 99905 1420 email: scrh@adm.monash.edu.au

I do hope you can support m study by providing agreement to participate by completing the attached form and returning it to the stated address on the envelope.

Your sincerely

[redacted]

Chong Mei Chan

PhD student, Monash University
Lecturer
Department of Nursing
Faculty of Medicine
University of Malaya
50603, Kuala Lumpur
Tel: [redacted]
email: [redacted]

Dr. Kenneth Sellick
School of Nursing & Midwifery
Monash University, Gippsland
School of health Sciences
Churchill, VIC 3842 Australia
Tel: [redacted]
Email:
[redacted]

Professor Karen Francis
Head,
School of Nursing & Midwifery
Monash University, Gippsland
School of health Sciences
Churchill, VIC 3842 Australia
Tel: [redacted]
Email:
[redacted]

Associate Professor Dr. Khatijah Lim Abdullah,
Head,
Department of Nursing
Faculty of Medicine
University of Malaya
50603, Kuala Lumpur
Tel: [redacted]
Email: [redacted]

Please retain this letter for your reference

Appendix E: Instrument for survey on readinessto E-learning, attitude towards e-learning and self-directed learning readiness

MONASH University
Medicine, Nursing and Health Sciences

Survey: Readiness in E-learning, Attitude on E-learning and Self-directed Learning Readiness

STRICTLY CONFIDENTIAL

Part A: Demographic Information

Please answer all questions listed below by placing (√) in the box where applicable or write answer where necessary.

1.	Gender: Female ☐ Male ☐	2.	Age: ☐ years.
3.	Marital status: Married ☐ Single ☐ Separated/divorced ☐ Widow/widower ☐	4.	Do you have any children? Yes ☐ No ☐ If yes, how many? ☐
5.	What is your total household (e.g. husband and wife) income per month? RM_____	6.	How long have your been a registered nurses? ☐ years
7.	Highest professional education: Diploma in Nursing ☐ Advanced Diploma in Nursing ☐ Bachelor in Nursing ☐ Master ☐ Other (please state): _____ _____	8. 9.	In which Institution are you working? Tertiary Hospital (>500 beds) ☐ Secondary Hospital(150-500 beds) ☐ Primary Hospital(<150 beds) ☐ Health Clinic ☐ In which State are you working? Please specify :_____

Part B: Readiness in E- learning.
Please (√) in the box where applicable.

(E-learning or online/web based/distance learning is a learning method using computer and internet, browsing information from internet and web log.

10		Yes	No		Yes	No
10.1	Do you have a computer at home?			If yes, do you have internet access?		
10.2	Do you have access to a computer in your work place?			If yes, do you have internet access?		
10.3	Do you have access to a library or college computer?			If yes, do you have internet access?		
11.	What type of internet connection do you use at home?	Don't know		*ISDN e.g. TM net /Jaring	*ADSL: e.g. Streamyx	Wireless: e.g. WIFI

***ISDN:** Integrated Services Digital Network is a Dialup connection with speeds ranging from 2400 bps to 56 bps using a modem connection to pc. Users connect to the internet when the computer dials a phone number provided by internet service provider. Uses normal telephone line.

***ADSL**: Asymmetric Digital Subscriber Line it uses existing 2 wire copper telephone line connected to the premise and will not tie up your phone as a dial-up connection does. (Broad band)

		0 to 1 hour per week	2-5 hours per week	6-10 hours per week	> 10 hours per week
12.	On average, how often would you use a computer per week?				
13.	On average, how often do you use computer for the following purpose:				
14.1	e-mail				
14.2	Typing reports				
14.3	Analyzing data				
14.4	Preparing presentations				
14.5	Searching for information held in the library				
14.6	Searching for information on the internet				
14.7	Chat online				
14.8	Other: (Please specify)				

15. Do you have any experience in e-learning? Yes ☐ No ☐

15.1 If yes, What type of e- learning you have experienced?

- Supplement face to face classroom ☐
- Complementary face to face classroom ☐
- Comprehensive replacement ☐
- Don't know ☐

Others, Please state: _____

15.2. If no, Are you interested in participating in e-learning?

- Very interested ☐
- Considering ☐
- Not interested ☐
- Not sure ☐

16. Where do you use a computer for learning (tick all that applies)? `

- Home ☐
- Institution ☐
- Work place ☐
- Internet café' ☐

Others, Please state: _____

17.1 What is the most suitable day for learning for you?

- Weekdays ☐
- Weekends ☐
- Weekdays & weekends ☐

17.2 What is the most suitable time for learning for you?

- Morning ☐
- Evening ☐
- Late at night ☐

18. Which of the following should be emphasized in online courses(tick all that applies) :

- Theory ☐
- Practice ☐

19. The duration of course should be:

- Less than 4 weeks. ☐
- More than 4 week ☐
- Depend on the course objectives ☐

20.	Please rate how important are each of the following objectives associated with participation in CPE via e-learning by circling the appropriate number.	Not at all	A little	Somewhat	Moderately	A great deal
20.1	To increase my new knowledge & technical skills	1	2	3	4	5
20.2	To improve my competency	1	2	3	4	5
20.3	To improve my attitude towards nursing care	1	2	3	4	5
20.4	To Improve my clinical performance	1	2	3	4	5
20.5	To Improve Net working	1	2	3	4	5
21.	Rate your interest in the following topics if offered by e-learning mode by circling the appropriate number.					
21.1	**Specialty nursing:** Midwifery course, CCN, Renal nursing , orthopaedic	1	2	3	4	5
21.2	**General nursing:** Nursing process, assessment skill, health promotion	1	2	3	4	5
21.3	**Indirect nursing:** Information technology technique, Communication skills.	1	2	3	4	5
21.4	Management course	1	2	3	4	5
21.5	Teaching methods	1	2	3	4	5
21.6	Research , evidence based nursing	1	2	3	4	5
21.7	Other (please specify):	1	2	3	4	5
22.	Which of the following types of teaching /learning activities should be included in online CPE programs (tick all that applies)? Self –directed learning without any communication ☐ *Asynchronous learning ☐ *Synchronous learning ☐					
23.	Which of the following types of evaluation methods are effective for CPE via E-learning (tick all that applies)? Test through the internet. ☐ Participation in discussion forum through the internet ☐ Test at the college. ☐ Final examinations ☐ Continuous assessment ☐					

***Asynchronous learning**: pre-recorded information is presented and the learner can interact with it at any time thereafter and students give input to the discussion board at different time

***Synchronous learning**: The learner interacts directly with facilitator. Feedback may be instantaneously provided by facilitator. Another example of synchronous mode is active online communication. The common example synchronous modes are chat-rooms, online dialogue and web-based seminars among learners and between learners and the facilitators.

24.	Please rate the extent to which each of the following factors would **motivate** you to participate in CPE via e-learning by circling the appropriate number.	Not at all	A little	Somewhat	Moderately	A great deal
24.1	Achieving lifelong learning	1	2	3	4	5
24.2	Meeting personal learning needs and interests	1	2	3	4	5
24.3	Flexibility in time and space	1	2	3	4	5
24.4	Meeting job needs	1	2	3	4	5
24.5	Broaden one's horizon with diversity and latest knowledge	1	2	3	4	5
24.6	Self-directed learning	1	2	3	4	5
24.7	Cost –effectiveness	1	2	3	4	5
24.8	Less impact on family life	1	2	3	4	5
25.	Please rate the extent to which each of following factors would **deter** you from participating in CPE via e-learning by circling the appropriate number.	Not at all	A little	Somewhat	Moderately	A great deal
25.1	Limited time	1	2	3	4	5
25.2	Lack of access to a computer with an internet connection	1	2	3	4	5
25.3	Lack of support from supervisors	1	2	3	4	5
25.4	Lack of information communication technology (ICT)support	1	2	3	4	5
25.5	Limited knowledge of computers	1	2	3	4	5
25.6	Limited understanding about network system: LAN, internet, intranet	1	2	3	4	5
25.7	Limited ability to send and receive e-mail	1	2	3	4	5
25.8	Lack of familiarity with online chat rooms	1	2	3	4	5
25.9	Lack of knowledge about searching the internet	1	2	3	4	5
25.10	Lack of familiarity with using wed board	1	2	3	4	5
25.11	Lack of knowledge about uploading and down loading information	1	2	3	4	5
25.12	Difficulties with understanding English and computer vocabulary	1	2	3	4	5

Part C: Attitudes towards E- learning

Please circle the appropriate number to indicate the degree to which you agree or disagree with each of the following statements.

26.	**Attitudes towards E- learning**	Disagree Strongly	Disagree	uncertain	Agree	Agree Strongly
26.1.	Using computers in learning situations stimulates one's desire to learn	1	2	3	4	5
26.2.	I have positive experiences learning with computers	1	2	3	4	5
26.3.	I am not interested in using a computer and internet learning	1	2	3	4	5
26.4.	All nurses should be able to use a computer to learn (e-learning)	1	2	3	4	5
26.5.	It is something I could handle and cope well with	1	2	3	4	5
26.6.	A convenient way to learn	1	2	3	4	5
26.7.	It provides a flexible learning environment that is suitable for full-time employees	1	2	3	4	5
26.8.	It is fun and an interesting delivery medium to use,	1	2	3	4	5
26.9.	It makes learning more efficient	1	2	3	4	5
26.10.	It makes life easy	1	2	3	4	5
26.11.	I did not find the e-learning threatening to me	1	2	3	4	5
26.12.	It makes me anxious	1	2	3	4	5
26.13.	It always go wrong	1	2	3	4	5
26.14.	It makes life difficult	1	2	3	4	5
26.15.	Take time to learn and get use to it	1	2	3	4	5
26.16.	It detracts from patient care	1	2	3	4	5
26.17.	It improves access to knowledge	1	2	3	4	5
26.18.	It provides access to information for my nursing practice	1	2	3	4	5
26.19.	It offers a rich leaning experience	1	2	3	4	5
26.20	It helps improve continuity of care	1	2	3	4	5
26.21.	It inspires professional development	1	2	3	4	5
26.22.	It allows for social interaction	1	2	3	4	5
26.23.	Allows me to interact with the e-learning course facilitator(s)and tutor(s)	1	2	3	4	5
26.24.	Generate E-learning interesting online discussion with others students	1	2	3	4	5
26.25.	I felt I got to learn a great deal about the tutors in though online course	1	2	3	4	5
26.26.	It provides a personal experience similar to the classroom	1	2	3	4	5
26.27	It allows me to express my feelings and learn the feelings of others	1	2	3	4	5
26.28.	It provides reliable means of communication	1	2	3	4	5

Part D: Self-directed learning readiness scale for nursing education

Please circle the appropriate number to indicate the degree to which you agree or disagree with each of the following statements.

