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ผลการจัดการเรียนแบบผสมผสาน ในวิชาการพยาบาลมารดาทารกและการผดุงครรภ์ 1 ต่อผลสัมฤทธิ์การเรียน ความพึงพอใจ* และการเรียนรู้ด้วยตนเอง ของนักศึกษาพยาบาลศาสตรบัณฑิต*

The impact of blended learning on learning achievement, satisfaction, and self-directed learning among nursing students

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บทคัดย่อ

ผลสัมฤทธิ์ทางการเรียนและความพึงพอใจในวิชาการพยาบาลมารดาทารกและการผดุงครรภ์ยังเป็นปัญหาในการจัดการเรียนการสอนของหลักสูตรพยาบาลศาสตร์ การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาผลการจัดการเรียนแบบผสมผสานในวิชาการพยาบาลมารดาทารกและการผดุงครรภ์ 1 ต่อผลสัมฤทธิ์การเรียน ความพึงพอใจต่อการจัดการเรียนการสอนและการเรียนรู้ด้วยตนเอง ของนักศึกษาพยาบาลศาสตรบัณฑิต จำนวน 106 คน เครื่องมือที่ใช้รวบรวมข้อมูลเป็นแบบสอบถามความพึงพอใจ การเรียนรู้ด้วยตนเอง และแบบบันทึกผลสัมฤทธิ์การเรียน วิเคราะห์ข้อมูลโดยใช้ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน และสถิติการทดสอบค่าที ผลการวิจัยพบว่า ร้อยละ 9.43 ของนักศึกษา มีคะแนนผลสัมฤทธิ์ทางการเรียนผ่านเกณฑ์การสอบร้อยละ 60 ของคะแนนทั้งหมด คะแนนเฉลี่ยความพึงพอใจโดยรวมอยู่ในระดับมาก ($\overline{X}$= 4.04, S.D. = 0.58) และ คะแนนเฉลี่ยการเรียนรู้ด้วยตนเองหลังการจัดการเรียนแบบผสมผสานเพิ่มขึ้นอย่างมีนัยสำคัญทางสถิติ (t = 2.03, p < .05) การเรียนแบบผสมผสานช่วยส่งเสริมให้ผู้เรียนมีความพึงพอใจต่อการเรียนและเรียนรู้ด้วยตนเองมากขึ้น ซึ่งแตกต่างจากการสอนทั่วไปที่เน้นผู้สอนเป็นศูนย์กลาง

คำสำคัญ: การเรียนแบบผสมผสาน ผลสัมฤทธิ์ทางการเรียน ความพึงพอใจ การเรียนรู้ด้วยตนเอง นักศึกษาพยาบาล

Abstract

The levels of learning achievement and satisfaction in maternal child nursing and midwifery nursing courses still remain the problem in nursing education. This research aimed to examine the effects of blended learning in maternal child and midwifery nursing teaching on learning achievement, student satisfaction,

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and self-directed learning among nursing students. The sample consisted of 106 nursing students.Data were collected using questionnaires and learning achievement evaluation forms. These were analyzed using percentage, mean, standard deviation and a dependent paired t-test.The results revealed that only 9.43% of students passed60 percent of the examination criteria. The total mean score of satisfaction of the blended learning was high ($\overline{X}$= 4.04, S.D. = 0.58). The students had a significant higher mean score of self-directed learning after incorporating within the blended learning methods (t = 2.03, p<.05). Blended learning was able to promote students' learning satisfaction, self-directed learning, and should make different from a common teacher-centered learning.

keywords: blended learning, learning achievement, satisfaction, self-directed learning, nursing student

Introduction

Nursing education is very important for building nurses profession. It enables future nurses to learn and develop themselves, improves research capabilities, aids analysis abilities, and enhances a synthesis of reflective and creative thinking skills[1]. Blended learning is a new model of integration between computer and regular learning and teaching[2]. This teaching model aims to provide teachers with the ability to build an appropriate learning environment and atmosphere while being able to select effective teaching methods. It provides channels of communication and promotes: a students' ability to learn; better organization of learning and teaching activities; and flexibility that accounts for each learner uniqueness to obtain the best outcomes[3].

