

Development of teaching and learning in transcultural nursing for Cambodian nursing students using e-learning

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ABSTRACT

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The purposes of this research were to develop teaching and learning skills in transcultural nursing using e-learning for Cambodian nursing students based on an 80/80 criteria, study the need and readiness for e-learning before and after teaching and learning and study Cambodian nursing students' satisfaction with teaching and learning. In academic year 2018, 17 Cambodian nursing students from the University of Puthisastra, Cambodia, registered in the transcultural nursing program for the Bachelor of Health Sciences, Nursing Bridging program at Saint Louis Collaage, Thailand. The tools used for the research included learning needs and readiness assessment form, a knowledge assessment form, and a satisfaction assessment form on teaching and learning using e-learning. The results revealed that the subjects' achievements from learning in transcultural nursing using e-learning during their learning and post-learning periods, based on 80/80 criteria, were better. The average scores of readiness and need for teaching and learning using e-learning in the post-test were significantly greater than the pre-test. The subjects' satisfaction from teaching and learning in transcultural nursing using e-learning was at a good level. The findings indicated that interesting and suitable teaching and learning encouraged learners to pay attention to learning, leading to further study and research apart from lessons, and trying to solve problems and obstacles so that learning continues. As a result, students will have fun, feel happy, and understand their lessons more completely. Therefore, teaching and learning using e-learning is a learning style that may suit learners in the modern age, whereby development must be focused on further enhancement.

Keywords: development of teaching and learning; e-learning; transcultural nursing

1. INTRODUCTION

Currently, computer and internet technologies have developed rapidly as the world becomes technology-aided in almost all aspects. With education in particular, technology has become a significant tool for changing teaching and learning styles, training, and technology

(Puengchompoo and Panuthai, 2014). Due to new technologies arising in a timely manner, technologies have been applied to concrete teaching and learning in foreign countries since 1955 using computer-assisted instruction (CAI), which has led to the development of e-learning strategies, including the process and utilization of teaching and learning via the web, computer-assisted instruction,

virtual classrooms, and cooperative learning using digital tools. It also includes internet-based learning, intranet-based learning, network-based learning, audio-based learning, image-based learning, satellite-based learning, television-based learning, and CD ROM-based learning. In 2001, e-learning was applied to the teaching and learning of multi-fields, including nursing education in Finland, Japan, India and Africa (Manuela and Fernando, 2013). Information and communication technology (ICT) has changed the education scenario in India in the last few decades (Digital Learning Network, 2017) by emerging as one of the most efficient tools used in the learning process by both teachers and learners. Davila Huerto and Hasegawa (2015) also reported that, in Japan, the integration of technology in education is considered a key reform. Japan has introduced important policies for the integration and use of ICT in schools to provide equal opportunities for all students. The National Council on Educational Reform documented the introduction of ICT in Japanese education in 1985. The vision for ICT in education; towards the creation of a learning system and schools suitable for the 21st century, was a comprehensive policy on the utilization of ICT in education moving toward 2020.

Thailand is also more interested in consistently developing its information technology, as seen by the government's strategy on the use of ICT and the determination of connectivity in order to develop Thailand into a learning and wisdom society so that Thailand can be a strong and capable country to efficiently meet competitive challenges in this new economic system of globalization. A web-based educational management map has been developed continuously and is used for teaching and learning to provide knowledge and understanding via online systems in the form of websites (Mankong and Krachangsri, 2016). In addition, e-learning is stressed in particular for generations Y and Z, who are familiar with technology-based communication, e.g., e-mail, blogs, social media. Therefore, online-based or e-learning is an appropriate learning alternative because learners can learn in accordance with their abilities and interests. The content of lessons comprises statements, images, audio, video and other multimedia, which will be transmitted to learners via web browsers. Learners, teachers, and colleagues can communicate, discuss, and exchange their comments similar to a regular classroom, even in remote areas, based on modern communication tools.

Management of teaching and learning using e-learning for foreign students in the nursing course is a new and challenging issue in terms of content and methodology, as well as teaching and learning styles. Lecturers using e-learning have studied, planned and prepared the content properly, as well as organized numerous rehearsal meetings to evaluate the possibility of teaching and learning management using e-learning to be effective.