27.		Disagree Strongly	Disagree	Uncertain	Agree	Agree Strongly
	Self- Management					
27.1.	I do not manage my time well	1	2	3	4	5
27.2.	I am self disciplined	1	2	3	4	5
27.3	I am disorganized	1	2	3	4	5
27.4	I set strict time frames	1	2	3	4	5
27.5	I have good management skills	1	2	3	4	5
27.6	I am methodical	1	2	3	4	5
27.7	I am systematic in my learning	1	2	3	4	5
27.8	I set specific times for my study	1	2	3	4	5
27.9	I solve problems using a plan	1	2	3	4	5
27.10	I prioritize my work	1	2	3	4	5
27.11	I can be trusted to pursue my own learning	1	2	3	4	5
27.12	I prefer to plan my own learning	1	2	3	4	5
27.13	I am confident in my ability to search out information	1	2	3	4	5
	Desire for learning					
27.14	I want to learn new information	1	2	3	4	5
27.15	I enjoy learning new information	1	2	3	4	5
27.16	I have a need to learn	1	2	3	4	5
27.17	I enjoy a challenge	1	2	3	4	5
27.18	I did not enjoy studying	1	2	3	4	5
27.19	I critically evaluate new ideas	1	2	3	4	5
27.20	I like to gather the facts before I make a decision	1	2	3	4	5
27.21	I like to evaluate what I do	1	2	3	4	5
27.22	I am open to new ideas	1	2	3	4	5
27.23	I learn from my mistakes	1	2	3	4	5
27.24	I need to know why	1	2	3	4	5
27.25	When presented with a problem I cannot resolve, I will ask for assistance	1	2	3	4	5

		Disagree Strongly	Disagree	Uncertain	Agree	Agree Strongly
	Self-control					
27.26	I prefer to set my own goals	1	2	3	4	5
27.27	I like to make decisions for my self	1	2	3	4	5
27.28	I am responsible for my own decisions/actions	1	2	3	4	5
27.29	I am not in control of my life	1	2	3	4	5
27.30	I have high personal standards	1	2	3	4	5
27.31	I prefer to set my own learning goal	1	2	3	4	5
27.32	I evaluate my own performance	1	2	3	4	5
27.33	I am logical	1	2	3	4	5
27.34	I am responsible	1	2	3	4	5
27.35	I have high personal expectations	1	2	3	4	5
27.36	I am able to focus own problem	1	2	3	4	5
27.37	I am aware of my own limitations	1	2	3	4	5
27.38	I Can find out information for my self	1	2	3	4	5
27.39	I have high beliefs in my abilities	1	2	3	4	5
27.40	I prefer to set my own criteria on which to evaluate my performance	1	2	3	4	5

Thank you for supporting this study

Appendix F: Permission To Use The Self-Directed Learning Readiness Scale For Nurse Education

The University of Sydney

PERMISSION TO USE THE SELF-DIRECTED LEARNING READINESS SCALE FOR NURSE EDUCATION

FROM: Murray Fisher, DipAppSc, BHSc, MHPEd.
Lecturer
Faculty of Nursing
University of Sydney
[redacted]

RE: Use of the **Self-Directed Learning Readiness Scale for Nurse Education**

You are free to use the Self-Directed Learning Readiness Scale for Nurse Education for your research. The instrument is copyrighted (c. 2001, Fisher, King and Tague) and may not be duplicated or copied without first submitting a signed copy of this permission form to M Fisher. Requests for any changes or alterations to the instrument should be made in writing to M Fisher. As with all revisions, the copyright will be retained by Fisher, King and Tague and must appear on the printed copies of the instrument.

By filling in your name, address, phone number, and e-mail address and signing the agreement use below and mailing it to M Fisher, you are hereby given permission to use the Self-Directed Learning Readiness Scale for Nurse Education for your research. The permission is valid only for the study named below.

Fisher, King and Tague requests that you send back the following information:

- your raw data in ASCII format for our reliability and validity bank
- copies of any changes or translations of the scale
- copies of any publications citing the use of the scale

When using the Self-Directed Learning Readiness Scale for Nurse Education you need to use the following reference:

Fisher,M., King, J. and Tague, G. (2001) Development of a self-directed learning readiness scale for nurse education. Nurse Education Today, 21(7): 516-525.

AGREEMENT TO USE THE SELF-DIRECTED LEARNING READINESS SCALE FOR NURSE EDUCATION

I agree to the above conditions for using the Self- Directed Learning Readiness Scale For Nurse Education.

Name: Chong Mei Chan

Title: Ms

E-mail:[redacted]

Address: No 1 Jalan Indah 1/25, Taman Universiti Indah , 43300 Seri Kembangan, Selangor, Malaysia

Academic/business affiliation: University of Malaya
Phone Number: [redacted]

Study Title: understanding the continuing professional education needs among Malaysian nurses and their readiness for e-learning

Brief Description of Study:

The general study's objective will be to facilitate continuing professional education through e-learning to enhance the nursing professional standard.

1. To explore the current practices of continuing professional education among registered nurses in Malaysia.
2. To determine motivation and deterrence factors that affect nurses' participation in CPE activities.
3. to compare the practice of CPE by year of service, education level and department and organization.
4. To investigate registered nurses attitudes towards E-learning.
5. to investigate registered nurses self-directed learning readiness to undertaking continuing professional education activities and course by e-learning mode.
6. to compare the registered nurses attitude and self-directed learning readiness by year of service, education level and department and organization

[redacted]

Signature_____Date___20November2008_____

Please keep a copy of this form in your files.

Mail to:
Murray Fisher
Faculty of Nursing
The University of Sydney
88 Mallett St
Camperdown NSW Australia 2006

Appendix G: Approval of Research Grant by University of Malaya

IPPP/UPDiT/Geran(PJP)/FS318/2008C

09 September 2008

Ms Chong Mei Chan
Department of Nursing Science
Faculty of Medicine
University of Malaya

Short Term Research Grant (PJP) Third Distribution 2008 from University Research Special Grant 2008

With reference to the above matter.

We are pleased to inform you that the above application has been approved by the committee for Short Term Research Grant (PJP) of University of Malaya at the board meeting on 27 and 29 August 2008.

The following information is pertaining to the approved project:

Account Number : [redacted]
Title : Facilitating Continuing Professional Education for Malaysia Nurses through E- learning
Duration : 1 year (15/09/2008 to 14/09/2009)

Division	**RM**
Equipment and accessories	0.00
Supplies (Chemicals/ Glassware/ Stationary etc)	17110.00
Travel and expenses	0.00
Salary and allowances for research assistant.	0.00
Total	**17110.00**

We would like to acknowledge that proper planning and management of the grant is required because this is the University Research Special Grant for 2008.

We would appreciate a response to this unit as to whether you are accepting or rejecting the above offer by completing the attached acceptance form IPPP/UPDiT/Geran(PJP)2008/15 and return the form by 19 September 2008 (Friday).

UPDiT will issue a pass word for accessibility of PJP on-line system upon acceptance of the offer two weeks after submission of the acceptance form.
If we did not receive any feedback beyond the date stated the offer will be terminated automatically.

Your sincerely

Professor Dr. Johari Surin
Head'
Research Sponsor Unit
Institute of Research Management and Consultation
University of Malaya.

C.C. Deputy Dean Research
Faculty of Medicine
University of Malaya

Head
Department of Nursing Science
Faculty of Medicine
University of Malaya

Translated by:
Devikamani

DR. DEVIKAMANI MENON
SENIOR LECTURER
FACULTY OF LANGUAGES & LINGUISTICS
UNIVERSITY OF MALAYA

UNIVERSITY OF MALAYA
KUALA LUMPUR
Producing Leaders Since 1905
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IPPP/UPDiT/Geran (PJP)/FS318/2008C

09 September 2008

Puan Chong Mei Chan
Jabatan Sains Kejururawatan
Fakulti Perubatan
Universiti Malaya

PERUNTUKAN PENYELIDIKAN JANGKA PENDEK (PJP) AGIHAN 3 2008 DARIPADA GERAN KHAS UNIVERSITI PENYELIDIKAN 2008

Dengan hormatnya perkara di atas adalah dirujuk.

Sukacita dimaklumkan permohonan di atas telah diluluskan oleh Jawantankuasa Peruntukan Penyelidikan Jangka Pendek (PJP) Universiti Malaya yang telah bermesyuarat pada 27 dan 29 Ogos 2008.

Berikut adalah maklumat bagi projek yang telah diluluskan:

No. Akaun : FS318/2008C
Tajuk : Facilitating Continuing Professional Education for Malaysia Nurses Through E-Learning
Jangkamasa : 1 Tahun (15-09-2008 hingga 14-09-2009)

PECAHAN	**RM**
Alat Khusus & Aksesori	0.00
Bekalan	17110.00
Perjalanan & Sara hidup	0.00
Elaun & Gaji pekerja	0.00
JUMLAH	**17110.00**

Ingin dimaklumkan bahawa perlu menguruskan perbelanjaan dengan secekap yang mungkin kerana ini merupakan agihan geran khas Universiti Penyelidikan 2008.

Berhubung dengan perkara ini, diminta memaklumkan kepada unit ini sama ada menerima atau tidak tawaran di atas dengan mengisi borang penerimaan tawaran IPPP/UPDiT/Geran(PJP/PPF)2008/15 terlampir dan serahkan kembali selewat-lewatnya pada **19 September 2008 (Jumaat).**

Pihak UPDiT juga akan memberi katalaluan bagi penggunaan sistem on-line PJP kepada jika menerima tawaran tersebut dalam masa 2 minggu selepas tarikh akhir penyerahan borang tawaran. **Jika pihak kami tidak menerima sebarang maklum balas sehingga tarikh tersebut tawaran ini akan terbatal dengan sendirinya.**

Sekian.

Sponsored Research Unit
Institute of Research Management and Consultancy
A205, IPS Building, University of Malaya, 50603 Kuala Lumpur
Tel: (603) 7967 4522/4653/4652 • Faks: (603) 7967 4648

[redacted]

Profesor Dr. Johari Surin
Ketua,
Unit Penyelidikan DiTaja
Institut Pengurusan Penyelidikan & Perundingan
Universiti Malaya

s.k. Timbalan Dekan / Pengarah (Penyelidikan)
Fakulti Perubatan
Universiti Malaya

Ketua / Pengerusi
Jabatan Sains Kejururawatan
Fakulti Perubatan
Universiti Malaya

Appendix H: Academic Work Arising from the Research Project

Publications

Chong, M.C.,Sellick, K., Francis, K., Khatijah, L.A., (2011). What influence Malaysian nurses to participate in continuing professional education activities?*Asian Nursing Research Vol 5 (1), 38-47.*

Conference/presentation

Posters designed and presented by Mei Chan Chong

2009- M.C. Chong, Supervisors: Dr. S. Kenneth, Professor K.Francis, Assoc. Professor Khatijah Lim Abdullah. Practices of Continuing Professional Education among Registered Nurses in Malaysia.*Celebrating PostgraduateResearch in Gippsland, Monash University (Gippsland Campus), Facultyof Medicine, Nursing and Health Sciences, School of Nursing andMidwiferyAugust 2009.****(Best poster presentation Award)***

2010- M.C. Chong, Supervisors: Dr. S. Kenneth, Professor K.Francis, Assoc. Professor Khatijah Lim Abdullah. Are Malaysian Nurses Ready for E-Learning?
International Conference on e-learning 10, 12-13, July, University Sciences Malaysia, Penang, Malaysia.

2010- M.C. Chong, Supervisors: Dr. S. Kenneth, Professor K.Francis, Assoc. ProfessorKhatijah Lim Abdullah. Are Malaysian Nurses Ready for E-Learning?*CelebratingPostgraduateResearch in Gippsland,Monash University (Gippsland Campus), Facultyof Medicine, Nursing and Health Sciences, School of Nursing andMidwifery August 2010.****(Certificate of Merit)***

Conference Oral Presentations

2008- M.C. Chong, Supervisors: Dr. S. Kenneth.Facilitate Continuing ProfessionalEducation via E-learning for Malaysian Nurses**.** 4th International Conference on Information Technology and Multimedia 17th – 19th November 2008 at UNITEN
(ICIMU' 2008), Malaysia.

2008- D. Muthu, M.C. Chong, Supervisors: Dr. S. Kenneth.Perception Of Registered Nurses On Implementation of Mandatory Continuing Professional Education For Re-Licensure In Paediatric Institute, 8th Annual SEAAIR Conference, 4-6 November 2008, Surabaya, Indonesia.

2009 - M.C. Chong, Supervisors: Dr. S. Kenneth, Professor K.Francis, Assoc. Professor Khatijah Lim Abdullah. Continuing Professional Education Practice for Malaysian Nurses (preliminary finding), 4th National Nursing Conference, April 2009 at Kuala Lumpur, Malaysia.

2009- M.C. Chong, Supervisors: Dr. S. Kenneth, Professor K.Francis, Assoc. Professor Khatijah Lim Abdullah. Why do Malaysian Nurses Participate in Continuing Professional Education Activities 9th Annual SEAAIR Conference, 13-15 October 2009, Penang, Malaysia.