Boromarajonani College of Nursing, Khon Kaen, is an educational establishment under the Praboromarajchanok Institute, Ministry of Public Health. The organization emphasizes various models of teaching and learning to enable students to gain nursing competencies. The implementation of a blended-learning approach is consistent with the education provided by nursing colleges under the Ministry of Public Health, which use an integrated learner-centeredcurricula. The maternal, child and midwifery nursing departments have a principal duty to organize learning and teaching maternal both theoretically and practically. These enable students to provide nursing care to women during pregnancy, intrapartum and postpartum periods. This includes the care of newborns in normal conditions and those with complications. Within the organization's nursing courses, it was found that as students' studies advanced their learning achievements worsened. This was particularly evident in the Maternal, Child and Midwifery Nursing 1 course: the care of pregnant women in the parturient, postpartum and normal newborns stages. The content of this course is intensive and difficult perhaps accounting for students' worsening performances.Many learning and teaching models have been used to improve learning achievement and satisfaction in lessons. However, some problems remain. For example the attainment of a low grade can hinder students' attitudes towards the subject, resulting in less self-directed learning and further deterioration of their future success.

Blended learning is an alternative for more traditional methods. Its development is based on self-directed learning in which the learner is satisfied with the course being taken, the curriculum, as well as the knowledge gained the resulting learning achievement. Thus, it can be used for the development of competencies in learning achievements and thus midwifery. Many research studies concerning the outcomes of blended learning in nursing courses have revealed that the levels of satisfaction and learning achievement levels increased. It promoted practical nursing skills and enhanced information technology (IT) competency[4-7]. However, these studies on the blended learning outcomes were limited to foundation courses. It is yet to be extended to cover professional nursing courses such as those within the maternal, child and midwifery specialties.

To study the outcomes of the implementation of blended learning, the researchers chose a method for lessons whose content consisted of fundamental nursing knowledge. A form of online classroom learning (internet-based learning modules) was the focus. An IT laboratory and blended self-directed learning were used in this study. It was believed that conducting blended learning would result in self-directed learning. This may in turn lead to a more positive attitude towards the course and more accomplished graduates-outstanding newly qualified professional nurses within the maternal, child and midwifery specialties that better meet the defined standards.

Research Objectives

Specific Objectives

1. To study the learning achievement of student nurses after participating in the blended learning of the Maternal, Child and Midwifery Nursing 1 course

2. To study the mean score of satisfaction with the blended learning of nursing students after the experiment

3. To compare the mean score of self-directed learning of nursing students before and after the experiment

Research Method

The method was comprised of a pre-experimental research study employing a sample group and a pretest-posttest design.

Population and Sample

Population

- Six nursing instructors who teach the Maternal, Child and Midwifery Nursing 1 course.

- One hundred and eleven3rd year Bachelor of Nursing Science students.

Sample

Sample Selection

1. Of the nursing instructors, five were gathered as a result of consecutive sampling. This was based on the following criteria: 1) being a Maternal, Child and Midwifery Nursing 1instructor; 2) being whiling to voluntarily recognize problems relating to learning and teaching within organization; 3) be whiling to voluntarily implement a blended learning model; and 4) being whiling to evaluate the use of the model. Data collection was conducted through meetings and discussions. In this step the

researcher needed to assess students' opinions and needs and endeavor to provide their interpretation. Therefore, the number of those present within meetings and discussions ranged from 6 to 12[8].

2. Of the students, one hundred and eleven were gathered using consecutive sampling based on the following criteria: 1) being a 3rd year Bachelor Nursing Science student registered in the Maternal, Child and Midwifery Nursing 1 course; 2) being willing to take part throughout the 15-week research period. Five of the 111 recruited participants were excluded from the study as they failed to complete their questionnaires.

Research Materials

1. The research sources used were through the experimental blended learning online system. Data were collected from discussions on domestic and international academic articles, two-way demonstrations (teachers and students), meetings between teachers and students in the Maternal, Child and Midwifery Nursing 1 course using electronic media or within a traditional class setting. Blended learning was implemented in three lessons: 1) basic knowledge of parturition; 2) maternal nursing during the parturient period in the 1st stage of labor; and 3) nursing in theparturient period in the 2nd and 3rd stages of labor.