The objectives of this study were to develop teaching and learning for transcultural nursing using e-learning for Cambodian nursing students, study the need and readiness for the pre-learning and post-learning, and study students' satisfaction with teaching and learning.

2. MATERIALS AND METHODS

This research used one group utilizing a pre-test/post-test design, which comprised of two phases. Phase 1 included

the study of need and development regarding teaching and learning using e-learning. Phase 2 included one group with a pre-test/post-test design, which was carried out between September and December of 2018.

The population and samples incorporated all 17 nursing students registered in the transcultural nursing program for the Bachelor of Health Sciences, Nursing Bridging Program at Saint Louis College in Academic Year 2018. Since all participants were Cambodian students studying at the University of Puthisastra, Cambodia through cooperation in teaching and learning management between both universities, the researcher selected all those students as the population and samples for this project.

As for the protection of participants' rights, the researcher explained their rights to the project participants, who were pleased and voluntarily provided information. Participant information was kept confidential and used for this research only. The results of the research would be reported as the overall research results and no specific people would be identified. This would not affect their regular courses of teaching and learning. Participants were asked to sign their names on the informed consent form prior to the research.

2.1 Materials

E-learning lessons for transcultural nursing based on textbooks were used by the researcher to prepare teaching and learning plans. They included the determination of learning objectives, selection of content, determination of teaching and learning activities, selection of teaching aids, as well as measurements and evaluations. As for teaching and learning management throughout the semester, the content was divided into four parts as follows: lesson in the theory of transcultural nursing (three hours per week), lesson in cultural nursing (three hours per week), lesson in cross-cultures (three hours per week), and lesson in culturally-based nursing care modalities (three hours per week), and finally, a group assignment with presentation (three hours on the last week).

The lesson in transcultural nursing using e-learning that was developed and reviewed by three experts on teaching and learning development using e-learning and two experts on transcultural nursing. Afterward, the e-learning lesson that was revised as suggested, was used with nursing students at Saint Louis College in order to test its efficiency.

2.2 Tools used for collecting data

Four tools were used for data collection.

2.2.1 A knowledge assessment form is an achievement test of samples during learning and post-learning of the transcultural nursing subject. It is an objective test comprising 40 questions with four multiple choice items. The test is comprised of four areas (10 questions per area): theory of transcultural nursing, cultural nursing, cross cultural, and culturally based nursing care modalities. The scores derived validity test were used to analyze difficulty, discrimination, and reliability. The tests with difficulty ranging from 0.20-0.80 and discrimination above 0.3 were selected. The reliability of the knowledge assessment form was 0.83.

2.2.2 An assessment form of need and readiness for learning is a questionnaire consisting of 25 questions, each

of which has five multiple choice answers. This form was improved on by the researcher based on Guglielmino's Self-Directed Learning Readiness Scale (1997) with a Thai language version adjusted by Manodee (2005).

2.2.3 Effectiveness refers to an average percentage of scores from exercises during learning (E1) and after learning (E2) in transcultural nursing.

2.2.3.1 E1 refers to effectiveness of the teaching and learning process of transcultural nursing with average scores from exercises during learning.

2.2.3.2 E2 refers to effectiveness of the teaching and learning process of transcultural nursing with average scores from exercises after learning.

2.2.4 A satisfaction evaluation form for teaching and learning using e-learning consists of 10 questions, each of which has five answer choices to measure the satisfaction of Cambodian student samples with teaching and learning. This satisfaction evaluation form is based on criteria as follows (Srisa-ard, 2010):

- Average scores of 4.51-5.00 refer to best
- Average scores of 3.51-4.50 refer to very good
- Average scores of 2.51-3.50 refer to good
- Average scores of 1.51-2.50 refer to poor
- Average scores of 0.00-1.50 refer to poorest

2.3 Data analysis

The efficiency of lessons on transcultural nursing using e-learning was analyzed using E1/E2, which scores from the assessment during the teaching and learning processes and from the final examination after finishing the course. Data was analyzed from the satisfaction evaluation form on teaching and learning management using mean scores (\bar{x}) and standard deviation.

Different scores of the need and readiness for learning, satisfaction to teaching and learning of the transcultural nursing during the learning and post-learning were tested using the learning test and one group pretest-posttest

design based on the dependent-samples t-test or paired-samples t-test.