2010 - M.C. Chong, Supervisors: Dr. S. Kenneth, Professor K.Francis, Assoc. Professor Khatijah Lim Abdullah. Understanding the Need for Continuing Professional Education for Nurses8th Hawaii International Conference on Education, 6-10 January 2010,Honolulu, Hawaii.

2010 - M.C. Chong, Supervisors: Dr. S. Kenneth, Professor K.Francis, Assoc. Professor Khatijah Lim Abdullah. Practices of Continuing Professional Education among Registered Nurses in Malaysia (complete finding) 7th Asia Pacific Nurses Convention (ASPAN) 30 Jun – 2 July 2010 – Meritus Mandarin Singapore.

Conference Peer review proceedings

2008- M.C. Chong, Supervisors: Dr. S. Kenneth.Facilitate Continuing ProfessionalEducation via E-learning for Malaysian Nurses**.** 4th International Conference on Information Technology and Multimedia 17th – 19th November 2008 at UNITEN (ICIMU' 2008), Malaysia

2008- D. Muthu, M.C. Chong, Supervisors: Dr. S. Kenneth.Perception Of Registered Nurses On Implementation of Mandatory Continuing Professional Education For Re-Licensure In Pediatric Institute, 8th Annual SEAAIR Conference, 4-6 November 2008, Surabaya, Indonesia.

2009- M.C. Chong, Supervisors: Dr. S. Kenneth, Professor K.Francis, Assoc. Professor Khatijah Lim Abdullah. Why do Malaysian Nurses Participate in Continuing Professional Education Activities 9th Annual SEAAIR Conference, 13-15 October 2009, Penang, Malaysia

Appendix I: Publication

ORIGINAL ARTICLE

What Influences Malaysian Nurses to Participate in Continuing Professional Education Activities?

Mei Chan Chong[1]*, RN, MSc, SCM, *Kenneth Sellick*[2], RN, PhD, RPN, *Karen Francis*[3], RN, PhD, BHSN, DHSN, *Khatijah Lim Abdullah*[4], RN, PhD, NICU

[1]PhD Candidate, Monash University, Australia & Lecturer, Department of Nursing Sciences, Faculty of Medicine, University of Malaya, Malaysia
[2]Senior Research Fellow, School of Nursing & Midwifery, Monash University, Australia
[3]Head & Professor of Rural Nursing, School of Nursing & Midwifery, Monash University, Australia
[4]Head & Associate Professor of Neonatal Nursing, Department of Nursing Sciences, Faculty of Medicine, University of Malaya, Malaysia

Purpose A cross sectional descriptive study, which involved government hospitals and health clinics from Peninsular Malaysia sought to identify the continuing professional education (CPE) needs and their readiness for E-learning. This paper focuses on the first phase of that study that aimed to determine the factors that influence nurses' participation in CPE.

Methods Multistage cluster sampling was used to recruit 1,000 nurses randomly from 12 hospitals and 24 health clinics from four states in Peninsular Malaysia who agreed to be involved. The respondent rate was 792 (79.2%), of which 562 (80%) had participated in CPE in the last 12 months.

Results Findings suggested that updating knowledge and providing quality care are the most important factors that motivate participation in CPE, with respective means of 4.34 and 4.39. All the mean scores for educational opportunity were less than 3.0. Chi-square tests were used to test the association of demographic data and CPE participation. All demographical data were significantly associated with CPE participation, except marital status.

Conclusions Implementation of mandatory CPE is considered an important measure to increase nurse's participation in CPE. However, effective planning that takes into consideration the learning needs of nurses is recommended. [*Asian Nursing Research* 2011;5(1):38–47]

Key Words continuing education, Malaysian nurses, professional education

INTRODUCTION

Continuing professional education (CPE) is imperative in facilitating the professionalization of nursing in Malaysia. The importance and relevance of CPE to nurses has been increasingly emphasized in the literature (Levet-Jones, 2005; Macdonald, 1994; Thurston, 1992). In 2008, the Malaysian Nurses Board endorsed that nurses are required to participate in a minimum number of hours of education

ELSEVIER

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E-mail: [redacted]

Received: June 3, 2010 **Revised:** December 8, 2010 **Accepted:** January 6, 2011

and training each year. Mandating compliance reinforces the message that health care is dynamic and that nurses must update their knowledge and skills to keep pace with change. There is an expectation that professionals, such as nurses, maintain currency, irrespective of external pressures.

The issues reported in the literature influencing nurses' decisions to participate in CPE include demographics, beliefs, attitudes, motivational factors, and educational opportunities. A number of researchers (Abu Salim, 2001; Lee, 2004; Muthu, 2006; Pathan, 2008) have reported participation in CPE by Malaysian nurses as less than satisfactory, despite the Malaysia Nursing Board's adoption of mandatory CPE (Pathan). The present study sought to determine factors that influence Malaysian nurses to participate in CPE activities.

Literature review

Continuing professional education (CPE)

CPE in health care disciplines is accepted as an essential expectation of professional practitioners (International Council of Nurses, 2008). Happell (2004) argued that in order for the nursing profession to achieve professionalism, nurses must develop greater skills, undertake higher education, and engage in life-long learning. This is consistence with the finding by William (1996), who suggested that knowledge acquired through basic professional education has a half-life of about 2.5 years and by the end of that period, knowledge not enhanced through further education and training will become outmoded or obsolete. Gillies & Petengill (1993) maintain that basic education for practice becomes obsolete within 5 years of graduation and this obsolescence can cause nurses to perform poorly and lead to client disability, continued illness, and even deaths. It is important that nurses update their knowledge and skill continuously.

Factors influencing nurses' participation in CPE

Many factors motivate nurses to participate in CPE programs. The most common factors found in previous studies are professional knowledge, professional advancement, relief from routine, compliance with authority, improvement in social welfare skills, and improvement in social relations and acquisition of credentials (Kristjanson & Scanlon, 1989; Thomas, 1986; Waddell, 1993). Among these factors, improving professional knowledge and skills are considered the most prominent factors, followed by the need to maintain current professional practices and improve their ability to serve the public (O'Connor, 1979). In his study, O'Connor also found that mandatory CPE had less effect than voluntary CPE on motivating nurses to participate. Conversely, Kristjanson and Scanlon discovered increased job competence and an improvement of the professionalism of nursing as important motivation factors.

Another study by Glass and Todd-Atkinson (1999) reported that the main factors encouraging nurses to engage in CPE were supervisor support (74%), availability of suitable CPE programs (73%), and peer encouragement (68%). Kersaitis (1997) stated that employer assistance plays an important role in a nurse's participation in CPE. This study found that 45% ($n=169$) of respondents participating in CPE had received some form of assistance from their employer. Assistance was either an extrinsic reward for participation or providing leave with or without pay for the purpose of participation. DeSilets (1995) identified that the participation of nurses in CPE was attributed to similar reasons to others studies, such as professional development, professional service, collegial, and interaction, together with personal benefits, job security, professional commitment, and reflection.

Studies undertaken in the Asian region, including Malaysia and Hong Kong, have reported quite similar outcomes. For instance, Muthu (2006) found that the factors that motivate Malaysian nurses to participate in CPE were to upgrade their skills and knowledge and to increase their professionalism. Likewise, among Hong Kong nurses, Lai (2006) identified the main incentives for participating in CPE activities were to increase professional knowledge (93%), compliance with hospital policy (89%), to improve patient care skills (88%) and to meet recommended statutory requirements (81%).

In Malaysia, registered nurses (RN) form the largest group of health care personal, providing health care

services to the county's population in both the public and private sectors. Nurses can take a 3-year diploma or a 4-year degree in nursing to qualify as a RN with the Malaysia Nursing Board. Both programs introduce the concept of continuing education. Subsequently, their participation in CPE activities will largely depend on the influence of their nurse educator, nurse manager, or peers. In line with the issue in the Malaysian Nursing Act 1950, there is no clause stipulating the requirement of voluntary or mandatory CPE for the re-licensure of the nurses' annual practicing certificate. As such, RNs in Malaysia have since participated in available CPE activities using their own initiative due to an interest in a specific subject.

However, the globalization wave regarding development in nursing influenced the Nursing Board of Malaysia in 1998 to include the requirement of CPE in the Nurses' Code of Conduct. All nurses should at least have ten contact hours in CPE activities a year. Since the addition of this statement, nurses have participated in available CPE activities on their own initiative and voluntarily because the Nursing Board did not mandate the participation. Hence, the question arises whether Nursing Board Leaders, heath authorities, consumers and legislators, and the RNs themselves should voluntarily participate to continue or should it be changed to the mandatory approach to CPE. The Nursing Board of Malaysia realized the importance of CPE, and proposed guidelines for CPE and the legislation of mandatory CPE for Malaysia nurses. It was implemented in 2008.

The aims of this study were to (a) determine the CPE practice of Malaysian nurses and (b) examine the factors that influence nurses' participation in CPE activities.

METHODS

Setting

Health services provided to Malaysian communities, which comprise primary, secondary, tertiary and rehabilitative care, continue to improve via an extensive network of 128 hospitals and 2,987 health clinics (Government of Malaysia, 2006). The hospitals vary according to location, size, and services provided. For example, state hospitals will have a range of 500–1,600 beds; district hospitals an average of 300 beds, and rural hospitals, 100 beds. State hospitals are divided into general and specialized facilities; usually they serve as referral centers, which are located in the city. District hospitals are located in suburbs, while rural hospitals are in rural areas. The community health clinics are located in urban, suburban, and rural areas; even very remote areas have access to health services. The services provided mainly focus on primary health care and health promotions. There are approximately 70,000 thousand registered nurses in Malaysia, who are generally assigned to both hospital and community clinics following their graduation.

Design

A quantitative cross-sectional survey was designed for the first phase of the study to obtain information from the population regarding CPE practice and the factors affecting CPE participation. A quantitative approach allows and helps the researcher in describing and examining the interaction among variables.

Population and sample

The target population was 70,000 registered nurses working in 178 Ministry of Health hospitals and 2,987 community clinics. The inclusion criteria for the sample were that they must be state RNs with at least 1 year's working experience. The sample's participation in the study was based on voluntary, basic and implied consent. Nurses who were on maternity leave, study leave, unpaid leave, or long medical leave were excluded from the study.

Multistage cluster sampling was used for this survey because it involves the sampling of entire natural groups rather than individuals and the population is spread widely across a large geographic area. The goal of the sampling method was to draw a random sample of 1,000 registered nurses from 12 hospitals and 24 health clinics from a sample of 4 of the 13 states in Peninsular Malaysia.

Data collection

Data were collected using a self-explanatory structured questionnaire. The questionnaires, with return mail envelopes, were given to the hospital nurses' officer or manager of the Nursing Administration Unit. Brief instructions were given to the nurse offices on the date line for returning the questionnaire and the items in the questionnaires explained to them. The officer or nurse's manager distributed the questionnaires to the nurses randomly by internal mail.

The nurses were given written explanatory statements, which explained the research procedure and instructions to put the completed questionnaires in the envelope provided and to seal it to maintain confidentiality. All those who returned the forms were ticked off the list to allow the researcher to keep track with the respondent rate. The respondents were assured that they would be kept anonymous.

Instrument

The instruments were developed with considerable attention given to construct clear and unambiguous items. When items were developed, care was taken to use simple language and short sentences that were neither double-barreled nor leading. A close-ended questionnaire and the Likert scale was used. This questionnaire was developed based on a literature search on the main tools related to CPE (Griscti & Jacono, 2006; Lai, 2006; Muthu, 2006). This questionnaire consisted of three parts, Part A: Demographic information of the respondents; Part B: factors that motivate nurses' participation in CPE practice; and Part C: factors that deter nurses' participation in CPE.