2. The instruments for data collection were divided into 4 parts.

Part 1: Demographic data with age and sex as well asa student's grade point average (GPA).

Part 2: A satisfaction with blended learning questionnaire, adapted from related documents and research, was employed to ascertain the students' satisfaction levels with blended learning. It consisted of 3 aspects with a total of 20 items: 1) general learning atmosphere; 2) learning activities; and 3) benefits received. The questionnaire employed a 5-level rating scale, ranging fromhighest to lowest [9].

Part 3: The Self-Directed Learning Readiness Scale for Nursing Education questionnaire, which the researcher adapted from the Self-Directed Learning Readiness Scale for Nursing Education (S.D.LRSNE) byFisher, King, and Tague (2001) [10]. It consisted of 8 aspects with a total of 55 items: 1) the provision of learning opportunities; 2) the self-concept of being an efficient learner; 3) the initiative taken for self-directed learning;4) the responsibility for self-directed learning; 5) the general passion of learning;6) the use of creative thinking; 7) an optimistic view of the future; and, 8) the ability to use problem solving skills. These 8 aspects comprisedof a 5point rating scale,including mostly true, very true, true, partly true and least true.

Part 4: The records of learning achievements from the test results of the indexed lessons.

The reliability of data gathering instrumentswasperformed using a pilot test from 30 fourth year nursing students (the 17th class of the Bachelor of Nursing Science Program). The Cronbach's alpha coefficient was used to assess the reliability of the satisfaction levels and the self-directed learning questionnaire results with alpha coefficient of 0.76 and 0.87 respectively.

Data collections were in accordance to 5 steps of preparation.

1. Analysis and planning

1.1 The analysis of supportive resources for activity organization, students' needs, the general

planning required, implementation, testing and evaluation, and the college's requirements were involved.

1.2 Meetings were conducted with teaching staff to create lessons that reflect the content for blended learning method. Three out of thirteen lessons of the subjects were selected (see research material section).

2. Design

Learning objectives were set for each lesson. The learning characteristics were designed to emphasize self-directed and mentor-learner learning. This was intended to facilitate students by clarifying the use of information and its applications within learning organization as well as use within the actual online classrooms.

3. Blended learning development

3.1 The use of some asynchronous toolswas implemented, for instance, e-mails, blogs, forums and interactive conversations. These tools were browser based and implemented in accordance to learning progress monitoring systems, follow-up systems, examinations, and participatory coaching.

3.2 Face-to-face interactions were present such as those used within a traditional classroom teaching.

3.3 Teaching plans were formulated and submitted to the experts to examine for validity and accuracy.

3.4 The study was approved by the Institutional Review Board of Boromarajonani College of Nursing, Khon Kaen (number 2015-08-01). All students were informed of the study's purpose which included what study participation would involve; any anonymity and confidentiality issues, and the right to withdraw from the study at any time without repercussions. Students were also given the primary investigators' contact information should they have questions or concerns.

Research Step

4. Implementation

4.1 Self-directed learning data were collected from the participants for a pretest.

4.2 The researcher incorporated blended learning in the set lessons. Half of the selected lesson contents were presented as traditional classroom interactions consisting of lecturing, presentation, discussion, teacher-student meetings, and an examination. The remaining content was implemented through a Google classroom which encompassed online group work sheets, online discussion, the reading research articles, VDO presentations, demonstrations and other electronic media.

4.3 Lessons were taught each week through lectures totaling 12 hours (2 hours on 6 occasions). Once lectures were concluded, researchers created a Google classroom inviting relevant students and teachers. This stage sought to: assign students a group project to create a video on the 1st - 3rd stages of nursing caredelivery; to give an opportunity to share lesson handouts; to provide a mean of teacher-student communication; and to provide an opportunity to practice for the subsequent examination.

4.4 During Google classroom sessions, each video was evaluated, discussed, and returned with comments. Students could ask questions, discuss and create dialogs online among teachers and their classmates. Teachers returned to Google classroom at least three times daily in order to respondto any student issues. In addition, teachers promoted

self-paced learning through the recommendation of external learning materials or websites.