3. RESULTS

The results of Cambodian nursing students learning transcultural nursing based on an 80/80 criteria. In the research, the researcher tested with 17 Cambodian nursing samples comprised of eight male and nine female students, aged between 20 and 30 years. Most of them had 5-10 years of experience in nursing. The scores from the test during learning and the post-test to analyze achievement based on an 80/80 criteria using the formula E_1/E_2 , are shown in Table 1. The results revealed that efficiency (E_1/E_2) in the use of e-learning for transcultural nursing amounted to 83.15/88.02. This means that teaching and learning in transcultural nursing using e-learning achieved the specified criteria.

Additionally, Cambodian nursing students' achievements in all lessons also met the criteria, as shown in Table 2. The results of the research revealed that, as for the students' need and readiness for learning, the average scores of samples in the pre-test were moderate (\bar{x} of 2.45 and 2.33, respectively). The comparison of Cambodian nursing students' readiness and the need in learning using e-learning in the pre-test and post-test indicated that the scores of the samples related to need and readiness were significantly different ($p < 0.05$). Their scores of need and readiness for learning using e-learning in the post-test were higher than those in the pre-test, as shown in Table 3.

As for opinions and learner satisfaction teaching and learning using e-learning, the opinions concerning teaching and learning using e-learning were at a good level ($\bar{x} = 3.04$, $SD = 0.39$). Concerning the lessons using e-learning, their opinions were at a good level ($\bar{x} = 2.97$, $SD = 0.60$). The opinions on evaluation of e-learning were also at a good level ($\bar{x} = 3.01$, $SD = 0.56$). Finally, the satisfaction with teaching and learning using e-learning was also at a good level ($\bar{x} = 3.01$, $SD = 0.43$).

Table 1. Efficiency of learning transcultural nursing via e-learning

Topic	Exercises during learning			Exercises after learning			Efficiency (E_1/E_2)
	Number of questions	\bar{x}	E_1	Number of questions	\bar{x}	E_2	
Theory of transcultural nursing	10	8.21	82.10	10	8.99	89.90	82.10/89.90
Cultural nursing	10	8.34	83.40	10	9.05	90.50	83.40/90.50
Cross-culture	10	8.47	84.70	10	8.65	86.50	84.70/86.50
Culturally based nursing care modalities	10	8.24	82.40	10	8.52	85.20	82.40/85.20
Total	40	33.26	83.15	40	35.21	88.02	83.15/88.02

Table 2. Comparison between need development and readiness for learning

Information	Pre-test				Post-test				t	p-value
	Min	Max	\bar{x}	SD	Min	Max	\bar{x}	SD		
Readiness for learning	1.20	3.64	2.45	0.69	2.11	3.8	2.99	0.60	2.49*	0.02
Need in learning	1.20	3.20	2.33	0.55	2.10	3.9	2.97	0.66	2.76*	0.01

Note: *statistically significant at the 0.05 level

Table 3. Results of satisfaction to teaching and learning using e-learning

Data	\bar{x}	SD	Opinion level
1. Opinions towards learning using e-learning	3.04	0.39	Good
- Lessons in learning using e-learning	2.97	0.60	Good
- Evaluation in the form of e-learning	3.01	0.56	Good
2. Satisfaction to learning using e-learning	3.01	0.43	Good

4. DISCUSSION

The findings of the research indicated that the efficiency of transcultural nursing using e-learning was 83.15/88.02. This showed that the achievement of the lessons in transcultural nursing, the theory of transcultural nursing, cultural nursing, cross-culture and culturally based nursing care modalities met the criteria. This may be because current learning via modern technology can help students pay attention to a wide variety of presentations and can make students understand the difficult and complicated lessons. Furthermore, e-learning stimulated students to continuously search for knowledge before and after learning. Consequently, e-learning of transcultural nursing for Cambodian nursing students was deemed efficient. This is in line with Wajanawisit (2015) on the development of e-learning using information technology, with 100 samples of students in an e-learning environment. With respect to the average achievement scores before and after learning, the average scores of the students after learning were significantly different ($p < 0.05$) from those before learning. The efficiency of e-learning lessons was 85.90/80.80 based on 80/80 criteria.