Prior to conducting the study the questionnaire was reviewed by a panel of experts drawn from universities and colleges in Malaysia with at least 5 years of teaching experience in nursing and/or tertiary education, preferably with experience in CPE programs and e-learning. The questionnaire was then pilot-tested on a convenience sample of registered nurses from the University of Malaya Medical Centre who were not involved in the actual study. Participants were asked to identify any items they had difficulty answering, and to specify the length of time it took to complete the questionnaire.

Ethical consideration

Ethics approval to conduct the study was obtained from the Malaysia Economic Planning Unit, the Ministry of Health Malaysia, the University of Malaya Medical Centre, and Monash University. All nurses invited to participate in the study were given an explanatory statement that provided details of the study and what it entailed, and assurances that all information would be treated in strict confidentiality and that they would remain anonymous. Return of completed questionnaires was taken as their consent to participate in the study.

Data analysis

SPSS version 16.0 for Windows (SPSS Inc., Chicago, IL, USA) was used for statistical analyses. Statistical analyses included frequency, percentage, mean, and standard deviation for a univarate analysis.

RESULTS

The total number of respondents in this study was 792 registered nurses from 12 hospitals and 24 health centers in Peninsula Malaysia. The response rate was 79.2%. Table 1 shows the demographic characteristics of the respondents.

Figure 1 shows the participation rate in CPE. Only 71% ($n=562$) of nurses had attended CPE activities in last 12 months, despite implementation of mandatory CPE by the Malaysia Nursing Board. Figure 2 illustrates the credit points obtained by the nurses' participation in CPE activities. Less than 50% of the nurses had obtained 25 credit points and above.

Table 2 describes the motivation orientation of nurses. The five most important factors that motivated them to participate in CPE were to give quality care to patients, to update knowledge, to improve skills in clinical practice, to improve communication skills, and to obtain knowledge to achieve professional status. Table 3 explains the factors that deter nurses from participating in CPE. The findings reflect that deterrence factors did not affect the nurses, as all the mean scores were low, with mean range from 2.52 to 3.54. The five most important factors that deterred nurses

Table 1

Demographic Data of Respondents (N = 792)

Characteristic	n	%
Age (yr)		
20–32	453	57.2
33–43	187	23.6
≥ 44	152	19.2
M ± *SD*		33.89 ± 9.11
Marital status		
Married	611	77.1
Single	166	21.0
Separated/divorced	6	.8
Widow/widower	9	1.1
No. of Children[a]		
0	80	10.1
1–2	327	41.3
3–4	183	23.1
≥ 5	37	4.7
Professional education		
Diploma in nursing	602	76.0
Advance diploma in nursing	172	21.7
Degree in nursing	18	2.3
Household income (RM)		
2,001–3,000	296	37.4
3,001–4,000	270	34.1
4,001–5,000	134	16.9
≥ 5,001	92	11.6
M ± *SD*		3.941 ± 1633.38
Working institution		
Tertiary hospital	441	55.7
Secondary hospital	164	20.7
Primary hospital	117	14.8
Health clinic	70	8.8
Service (yr)		
1–5	523	66.0
6–10	143	18.1
11–15	126	15.9
M ± *SD*		10.16 ± 8.54

[a]Missing value: excluded.

from participating in CPE were work commitments (3.54), domestic responsibilities (3.42), time constraints (3.41), and scheduling of CPE activities (3.40), and cost of courses (3.38). Negative experiences with previous CPE programs, emotional stress,

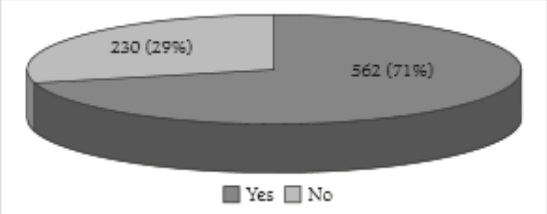

Figure 1. Participation in Continuing Professional Activities (*N* = 792).

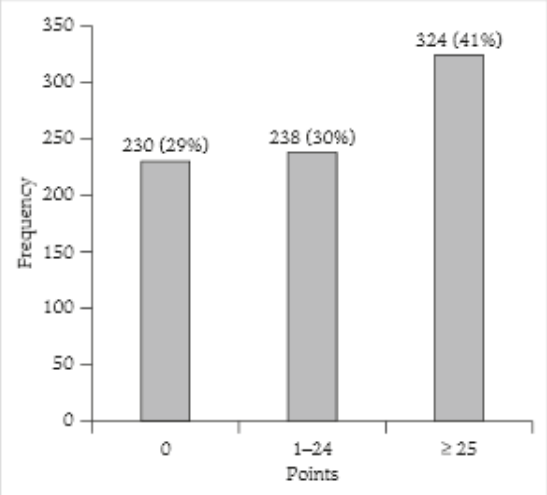

Figure 2. Total credit points obtained from participation in Continuing Professional Activities (*N* = 792).

and poor health were not viewed as important deterrents, as all the mean scores were below 3.00.

The association between demographic data and practice of CPE was tested with a Chi-square analysis. Most of the factors were significantly associated with CPE practice ($p < .05$), except for marital status. Most of the nurses (83%) 44 years old and above participated in CPE practice. Seventy-seven percent of the nurses from the age group 33–43 took part in CPE activities. Only 64.5% of youngest group age range 20–32 attended CPE ($p = .001$). The nurses with longest years of experience, that is 11–22 years and 20 years and above had higher levels of participation in CPE compared to the group of nurses with 1–5 years and 6–10 years above experience ($p = .01$). CPE is also significantly associated with the number

Table 2

Factors That Motivate Nurses' Participation in Continuing Professional Education Activities

Motivation factors	*M*	*SD*
Update my knowledge	4.34	0.75
Improve my skills in clinical practice	4.31	0.77
Give quality care to patients	4.39	0.72
Obtain knowledge to achieve professional status	4.21	0.78
Gain more paper qualifications	3.81	0.85
Renew my license to practice	4.08	0.86
Improve my communication skills	4.27	0.75
Boost my self-esteem	4.03	0.85
Fulfill requirement for promotion	3.82	0.84
Prevent myself from getting bored with routine	3.86	0.93
Adhere to hospital policy	3.86	0.86
Increase my competency	4.06	0.85
Practice autonomously	3.90	0.88
Be more critical in providing nursing care	4.14	0.82
Improve my decision making skills	4.20	0.82
Improve my research skills	3.75	0.97
Improve my teaching skills	3.95	0.92
Improve my management skills	4.05	0.90

Table 3

Factors That Deter Nurses' Participation in Continuing Professional Education (CPE)

Deterrence factors	*M*	*SD*
Cost of courses	3.38	1.07
Lack of supervisor support	3.25	1.03
Lack of peer support	3.14	1.02
Lack of organization support	3.24	1.05
Lack of family support	3.05	1.21
Work commitments	3.54	1.01
Domestic responsibilities	3.42	1.00
Time constraints	3.41	0.96
Scheduling of CPE activities	3.40	0.97
Geographic distance (time and traveling)	3.26	1.05
Lack of information about activities/programs	3.23	0.97
Lack of access to relevant CPE courses	3.23	0.97
Negative experiences with previous CPE programs	2.70	1.14
Emotional stress	2.88	1.16
Poor health	2.52	1.20
Needs satisfied by on the job training	3.08	1.07

of children the nurses have ($p = .019$). Nurses who have three to four (79.8%) and no children (72.5%) were more active CPE participants compared to those with one to two (66.1%) or more than four children (70.3%, $p = .012$). There is a significant relationship between educational level and participation of CPE. Nurses with a degree (100%) and postbasic (93%) qualifications showed higher levels of participation in CPE than diploma nurses (63.8%) did ($p = .001$). The relationship between institutions and CPE participation is significant ($p = .017$) with nurses employed in the health clinic (85.7%) and tertiary hospital (71.4%) more likely to undertake CPE than those in primary (65.8%) and secondary hospitals (67.1%).

DISCUSSION

The findings of this study show that most nurses had attended CPE to fulfil minimum requirement for relicensure; however, 230 (29%) nurses who did not participate in any CPE activities throughout the year, despite implementation of mandatory CPE for Malaysian nurses. In contrast, previous studies undertaken in Malaysia before enactment of mandatory CPE found the nurses participation rate in CPE were more encouraging then the present study (Abu Salim, 2001; Lee, 2004; Muthu, 2006; Pathan, 2008). This finding suggests that legislation of mandatory CPE does not warrant nurses' commitment to ongoing learning (Lai, 2006). However the acquisition of knowledge and skill depends on the effectiveness of CPE (Hegney, Tuckett, Parker, & Robert, 2010) and the motivation level of nurses is crucial to ensure the positive outcome of CPE (Ryan, 2003).

Despite of the unfavourable participation rate in CPE among nurses in this study, the nurses mean score for motivation factors were high. Nurses from this study rated highly on factors such as to obtain knowledge, to improve their skills in practice and communication which would enable them to give quality care to patients. Similarly finding was found

in previous studies (Lai, 2006; Levett-Jones, 2005). Meeting the requirement of council and organization and for re licensure were emphasized in several literature (Gallagher, 2007; Lai, 2006), on the contrary nurses from this study did not perceive the mandated CPE for re-licensure and to fulfil the organization needs as most important to them. This may account for the 20% who did not engage in any CPE.

Study results reflect that deterrent factors did not affect the nurses, as all the mean scores were low. The five most important factors that prevented nurses from participating in CPE were work commitments, domestic responsibilities, time constraints, scheduling of CPE activities, and cost of courses which are consistent with those found in previous studies (Apgar, 2001; Hegney et al., 2010). Work commitment is the main deterrent factor that hinders nurses from participation in CPE. Since nurses are on shift duty, nurses on night shift are more likely to have lack of opportunity in CPE (Aoki & Davis, 2002) and the impact of staff shortage affects the ability of a superior to release the staff to attend CPE during work time (Apgar).

Time constraint and family commitment were factors affecting the flexibility of the nurses' availability for CPE such as arrangement for household chores and child care, travelling, and access to computers during nonworking time. The rigidity of working hours (Gould, Drey, & Berridge, 2007) may hinder rural health nurses as well as geographical constraint, nurses who are working in the environment where staff is limited, and those who work alone and need to attend CPE away from their community (Penz et al., 2007).

This study also found the respondents' age, years of experience in work, house hold income, number of children, professional education and work place were significantly associated with the participation of CPE activities. The present study found senior nurses were more active in CPE activities. This may be explained by house hold income as senior nurses may have higher income. Bariball and While (1996) contradicted this finding as they found that younger and less experienced nurses favoured CPE.

CPE is also significantly associated with the number of children the nurses have ($p = .019$). Nurses who have three to four or more than four children were more active CPE participants compared to those with one to two or no children were. Similar finding was not found in other literature.

One of the reasons offered by nurses for this anomaly was that younger and less experienced nurses participated in CPE to a lesser level because of the financial implications associated with accessing CPE. Most of the younger nurses in the sample are single and have less household income than the married nurse cohort. Abu Salim (2001) argues that younger nurses prioritize caring for their young children over career and work while senior nurses prioritize CPE.

In this study, there is a significant relationship between educational level and participation of CPE. Nurses with a degree and postbasic qualifications showed higher levels of participation in CPE than diploma nurses did. Similarly, Lee (2004) also found significant relationship between nurses with higher education and participation in CPE.

Overall, the study findings reveal that there is an association between demographic factors, such as age, number of children below 5 years old, and years of experience to the perception of RNs regarding the practice of CPE. There was no correlation between the mean score of motivational factors and CPE participation and deterrence factors and CPE participation.

IMPLICATIONS

The findings of this study show that most nurses had attended CPE to fulfill minimum requirement for re-licensure; however, 230 (29%) nurses did not participate in any CPE activities through out the year, despite implementation of mandatory CPE for Malaysian nurses.

