



## Access to, interest in and attitude toward e-learning for continuous education among Malaysian nurses



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### SUMMARY

**Background:** Continuous nursing education (CNE) courses delivered through e-learning is believed to be an effective mode of learning for nurses. Implementation of e-learning modules requires pre-assessment of infrastructure and learners' characteristics. Understanding the learners' needs and their perspectives would facilitate effective e-learning delivery by addressing the underlying issues and providing necessary support to learners.

**Objective:** The aim of this study was to examine access to computer and Internet facilities, interest in and preferences regarding e-learning, and attitudes toward e-learning among nurses in Peninsular Malaysia.

**Design:** The study utilized a cross-sectional descriptive survey.

**Setting:** Government hospitals and community clinics in four main regions of Peninsular Malaysia.

**Participants:** A total of 300 registered nurses.

**Method:** Data were collected using questionnaires, which consisted of demographic and background items and questions on access to computer and Internet facilities, interest and preferences in e-learning, and attitudes toward e-learning. Descriptive analysis and a chi-squared test were used to identify associations between variables. **Results:** Most Malaysian nurses had access to a personal or home computer (85.3%,  $n = 256$ ) and computer access at work (85.3%,  $n = 256$ ). The majority had Internet access at home (84%,  $n = 252$ ) and at work (71.8%,  $n = 215$ ); however, average hours of weekly computer use were low. Most nurses (83%,  $n = 249$ ) did not have an e-learning experience but were interested in e-learning activities. Most nurses displayed positive attitudes toward e-learning. Average weekly computer use and interest in e-learning were positively associated with attitudes toward e-learning.

**Conclusion:** Study findings suggest that organizational support is needed to promote accessibility of information and communications technology (ICT) facilities for Malaysian nurses to motivate their involvement in e-learning.

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### Background

The advancement of scientific discovery in medical and ICT, together with related societal change, have led to increased expectations by populations in various countries that, if required, they will have entry to high-quality patient care. Healthcare consumers are further demanding that nursing care be knowledge-based and that providers have technological expertise and be clinically competent (Levet-Jones, 2005). To ensure that nurses meet these expectations, broad access to well-designed (targeted CNE) programs is required. In many countries, CNE

has been recognized as a compulsory requirement of qualification to practice to maintain nursing care quality and minimize the risks for both patients and nurses. The Malaysian Nursing Board (MNB) has imposed 25 credit hours of mandatory CNE (MCNE) for registered nurses (RNs) to renew their license for practice, which is done annually (Nursing and Midwifery Board Malaysia, 2008), and mandates that CNE be available to nurses in both government and private institutions.

However, traditional methods of education such as conferences, workshops, and seminars have been found to deter nurses from participating in CNE due to financial and time constraints, lack of support from supervisors, peers, and organizations, and geographical factors (Chong et al., 2011). To increase the accessibility of CNE, e-learning has been recommended as an alternative to face-to-face education on the basis that it facilitate lifelong learning (Howatson-Jones, 2004; Karaman, 2011; Lahti et al., 2014). The flexibility, accessibility, and convenience of e-learning delivery provides nurses with increased

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opportunities to upgrade their knowledge. CNE courses delivered through e-learning therefore have potential to be effective. However, the implementation of CNE through e-learning requires nurses to have computer and information skills, sufficiently positive attitudes toward e-learning, computers and software, and access to infrastructure and technical support that is available, accessible, affordable, and functional. Accurate assessment of these requirements will help nursing educators facilitate effective e-learning delivery by addressing the underlying issues and providing necessary support. It will also be important for strategic planning and implementation of e-learning modules to assess nurses' perspectives, interest, and preferences regarding e-learning.

#### *Facilities and Information Technology*

ICT facilities, computer skills, and information skills are the fundamental requirements for learners to engage successfully in e-learning. Information literacy has become essential for nurses, alongside clinical skills (Button et al., 2013). In a literature review conducted by Button et al. (2013), lack of ICT skills was found to have an impact on learning among students in general. Similarly, technical difficulties with online resources and poor software capability were among the issues reported in a qualitative study, which showed that participants claimed that they needed training and hands-on support (Moule et al., 2010).