When considering the need and readiness for learning, the need and readiness had developed. The average scores related to the readiness and need in e-learning after the test were statistically significantly higher than those before the test ($p < 0.05$). This implied that the samples were interested in e-learning, which is currently popular as it has applied various media to integrate knowledge via the internet to educational management. Learners are able to learn at any time and place. They can also communicate with lecturers more conveniently. This is in accordance with teaching and learning theories based on student-centered learning, whereby learners aim to play a greater role or take part more in teaching and learning. Learners will learn by practicing, solving problems or studying on their own and applying knowledge for their benefit. Teaching and learning using e-learning was a new issue for the samples who were not familiar with this learning style although basic facilities, e.g., computer systems, and internet signals were not quite good. However, everyone made an effort to tackle problems so that teaching and learning could go as smoothly as possible. In addition, students might be worried about teaching and learning nursing, as its content was rather difficult and had a lot of details. They also concerned about communication via the internet. But after experiencing e-learning, they realized that this problem was not an obstacle to learning at all. The design and development of lessons were carried out step by step and systematically. The quality of lessons was audited and evaluated by experts before being used. The content of lessons and each topic contained photos with visual communication and were related to the content. As a result, learners could understand and remember the content more (Clark and Mayer, 2003). Vocabularies or key statements were highlighted with bold letters or attracting colors. This could help learners to learn without becoming bored. Such teaching and learning were convenient and efficient, even for subjects that were difficult and had many details. Therefore, the scores of readiness and need in teaching and learning using e-learning from the post-test were significantly higher than those from the pre-test. This is consistent with Kimsungnoun and Pethtang (2016) on the application of electronic

teaching media affecting the achievements of nursing students, which stated that the efficiency of electronic teaching media was 84.52/86.91 and thus higher than the 80/80 criteria. Additionally, their achievements were significantly higher than those in the pre-test. Research by Boonyaporn et al. (2015) on the comparison between teaching with additional lessons on the internet and teaching, without lessons on the internet and teaching without lessons on the internet (control group) for material and newborn nursing and midwifery II revealed that. The average scores of the experimental group, who had lessons on the internet, differed from the control group ($p < 0.01$). The average scores of the experimental group increased by 30.8% while the scores of the control group increased by 8.52%.

Regarding comments and satisfaction to e-learning, the learners' opinions and satisfaction to e-learning were all at a good level. This is because the teaching and learning environment has taken into consideration that it is easy to use, convenience and easy to understand. As for the content, information and teaching and learning styles have made the learning atmosphere stimulating and unborning. In addition, teaching and learning using e-learning is a new and popular topic in the current age. New and strange experiences from teaching and learning using e-learning have made students eager and interested in learning. This is a major reason for positive student attitudes and good satisfaction with e-learning. This is consistent with Sethabouppha et al. (2016) on the development of teaching and learning models by integrating the e-learning course for nursing students. This mode of learning is for all: anyone, anywhere and anytime. The study by Kimsungnoun and Pethtang (2016) on the application of electronic media affecting the achievements of nursing students revealed that their satisfaction to electronic media was at a high level. Wajanawisit (2014) on the development of e-learning lessons using information technology indicated that the overall satisfaction of students using this lesson was also at high level.

In addition, interviews with learners indicated that overall learning using this method could save time. Learning could be done anywhere and at any time. The lessons were clearly explained, including exercises, which the students were plainly satisfied with. However, they have had to force themselves to have discipline in self-study. As for real time teaching, most of the students wish that the university's internet systems would be improved so that learning management systems could be better. The problems arising included internet issues, which made communication difficult between learners and lecturers, or sound problems during real time teaching. Thus, they could not pose questions as much as they would have liked.

5. CONCLUSION

It is evident that teaching and learning transcultural nursing using e-learning for Cambodian nursing students proved that it is possible to be able to help teaching and learning be effective and support flexible teaching and learning based on learner-centered learning. This is especially convenient for learners, who can access their lessons at any time. This can develop learners' desire to learn and study information from various sources properly. The lessons can be adjusted to suit the

environment of both learners and lecturers, as well as facilitate communication between learners and lecturers to promote efficiency.

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