This study has implications for nursing education, including the need to prioritize the value of CPE within programs. There is a need to evaluate current CPE programs endorsed by the Malaysian Nurses Board for effectiveness, quality, and cost, and the impact of the mandated program on the nursing work force and outcomes for care. In order to upgrade the nursing status in Malaysia, nurses are

encouraged to pursue higher education. The nursing education in Malaysia is developing progressively. The University of Malaya started the degree program in 1993. It has increased to seven public universities offering full time degree programs. The Open University Malaysia, Marsha College University, and Universiti Teknologi Mara also offer distance learning. Distance learning uses the hybrid on-line learning systems, which incorporate the on-line and face-to-face methods in delivery of courses. Distance learning has enabled more nurses to participate in CPE.

The degree nursing programs offered are in categories from preregistration to postregistration. A preregistration course is a full time course, usually for school leavers. However, postregistration courses are meant for existing nurses who desire to pursue tertiary education to upgrade themselves.

The nursing degree curriculum in Malaysia generally encompasses nursing sciences, behavioral science, health sciences, and information technology and communication skills. Research is an important component of degree program, student are required to attend three credit hours of research and biostatic courses, and to conduct a project with contribute six credit hours of the courses.

Besides pursuing a degree program, more nurses further their studies with Master's or PhD courses. The majority of them are self-sponsored and do it on their own time. Two public universities in Malaysia offer Masters degrees in nursing, followed by two private universities, which offer a distance-learning module. This initiation has given the Malaysian nurses an opportunity to pave their journey to professionalization.

RECOMMENDATIONS

The study findings reveal that there are constraints that limit nurses' participation in CPE. It is recommended that a more structured program of CPE be planed and produced with the collaboration of the three aspects of nursing. A nursing committee should plan a structured program, which can evaluate the CPE program. With the findings, future activities can be planned according to the learning needs of nurses. A careful planning of CPE program is needed if mandatory CPE has to be implemented. The rationale based upon the factual evidence should be thoroughly examined. Without careful planning and research, mandatory CPE is unlikely to deliver the anticipated development of reflective practice and critical thinking considered crucial for improved patient care. A nursing research team should be formed. All the nursing graduates should be motivated to be involved and share their knowledge in doing the research. Research is very important to enable nurses to tackle the issues in nursing profession. The research also can give guide us to implement necessary measures to encounter CPE implementation.

In this information communication technology (ICT) era, many young nurses are part of the ICT booming generation; perhaps the nursing administration and education should take advantage of the ICT to promote CPE. It could support more tertiary nursing education through online learning, and initiate more innovative teaching and learning methods, such as web blog, online problem-based learning (PBL), reflective community, and accessibility of e-library.

CONCLUSIONS

According to this study, most Malaysia nurses have participated in CPE activities. They are highly motivated in engaging in CPE. In others words, they appreciate the importance of CPE. However, there seems to be a lack of educational opportunities for them to participate in CPE, such as too costly and time and space constraints. Demographical factors play an important determinant in CPE practice. Nursing administrative and educators should carry out a CPE inventory to ensure the learning needs of nurses are achieved. With the findings from this study, it is important for the organization and its members to examine the importance and the necessity of CPE and mandatory CPE in our Malaysian setting, especially in primary and secondary hospitals. Collaboration among nursing leaders in every area is vital

to increase the quality of our practice, and most importantly, our nursing profession.

ACKNOWLEDGMENTS

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APPENDIX J: POSTERPRESENTATION

Are Malaysian Nurses Ready for E-learning

Mei Chan Chong, School of Nursing and Midwifery.
Supervisors: Dr.Ken Sellick, Professor Karen Francis, Associate Professor Khatijah Lim

Abstract and Introduction

E- Learning has become significantly important in nursing education to pre-registration nurses. Shortage of qualified nursing staff and work commitment has made it difficult for employees to release nurses from their work for study. Hence, it is valuable to consider developing knowledge through e-learning (Chalmers, Sivalov, & Miller, 2001; Rolfe, 1999).

Nurses' readiness and attitude towards e-learning would need to be addressed before developing a CPE model via e-learning. This is essential step to ensure effective delivery of learning modules (D. M. Billings & Kovalski, 2007). Learners should be familiar with computers, have reliable and affordable hardware, soft ware and Internet access and acquire necessary ICT skills (Z. W. Abas, N. Shamsuddin, & K. L. Phua, 2003)

Research question:

Are Malaysian nurses ready to learn through e-learning?

Aims:

The aims of this study were to assess the readiness of Malaysian nurses on ICT and acceptance of e-learning as a means to CPE.

Methodology / material and equipment

Design:

Cross sectional survey using questionnaire.

Target population :

≈ 70,000 registered nurses recruited from 128 public hospitals and 2987 health centre in Malaysia.

Sampling method:

Participants were randomly selected from a pool of participants from previous survey on CPE who agreed to be involved in this study).

Figure 1. Sampling Frame.

Instrument.

Self-report questionnaires were used to collect data.

Consisted of 5 part:
Part A: demographic data
Part B: readiness towards e-learning
Part C: Factors affecting e-learning
Part D: Attitude towards e-learning
Part E: Self directed learning scales.
Only part B&C are presented in this poster.

Validity and reliability test of Instrument

Content of the questionnaire was validated by 10 experts. Internal reliability was tested using Cronbach's Alpha. Items were tested which yielded a reliability coefficient of 0.89.

Ethical consideration

Ethical approval was obtained from the Malaysia Economic Planning Unit, Ministry of Health Malaysia, University of Malaya Medical Centre and Monash Research Ethical Committee.

Data collection

Self-report questionnaires were sent via mail.
Duration 30 April 2009 to 31 August 2009
Reminder was given in April and later.
All 300 questionnaires were completed and returned.

Data analysis

Data were analysed using SPSS statistical software.
Only descriptive statistics are presented in this poster.

Findings

All participants (N=300) returned completed questionnaires. All the data analyzed using SPSS package.

Majority of the respondents (60.3%) had a Diploma in Nursing followed by a Diploma in Advance in Nursing (27.1%). Only 1% had a degree in nursing.

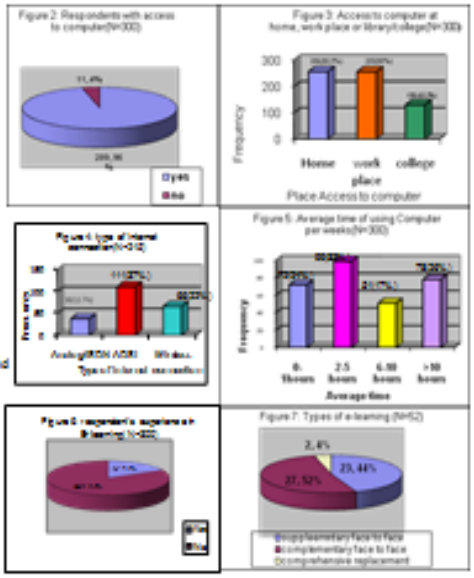

Table 1 : Factors that motivate nursing students participation in CPE via e-learning

	Motivators	Mean
1	Achieving lifelong learning	4.10
2	Meeting personal learning needs and interests	3.99
3	Flexibility in time and space	4.07
4	Meeting job needs	3.92
5	Broaden one's horizon with diversity and latest knowledge	4.07
6	Self-directed learning	4.03
7	Cost-effectiveness	3.90
8	Less impact on family life	3.91

Table 2: Factors that deterring respondents from participating in CPE via e-learning

Deterrent factors	Mean	Deterrent factors	Mean
Limited time	3.42	Limited ability to send and receive e-mail	2.99
Lack of access to a computer with an Internet connection	3.29	Lack of familiarity with online chatrooms	3.03
Lack of support from supervisors	3.27	Lack of knowledge about searching the Internet	2.99
Lack of information communication technology (ICT) support	3.22	Lack of familiarity with using web board	3.17
Limited knowledge of computers	3.19	Lack of knowledge about uploading and download loading information	3.13
Limited understanding about network system: LAN, Internet, Intranet	3.27	Difficulties with understanding English and computer vocabulary	2.91

Discussion

- Only a minority of respondents surveyed had advanced diploma and degree qualifications which was consistence with the previous studies (Rahman 2006, Lee, 2005, and Muhu 2006). According to them the main reason nurses did not pursue higher degree studies was time constraints, family commitments and geographical constraints.
- Malaysian nurses may need to consider e-learning as comment by Glen & Cox(2006) that the tool in maintaining lifelong learning commitment to education is the ability to use a computer and effectively find and enable to use the wealth of information.
- This comments suggested by studies that confirm e-learning is highly feasible and not hindered by lack of be a means of Continuing professional education for health care profession (Chapman, 2000, Kocher et al., 2000 and Yu et al.,2007)
- Factors to considered before implementing e- learning are computer and networking systems (Yu et al., 2007). Badrul (2003) assents that the learners should be familiar with computers, have affordable hard and software, and the necessary ICT skills.
- The findings from this study provides encouraging evidence that Malaysia nurses are ready to take up e-learning as a means for CPE. Most nurses had a computer at home with Internet connection. They also have had exposure to ICT information, acquired basic knowledge in simple software and using Word and have experience using hospital ICT systems.
- They were slightly motivated as the mean score for factors motivated them to learn was high. On the other hand, a score on factors that deter them from e-learning were very low.

Conclusion.

The findings revealed that Malaysian nurses are accessible to the e-learning infrastructure and most have been exposed to using computers in the clinical area. They were also highly motivated to learn through on line or e-learning as evidenced with the high mean score for motivator factors and low mean score for deterrent factors. Malaysian nurses are ready for e-learning and therefore the Malaysia Nursing Board should consider e-learning as a CPE option and facilitate nurses in engaging web base learning which would enable more nurses to participate in CPE in a cost effective and convenient manner.

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Go Boldly.

MONASH University
Medicine, Nursing and Health Sciences

Practices of Continuing Professional Education among Registered Nurses in Malaysia

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Introduction

- Essential for registered nurses to upgrade their knowledge and skills.
- Professional nurses who have sufficient latest knowledge and skills will maintain and improve their performance and quality patients' care (American Association of Critical-care Nurses, 2002).
- Health care consumers are demanding the quality of nursing which is a knowledge based profession, technological expertise and a high degree of clinical competence(Lavin-Jones,2002).
- For nursing profession to achieve professionalism, it require greater skill, higher education and life long learning, in other words have nurse education will no longer sustainable for lifelong competency in professional practice(Beaty, 2001).
- In Malaysia, nurses are required to participate in CPE activities to obtain credit points for renew their practice.

Aim of study

To explore the current practices of continuing professional education among registered nurses in Malaysia.

Methodology

Design

- Cross sectional survey
- using questionnaire
- quantitative research

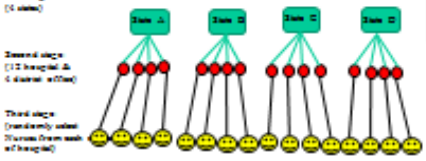
Target population

Registered nurses >70,000.
123 Public hospital and 2987 health centre in Malaysia.

Sampling method

Multistage Cluster sampling was used.
Cluster sampling was drawn from Peninsular Malaysia
Sample size is 1000 participants.

Figure 1: Multistage cluster sampling



Ethical consideration

Ethical approval was obtained from the Malaysia Economic Planning Unit, Ministry of Health Malaysia, University of Malaya Medical Centre and Monash Research Ethical Committee.

Data Collection

Instrument

self-regulatory questionnaire with 2 point Likert scale. Not at all, a little, somewhat, moderately and a great deal were used.

Reliability and validity test for questionnaire

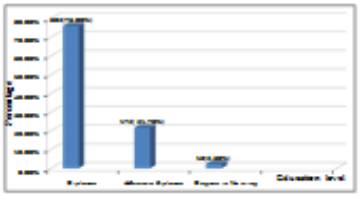
- The content of the questionnaire was validated by 10 experts.
- The internal reliability was tested using Cronbach's Alpha. 37 items were tested which yield the reliability index of 0.833.