In addition, limited access to computers at clinical and placement settings, difficulties accessing the Internet from home, unreliable university computer systems, and lack of technical support discourage use of e-learning resources (Button et al., 2013; Moule et al., 2010). Therefore, providing adequate ICT facilities as well as technical support and training are important to encourage nurses' involvement in e-learning and enhance learning progress. Finally, computer self-efficacy and perceived ease of use also have positive effects in online nursing courses (Tung and Chang, 2008).

#### *Attitudes toward E-Learning*

The attitude of the learner is important and contributes to desirable learning outcomes. A positive attitude positively influences learning efficacy, motivation, and knowledge application as well as learning outcomes (Karaman, 2011). The majority of nurses and nursing students have positive perceptions of e-learning, identifying it as an essential component due to its flexibility (Moule et al., 2010), suitable for their working conditions and needs (Karaman, 2011). Similarly, positive attitudes toward web-based learning were also found in a study conducted among public health nurses in Taiwan, a public health context similar to Malaysia, implying that they see e-learning as a key method of in-service education (Yu and Yang, 2006).

In short, implementation of e-learning modules requires pre-assessment of both infrastructure and learner characteristics. This study examined Malaysian nurses' access to computer and Internet facilities, their interests and preferences regarding e-learning, and their attitudes toward e-learning.

The findings of this study provide valuable information to stakeholders in health care provision across the ASEAN region and the MNB in particular. It enables the MNB to plan CNE strategies by considering the opportunities offered by e-learning implementation.

## **Method**

### *Design*

This study was a cross-sectional descriptive survey. Cross-sectional surveys are an effective method for collecting information on the prevalence, distribution, and interrelationship of variables from large

populations. Thus, a survey approach was considered appropriate as it required the collection of data from a large sample of Malaysian nurses.

### *Setting and Participants*

A total of 300 RNs were randomly selected from 12 government hospitals and 24 community clinics in each of the four main regions of Peninsular Malaysia. All participants were registered with the Malaysian Nursing and Midwifery Board and had at least one year of nursing experience.

### *Data Collection*

Self-reported questionnaires were used to collect the data. A cover letter and a copy of the questionnaire were included with instructions to participants, who were asked to return the questionnaire in an author-prepaid envelope. In order to improve the response rate, a brief reminder was sent to all participants two weeks after the questionnaires were posted, via regular mail. The questionnaire consisted of demographic and background items, questions on access to computer and Internet facilities, interest and preferences in e-learning, and attitudes toward e-learning. Demographic and background information included gender, age, marital status, number of children, household income, years of experience as a RN, highest level of professional education, and type of institution they were currently employed. In addition, information regarding access to and use of computer facilities at work and home, average time using a computer weekly, access to the Internet, and computer usage (for example, email, browsing Internet, and word-processing) was collected. Participants were asked whether they had e-learning experience, and if so, what type. Participants who had not participated in e-learning were asked if they were interested in engaging in e-learning in the future. All participants were asked their preference for place (at home or at work), time (weekdays, weekends, or evening), course content, reasons for participating in e-learning, fields of interest, and e-learning methods.

Attitudes toward e-learning were assessed using a 28-item scale design, based on the literature review above. Items covered six main areas: use of computer, convenience and flexibility, interaction with facilitators and other students, access to knowledge, positive learning experience, and improvement to nursing care. Participants were asked to rate the extent to which they agreed or disagreed with each item using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Attitude scores thus ranged from 28 to 140, with scores of the median (100) and above considered to indicate positive attitudes toward e-learning. To confirm the content validity of the study, the questionnaire was reviewed by a panel of five experts with extensive experience in nursing education, online teaching, and questionnaire design. Each panel member was asked to comment on the wording and relevance of items, response format, and the overall design of the questionnaire. A content validity index (CVI) was used to compute the expert ratings or each item's relevance. The CVI for the total instrument is the proportion of items rated as either 3 or 4. A CVI of 0.80 or higher indicates good content validity. The overall CVI rating was 0.95, which indicates good acceptability, with a CVI for each item ranging from 0.82 to 1. A reliability analysis for the scale showed high internal consistency reliability, with a Cronbach's alpha of 0.93.

### *Data Analysis*

Data were analyzed using SPSS version 21. The frequency distribution of all variables was examined to check the accuracy of data input and identify the missing values. For descriptive analysis, frequency and percentage were used as categorical data points, and mean and standard deviation for continuous data. A chi-squared test was used to identify associations between variables.

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