Data collection started at 17 November 2003 after obtaining approval from Monash University and completed at 31 December 2003.
The questionnaire were given to nurses through internal mailing.

Finding

A total of 1000 questionnaires were distributed to participants. A total of 842 questionnaires were return of which 50 had not been completed, giving a final sample of 792 with a response rate of 79.2%. All the data is analysed using SPSS package.

Figure 1: Distribution of Participants by Professional Education(N=792)



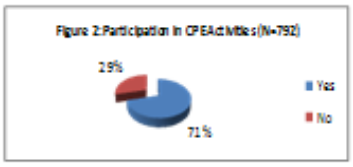


Figure 3: Distribution of Participants by Type of CPE Activities(N=792)

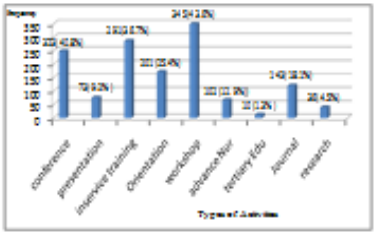


Figure 4: Distribution of Participants by CPE Topic(N=792)

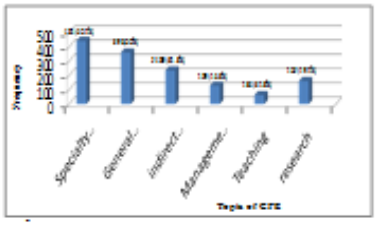


Table 1: The most important activities and topic for future participation

Activities	Mean	Topic	Mean
Inservice education	4.10	General nursing	4.10
Orientation programme	3.80	Specialty Nursing	3.80
Workshops	3.83	Indirect nursing	3.83
Advance Nursing Courses	4.01	Management	4.01
Degree	3.67	Teaching	3.67
Reading journal	3.61	Research	3.61
Access internet	3.60		
Research	3.51		
Attending conference	3.67		
Presenting at conference	3.19		

Table 2: Factors Motivate CPE activities

	Factors Motivate CPE activities	Mean
1	give quality care to patients	4.35
2	improve my skills in clinical practice	4.31
3	update my knowledge	4.34
4	improve my communication skills	4.27
5	obtain knowledge to achieve professional status	4.21

Table 3 :Factors deter nurses from participating in CPE activities

	Factors	Mean
1	Work commitments	3.24
2	Cost of courses	3.33
3	Domestic responsibilities	3.43
4	Scheduling of CPE activities	3.40
5	Time constraints	3.41

Discussion

- The participation of nurses in CPE activities is moderate 71% despite of legislation of mandatory CPE for renewal nurses practice.
- the most popular CPE activities are workshop and conference which are consistence with previous studies(Adams, et al, 2002, Lee, 2000, Fruse, 1999).
- Tertiary education is the least attractive which has been reported by Mahu (2000) that some nurses and the cost of degree has deter nurses from pursuing education.
- Lack of involvement in research may indicate the nurses educational level, merely 1.0 % of the subject having qualification.
- only 17.1% of the nurses has read journal, inaccessibility of relevant nursing journal and language barrier are the main reason nurses do not read. Most of the journal available are in English langue (Thurasinghem, 1994).
- Specialty and general nursing are most often attended by nurses as there are relevant to clinical practices which would improve their competency and quality of patient care (Fruse, 1999).
- topic on teaching is not common among nurses because employers perceive the earlier two topics are more relevant to nurses.
- Most of the nurses find inservice training, advance nursing and workshop are most important activities as them which involve topic like specialty and general nursing, they are more aware over improving their clinical skills and fulfilling their needs point for renewal nurses.
- The financial motivational factors mention above are consistence with previous studies, nurses view CPE important to upgrade their knowledge, which would improve patients care and achieving professionalism nursing. (Dellifes, L. 1992, Furse, G., & Feeney, F. 1999 & Adams, M. P., & Kiger, A. 2002).
- Time constraint and cost of the course are major most factors that deter nurses from participating in CPE. (Dellifes, L. 1992, Furse, G., & Feeney, F. 1999 & Adams, M. P., & Kiger, A. 2002).

Conclusion

The nurses CPE participation this study are mainly full fill the employer need rather than individual need. The courses offer for nurses are not tailored, to achieve would practical nurses may not benefit from the courses they had attended. Nurses are lacking in reading and participating in research due to accessible of reading material and skills research and reading journal are imperative in establishing evidence based practice in nursing. The nursing authority should re-evaluate the CPE system to ensure nurses obtained maximum impact of CPE. To foster life long learning the nurses leader should encourage nurses to learn how to learn on their own. Mentoring would be useful method to develop life long learning skill among nurses.

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MONASH University
Medicine, Nursing and Health Sciences

Appendix K: Guideline for CPD Programme for Malaysian Nurses

GUIDELINES FOR CONTINUOUS PROFESSIONAL DEVELOPMENT (CPD) PROGRAMME FOR NURSES/MIDWIVES

JANUARY 2008

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Foreword

The Nursing Division, Malaysia is advocating continuous professional development (CPD) as the hallmark for a competent and excellent nursing workforce. This is because registered nurses and midwifes have a major contribution to population health. In an era of rapid organisational changes, information technology, increasing public expectations and demand of quality and greater accountability, nurses and midwives must maintain professional competence. Moreover, this in line with the policy of Nursing Division, Malaysia to tie up CPD credit points for the renewal of the annual practicing certificate in ensuring quality and which will be in force beginning Year 2008.

This booklet will provide the information about activities on continuous professional development for nurses and midwives. It also contains information on the 'must-do' for officers and supervisors.

It is hoped that this booklet will serve as a guide to officers and supervisors on matters pertaining to continuous professional development.

I would like to thank and commend all those who are involved for their invaluable time and effort towards the preparation and publication of this booklet.

(Dr) Hjh. Bibi Florina Abdullah, J,M,N., A.M.N.
Director of Nursing Malaysia
2008

INTRODUCTION

With the cooperation from the CPD Unit, Ministry of Health, the Nursing Division/Nursing Board Malaysia (NBM) is pleased to present this Continuous Professional Development (CPD) guideline which reviews the activities of registered nurses and midwives in relation to continuing professional development.

Registered nurses and midwives provide the majority of direct care to patients/clients of the health services on a twenty four hour basis. They comprise the largest group of health service workers and as such have great potential to further contribute to population health and help to achieve the goals of the National Health Policy under the leadership of the Ministry of Health Malaysia.

Continuing Professional Development (CPD) in this context is defined as "a process of lifelong learning aimed at meeting patients' needs and improving health outcomes by systemic improvement and broadening of knowledge, understanding and skills and the development of personal qualities necessary for the execution of professional duties, including the acquisition of new roles and responsibilities".

There is a need for CPD in order to maintain professional competence in an environment of numerous challenges, rapid organizational changes, information technology, increasing public expectations and demand for quality and greater accountability. Nurses and Midwives face these challenges of embracing new methods of care delivery which will provide a quality service that is truly patient/client – centered. In ensuring the quality standards of nursing practice in the country, the NBM have taken serious concern regarding continuous professional development activities from a number of aspects namely equity of access, its relevance to practice, and the integration of new knowledge into practice.

Hence, this guideline makes recommendations regarding Continuous Professional Development for nursing personnel who must be developed based on needs assessment and outcome evaluation. The program recommended is relevant to individual practice and help to maintain standards and competence. In addition, it also incorporates group-based activities such as workshops and conferences hence facilitate greater interaction and integration of health professionals.

It is also hoped that this guideline is beneficial for the enhancement of career development and job satisfaction among nurses and midwives hence, enhancement of nursing service provision.

OBJECTIVES

General Objective

To have a competent and excellent nursing workforce.

Specific Objectives

1. To maintain professional competency.
2. To ensure high standard of care.
3. To broaden knowledge.
4. To refine skills.
5. To accept responsibility in one's career /professional development.
6. To accept greater accountability in nursing practice.

GUIDELINES TO THE USE OF THE LOG BOOK

1. This log book is designed to guide nursing professionals in recording and updating whatever CPD activities they have been involved in. To allocate credit points in each of the CPD activities please refer to the relevant CPD Credit Points System.

2. There is a requirement for annual minimum Credit Points achievement for each professional group. For nurses, the Nursing Board of Malaysia have recommended Tutor, Matron & Sister 35 – 40 points per/yr, Staff Nurse 25 – 30 points / yr and JM & AN 15 – 20 points / yr. However there is **no** upper limit in acquiring points for CPD especially when there is growing evidence of the need to link CPD with organizational/institutional goals.

3. As outlined in the CPD Credit Points System, a health professional may be involved in or attend many CPD activities of the same category, but only the maximum credit points of that category would be taken into consideration for the annual minimum. [For example, a person who has attended a congress twice in that year will be awarded 40 CPD points. However for the annual minimum credit points only a maximum of 20 CPD points will be taken into consideration for that year].

4. Each CPD activity undertaken must be recorded in the log book and be verified by the Supervisor or Head of Department with documented proof (see Verification of CPD Points by Supervisor).

5. The Supervisor will be the first assessor for the annual assessment [*Penilai Pertama untuk Sasaran Kerja Tahunan (SKT) dan Laporan Nilaian Prestasi Tahunan (LNPT)*] or a senior officer appointed at the discretion of the Head of Unit or *Jabatan* (Discipline). The Head of Unit or *Jabatan* (Discipline) will issue a formal letter of appointment to the supervisor at the start of each year to indicate which officers is under her/his supervision.

6. At the end of the year by 1st September (at the same time as submission of the annual assessment report/*LNPT*), an individual has to submit the completed and supervisor-signed log book to the Head of Unit or *Jabatan* (Discipline) for evaluation and endorsement. The log book will then be submitted with the annual assessment report/*LNPT to* the Head of Department (*Ketua Jabatan*). The log book will be kept with the annual assessment report/*LNPT* and a summary sheet (see Document for Submission) which contains a summary of the relevant information will be submitted for use to apply Annual Practicing Certificate (APC) from the Nursing Board Malaysia. (see Figure 1 – Flowchart of the CPD Information/Data Collection & Management).

7. A CPD Committee at Hospital, District & State level will be responsible for ensuring the implementation of this revised system. The CPD committees will also be responsible to deal with any appeals from officers regarding disagreement on points awarded and the local verification process.

8. The request for renewal of the APC should be submitted to Nursing Division by 1st. September of the year (The total of CPD point is calculated from 1st. September of previous year to 31st. August of present year.

Instructions to Officers

1. Officers are encouraged to plan their CPD activities at the start of each year.

2. Please fill in Table 1 (Detailed Record of CPD Activities & Supervisor's verification) on an ongoing basis.

3. Please show your log book to your immediate supervisor, appointed by the Head of Unit or *Jabatan* (Discipline), 3-monthly at least, to verify your CPD activities, document the points you have achieved and to plan further activities.

4. The certificates of attendance and relevant verification documents must be produced when showing your log book for CPD points to the supervisor.

5. Any appeal regarding disagreement on points awarded or the verification process should be made to the local CPD committee.

Instructions to Supervisors

1. Please be proactive and review the officer's log book at least 3 monthly to document the points she/he has achieved and to plan further CPD activities.

2. Please record the points in Table 1 at least 3 monthly. Awarding and verifying points for the officer can be done continuously.

3. Use the verification of CPD points (see Verification of CPD Points by Supervisor) as a guide on verifying the activity. The officer must provide documented proof of CPD activities when submitting the log book.

4. Please fill CPD-LB form in duplicate at the end of the year to determine the summary of CPD points achieved. Submit the completed CPD-LB form together with annual assessment report/*LNPT*) to the Head of department.

5. The Head of Department will prepare the summary report using CPD-01 form, analyzed and submit the report to State Health Director (Chairman of State CPD committee) and the Nursing Board Malaysia.

CPD ACTIVITIES DESCRIPTION FOR NURSES / MIDWIVES
(Please refer to table on CPD Credit Point System for attainment of credit points for each activity)

CPD CATEGORY / CORE BUSINESS CATEGORY

A1. NURSING CONGRESS/CONFERENCE (Local / International)

Nursing congress/conference on health related subjects conducted at local or international level. Any professional bodies, Ministry of Health, and any accredited private agencies and universities should organize the congress. The congress/conference should also have a theme, goals, and objectives that would affect policy decision. It must not be less those two (2) full days (i.e. 14 hours). It should contain lectures, plenary and symposium that allow presentation of the free papers, posters presentation or any related articles. Finally, the congress/ conference must involve speakers of international standing.

A2. SCIENTIFIC MEETINGS

This scientific meeting must be specific to nursing and may be less those two (2) hours to four (4) days or more of full days. Points are awarded accordingly to hours attended. The research papers must involve any local or international practitioner or academia. This scientific meeting should be able to disseminate new knowledge, practices, and methods of improvement of current practices. The main objective is to the sharing of knowledge and skills among participants.

A3. WORKSHOP/COURSES

This workshop or courses must be a competency related program. Its objective must be measurable in which a test or quiz administered for the verification of competency attained by the participants. And later, the product of the workshop can be used for the purposes as determined and verified by the technical committees. The workshop conducted should be of less than two (2) hours until more than seven (7) days. Participants will be awarded with three (3) points a day or may be counted using the criteria in A2 category (Scientific Meeting).

A4. CONTINUOUS NURSING EDUCATION (CNE) SESSIONS

The Continuous Nursing Education sessions can be in a form of lectures, forum, or seminar. It will be calculated on an hour basis.

WARD ROUNDS/LECTURES/CLINIC ATTENDANCE/JOURNAL CLUBS/TOPIC SEMINAR

The ward rounds inclusive of a CNE ward rounds, structured incidental teaching in the wards, case conferencing and also clinical meeting. For the ward rounds, credit points will only be awarded for participants form outside the hospital establishment such as the private nurse practitioners being verified by the CME chairman of institution.

For CNE ward round, Matrons as well as Sisters do their teaching rounds in another unit of service. In cases of a structured incidental teaching in the clinical areas (wards), it should be verified by the Matron who is in-charge of that unit.

For case conferencing, sisters and senior staff were the one to conduct case conferencing for nurses and house officers in their ward. Matron will verify case with the in-charge of that unit.

For clinical meeting, discussion should be based on diagnosis, nursing assessment and also on patient's care. Its im**plementation must be verified by Chairman of the session.**

A5. PRESENTATION AT AN ACCREDITED MEETING

Credit Points were awarded for participants involved with Poster Presentation, giving a plenary lecture (long paper presented more than 45 minutes), or even a visiting lecture. It also includes if you are the Chairman of that session either at local, national or international level.

For information, these credit points are in accordance with full attendance at the Medical Congresses by the delegate concerned. In addition, the attendee's audience should be nurse practitioners.

A6. PUBLICATION

Publication of original articles in Nursing Journal, bulletin, or report of each article and also any chapters in the book. For Nursing Journal it may be an indexed journal or it may also be a non-indexed journal written by the principal, author or others. In addition, an indexed journal is one, which has international standing and is listed in the Index Medicus or any similar indexing system.

For publication or original articles for chapter in a book, the credit points can be awarded up to a maximum of 10 points or each chapter. The publication of original articles is inclusive of an Editorial Board of any Journals, Bulletin, or Magazine. Credit points will be awarded either you are an Editor, Member of an Editorial Board, or involved with the Proof Reading.

A7. SELF STUDY / SELF DIRECTED LEARNING OR DISTANCE LEARNING OR A GROUP STUDY

Self study of Distance Learning includes reading any scientific papers from indexed journals or from audio-visual aids. To get the credit points documented, evidence with proper verification needs to be produced. Appropriate forms to be fill up. A summary of the article is to be countersigned by the first evaluator who has the right to ask questions regarding the article. This must be verified by a second evaluator. If journal clubs exist, active involvement and contribution of ideas from journal club members is encouraged.

For study group, it must be an organized group discussion organized or coordinated by an accredited coordinator and must be conducted with minimum of an hour. Documentation of evidence with verification needed to obtain credit points.

A8. CNE ON LINE – FOR REGISTERED USER

Any CNE done on-line basis need to be provided by a registered accredited provider, such as the Ministry of Health. To obtain credit points, evidence obtained by checking with the website. Participants must obtain a minimum of 60% to be awarded one (1) credit point per article or session. The CPD Board is ultimately responsible for accreditation of the providers.

A9. POST BASIC COURSES

Staff who had undergone post basic courses for a period of 6 months to a year will also to be given a credit points. These post basic courses should be conducted by relevant recognized authorities, local or international. It must be verified by the CPD committee and points are given only once, upon completion of studies.

A10. DEGREE, MASTERS PROGRAMS, POST GRADUATE PROGRAMMES, PhD, ADVANCED DIPLOMA / SUBSPECIALTY TRAINING

Staff who had undergone the above tertiary education for a specified time directed by the faculty will also to be given a credit points. Staff that are still undergoing this program are allowed to also get points from other CPD categories or sections.

A11. QUALITY PROJECTS

Any involvement as committee or project member of Quality Initiatives e.g. KMK, Innovations, TQM, Accreditation, ISO, etc. will be included for award a credit points. Other quality activities such as involving with research projects as researcher or collaborator as well as training activities as facilitator or trainer is also to be awarded credit points.

In addition, a staff that was identified to be a local preceptor with one (1) month to a twelve (12) months period will also be given a credit points.

NON – CORE BUSINESS

OTHER SELF – SUPPORTIVE ACTIVITIES FOR SELF DEVELOPMENT

Credit points will given for organizing a full day up to 3 days of any self – supportive activities for self development. Examples of such activities are an in-service training, workshop, seminar, technical or scientific meeting. **It is also inclusive if you participates or registered as a member of a Professional Body (e.g. Malaysian Nurses Association, Malaysian Nurses Union etc.).**

The CPD category of the self – supportive activities is categorized as follows:-

B1. EDITOR / MEMBER OF EDITORIAL BOARD AS REFEREE OR REVIEWER

Credit points will be awarded for the above activities pertaining to the production of journals, special reports, bulletins, newsletters etc.

B2. OTHER SUPPORTING ACTIVITIES RELATED TO PERSONAL DEVELOPMENT AND SELF INPROVEMENT

Examples of the above supporting activities are courses on management, Information Technology, Innovations etc. and as organizing committee or secretariat of any courses or in-service training.

These activities are not restricted to MOH functions only. For example, involvement in PIBG may also be considered. However, documented evidence with verification needs to be produced.

NOTE:

1. **Maximum points refer to maximum that will be accepted for each category, and will be taken into account for the annual CPD points. (e.g. attending 3 conferences in one year will only result in a maximum of 20 points being awarded).**

2. **For all activities, certificates of attendance, certified attendance lists, or other evidence for verification are required.**

CPD Credit Point System for Nurses / Midwifes

CPD Category	CPD Activity Description	Points per Activity	Criteria /Explanatory Notes	Maximum Points for Annual Consideration
A1	Congress / Conference (Local/ international)	20 per conference (3days) 15 per conference (2days)	A conference should: a. Be conducted not less than 3 full days, a full day being 5-8 hours. b. Involve speakers of international standing. c. Contain plenary lectures / symposia. d. Allow presentation of free communication / poster, etc.	20
A2	Scientific Meetings of Chapters of Academy/ Universities/ Colleges/Association /Institutions/ Ministry of Health & others a. Less than 2 hours b. 2-4 hours (1/2 day) c. 5-8 hrs (full day) d. 2 full days e. 3 or more full days.	1 point 2 points 3 points 6 points 10 points		20

CPD Category	CPD Activity Description	Points per Activity	Criteria /Explanatory Notes	Maximum Points for Annual Consideration
A3	Workshops/ Courses/ attachment etc. (include hands-on & skills courses) a. Half day (2-4 hours) b. Full day (5-8 hours) c. 2 full days d. 3 or more full days e. Skills accredited structured courses by specific disciplines (e.g. ALS, PALS, NRP, MTLS) f. Study Tour	4 points 6 points 10 points 15 points 20 points 5 points	For professional attachment, credit points are awarded to participants from outside the place of work, e.g. Tertiary Hospitals, University Hospitals.	30
A4	CNE sessions / other professional activities e.g. Topic seminar, Forum, Lectures, Journal Club, Formal ward rounds (teaching rounds), Clinic attendance, Hospital clinical meeting, Video show, Video conferencing, Reflective notes, Morbidity and mortality reviews, Epidemiological reviews	1 point / hour	For ward rounds credit points are awarded to participants from outside own hospital / establishment e.g. private practitioners, verified by the CPD Chairman of that institution.	20

CPD Category	CPD Activity Description	Points per Activity	Criteria /Explanatory Notes	Maximum Points for Annual Consideration
A5	Presentation at accredited meeting - Plenary lecture / long paper (> 45 min) Free paper / short paper. - Other lectures/talks e.g. visiting lecture, hospital clinical meeting, CNE sessions, public meeting, giving talk/public advice, Lectures to NGO/radio or TV talk, Technical briefing update. Chairman of sessions	10 points 5 points	These credit points are in addition to full delegate attendance at congresses, scientific meetings or workshops. Otherwise only credit points for presentation are attainable. Visiting lecture, where one is officially invited to give a lecture at venue / function away from one's principal place of practice.	20
A6	Publication of articles in journal/ chapters in book /reports a. Indexed/ Peer reviewed Journal (authors) b. Non-indexed journal (authors) c. Chapter in book - each chapter d. Reports e.g. Technical report, working papers, etc.	20 points 10 points 10 points 10 points	An indexed journal is one which has international standing and is listed in the Index Medicus or similar indexing system. Maximum for writing chapters in a book is 20.	30

CPD Category	CPD Activity Description	Points per Activity	Criteria /Explanatory Notes	Maximum Points for Annual Consideration
A7	Self study / Group study/Distance learning e.g. reading scientific papers from indexed journals, audio-visual, organized group discussion under accredited coordinator.	3 point / paper or discussion	Documented evidence (with verification) needs to be produced e.g. a) self study b)Documented evidence in form of synopsis/ evidence table.	20
A8	CME / CNE Online	1 point/ article or session	The CPD Board is ultimately responsible for accreditation of the providers.	20
A9	Post-basic courses a. 6 months b. > 6 months – 1 yr	15 points 30 points	These should be: a. Conducted by relevant recognized authorities - local or international b. Verified by the CPD committee c. Points are given only once, upon completion of studies.	30

CPD Category	CPD Activity Description	Points per Activity	Criteria /Explanatory Notes	Maximum Points for Annual Consideration
A10	a. Degree, Masters Programs, Postgraduate programmes (for each stage of examination passed) b. PhD/DrPH Advanced c. Diploma / Subspecialty training	50 points 50 points 50 points	Allowed to also get points from other categories / sections	50
A11	Involvement as committee or project member a. Quality Initiatives e.g. KMK, Innovations, TQM, Accreditation, ISO, etc b. Research projects (as researcher/ collaborator) c. Training activities (as facilitator/ trainer)	5 points for involvement in each area		20
B1	Editor Member of Editorial Board Referee/ reviewer (per article)	10 points 5 points 5 points	Pertaining to production of journals, special reports, bulletins, newsletters etc.	10

CPD Category	CPD Activity Description	Points per Activity	Criteria /Explanatory Notes	Maximum Points for Annual Consideration
B2	Other supporting activities related to personal development and self-improvement: Leadership, Management, IT, Organizing Committee/Secretariat, Innovation, Arts, music, Languages, Teamwork, Member of professional body, etc		These activities are not restricted to MOH functions e.g. involvement in PIBG may also be considered.	10
	a. Local level	2 points /activity	Documented evidence (with verification) needs to be produced)	
	b. State level	3 points /activity		
	c. National level	5 points /activity		
	d. International level	10 points /activity		

Note:

1. **Maximum points refers to maximum that will be accepted for each category, and will be taken into account for the annual CPD/PTK points (e.g. attending 3 conferences in one year will only result in a maximum of 20 points being awarded).**

2. **For all activities, certificates of attendance, certified attendance lists, or other evidence for verification are required.**

Verification of CPD Points by Supervisor

CPD Category	Verification Accepted
A1	Proof of attendance
A2	Proof of attendance (certificate or letter of participation)
A3	Proof of attendance (certificate or letter of participation)
A4	Proof from attendance records
A5	Certificate or Letter of appreciation for activity conducted
A6	Verified presentation or publication in programme book, abstract book, proceedings or journal
A7	Proof from CME provider or synopsis of article
A8	Proof from CME-online provider
A9	Proof of post-basic or other diploma certificate
A10	Certificate or exam result
A11	Letter of appreciation or appointment for activity
B1	Documentation of position held from journal or editorial board, or Letter of appointment
B2	Certificate or Letter of appreciation/appointment for activity

Document for Submission for PTJ to State CPD committee

To: Chairman State CPD Committee (State Health Director)

Summary of CPD Points Achieved For the Year:

Name and address of PTJ :

Comments and suggestions:

Head of PTJ Signature

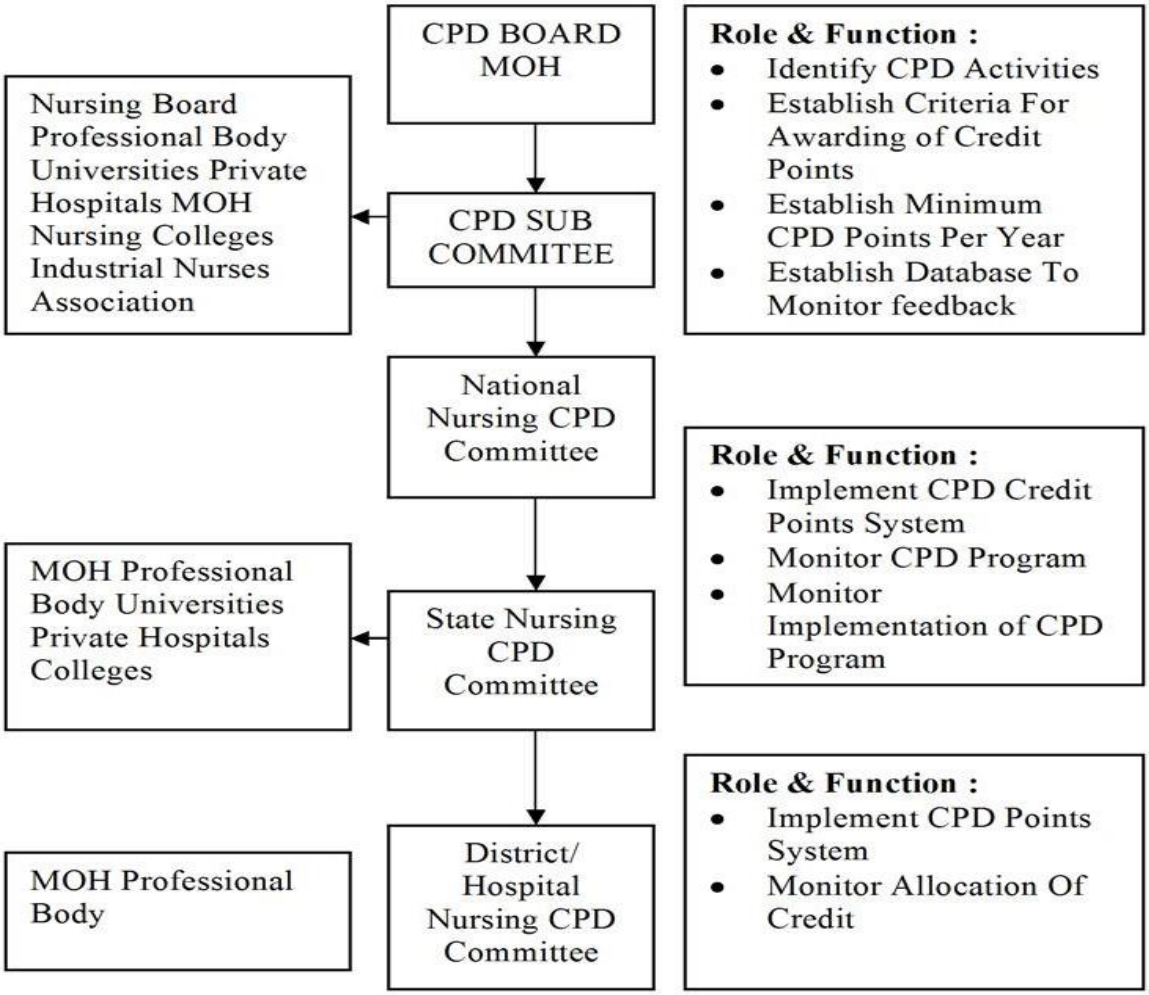
Head of PTJ Name:

Date :

Official Chop :

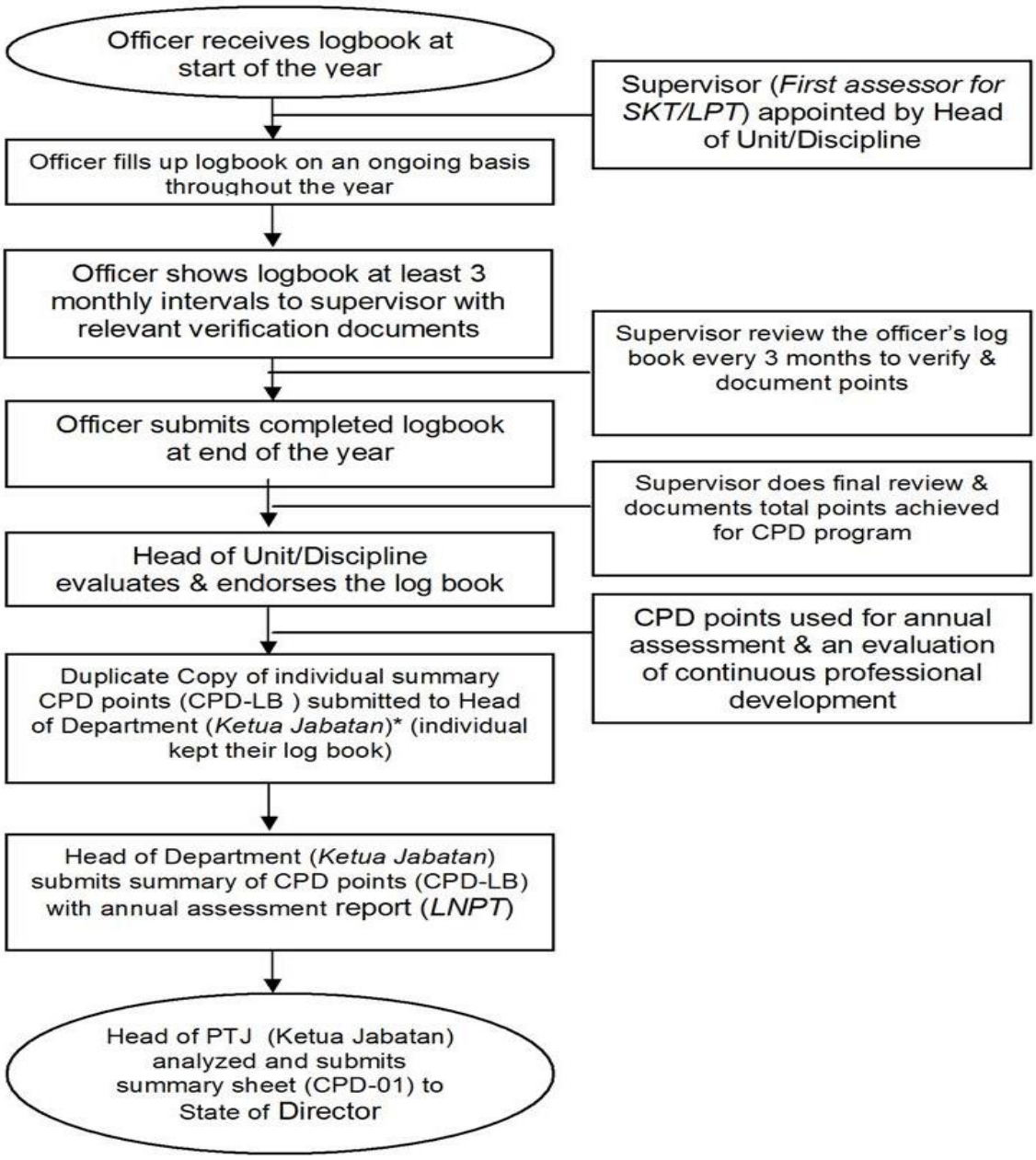
Appendix 1

STRUCTURE
CONTINUOUS PROFESSIONAL DEVELOPMENT
NURSING DIVISION / NBM



Appendix 2

Figure 1: Flowchart of the CPD Information / Data Collection & Management



Appendix 3

CONTINUOUS PROFESSIONAL DEVELOPMENT (CPD)

LOG BOOK FOR NURSES/MIDWIVES

YEAR: _____

PERSONAL BIODATA

Name: _____

I.C.No: _____

Appointment Date in MOH (*Tarikh Lantikan dalam Perkhidmatan*): _____/___/_____

Confirmation Date in Current Post (*Tarikh Pengesahan Jawatan Sekarang*): ___/___/__

Grade: _____

Position: _____

Places of Work in Current Year:

1. _____
2. _____
3. _____

Qualifications	Place of Training/University	Year

Record of CPD Activities

Name: _____ Designation: _____

I.C. No: _____ Supervisor's Name & Chop: _____

Table 1: Detailed Record of CPD Activities & Supervisor's verification
Please record all CPD activities in the table below. Use additional sheets of this same table to capture all CPD activities for the year.

To be filled by Officer				To be filled by Supervisor		
Date of CPD Activity	CPD Category (A1-11, B1-2)	CPD Activity Description (describe the course/activity/duration)	Course Organiser	Credit Points	*Method of Verification	Supervisor's Signature & date

Record of CPD Activities

Name: _____ Designation: _____----------_____

I.C. No: _____ Supervisor's Name & Chop: _____

Table 1: Detailed Record of CPD Activities & Supervisor's verification
Please record all CPD activities in the table below. Use additional sheets of this same table to capture all CPD activities for the year.

To be filled by Officer				To be filled by Supervisor		
Date of CPD Activity	CPD Category (A1-11, B1-2)	CPD Activity Description (describe the course/activity/duration)	Course Organiser	Credit Points	*Method of Verification	Supervisor's Signature & date

CPD-LB
(To Be filled in duplicate)

TO: HEAD OF DEPARTMENT/DISCIPLINE:

_____

_____

Individual Summary of CPD Points Achieved for CPD programme. For The Year _____

Name: _____

I.C. No: _____

Appointment Date in MOH: (date/month/year) ____ /___ /_____

Confirmation Date in Current Post: (date/month/year) __ /___ /_____

Position: _____ Grade: _____

CPD Category	Points Achieved for CPD Programme
A1	
A2	
A3	
A4	
A5	
A6	
A7	
A8	
A9	
A10	
A11	
B1	
B2	
Total Points	

Supervisor's Signature _____
Name:
Official Chop:

COMMITTEE

Advisor :	**Y. Bhg. Tan Sri Datuk Dr. Haji Mohd. Ismail Merican** **Director General Ministry Of Health Malaysia**
Chairperson:	**(Dr.) Hjh. Bibi Florina Abdullah** **Director of Nursing Malaysia**
Members:	**Ramlah Taha**
	Che Sayang Long
	Maureen Richard Lee
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