4.5 A Google classroom was open until the conclusion of the semester (a total of eight weeks). Singh (2003)[11] and Khan (2005)[12] stated that blended learning may include several learning tools, such as real-time collaboration software, web-based courses and traditional face-to-face classroom interaction. Therefore, the use of different learning media was advantageous by increasing students' opportunities for self-directed learning and the level of learning and teaching satisfaction. Data were collected from participants on the project's conclusion along with a posttest. The use of the initial questionnaire was omitted.

5. Evaluation

The learning achievements were compared with the standard scores. Descriptive statistics were used to assess the demographic data and responses to each item of the questionnaires. The number and percentage of students who achieve the 60% passed-grade criterion were then determined. Satisfaction levels were analyzed from a mean score and standard deviation. The mean difference of self-directed learning was tested using a dependent paired t-test. This test was comprised of an interval scale of each subject that was measured twice.

Results

The majority of students were aged 20 (47.71%), female (92.45%), and had achieved a GPA between 3.01 and 3.50 in their 2nd year of study (55.65%). Nearly 10% of students (9.43%) passed the 60% criteria of the lessons. The sample showed a level of satisfaction with a mean score of 4.03 (S.D. = 0.58). The aspect that revealed the highest satisfaction level was the learning and teaching atmosphere, with a mean score of 4.08 (S.D. = 0.55).Firstly, it was found that the atmosphere increased learning enthusiasm, induced novel ideas and provided opportunities for students to complete activities freely ($\overline{X}$= 4.21, 4.09, 4.07, S.D. = 0.62, 0.74, 0.74 respectively). Secondly, the learning activities promoted the exchange of knowledge and ideas that helped students understand content and gave them opportunities to express opinions ($\overline{X}$= 4.14, 4.08, 4.07, S.D. = 0.75, 0.79, 0.76 respectively). Finally, the benefits received included: giving students an opportunity to work with others, the provision of better learning organization aiding the understanding between classmates, and the provision of better learning organization that helped students build self-taught understanding ($\overline{X}$= 4.23, 4.07, 4.04, S.D. = 0.69, 0.68, 0.72 respectively).

The sample had a high level of self-directed learning ($\overline{X}$= 3.45, S.D.=0.41) as well as an overall posttest mean score ($\overline{X}$= 3.56, S.D.=0.49). Segregated, the items with the highest mean scores were the love of learning, self-esteem levelsas an efficient learner, an optimistic view of future progression, and confidence using study and problem solving skills($\overline{X}$=3.94, 3.91, 3.70, S.D.=0.68, 0.60, 0.78 respectively). There was a significant difference between the average mean pre- and posttest self-directed learning scores (t = 2.03, p = 0.045).

Discussion

1. Learning achievement after blended learning participation

Only a small number of students met the pass criterion. This may have been caused by a lack of perceived readiness of the students to participate and learn through a blended learning method. Students may have experienced problems accessing the Google classroom such as a poor internet signal, insufficient computer or mobile phone access, or unfamiliarity with IT systems. Moreover, studying within self-assigned large groups might have been a contributing factor. Blended learning consists of various methods to help students access content conveniently without the limitation of time and place[2]. This may induce meaningful learning among students[13] with a more active role[14]. However, our low posttest scores contradicted to various studies. A study in Iran using blended learning in Bachelor of Nursing Science, Master of Nursing Science and Doctor of Nursing Science students revealed that a posttest mean score was significantly higher than a pretest mean score (p<0.001) in all the three curricula[15]. Moreover, a study in Thailand found that blended learning in the Photograph Technology for Education course showed an increase in the learning achievements with statistical significance at a 0.05 level[16].

On the other hands, some studies have found no statistically significant differences in student learning achievements when compared to regular teaching approaches. Gagnon, Gagnon, Desmartis, and Njoya (2013)[17]indicated that the mean scores before and after blended learning in the first year students for Bachelor of Nursing Science program at Laval University, Canada, did not differ from the mean scores of students within regular classes. It was found, however, that in the group with low motivation, students in blended learning classes were able to perform better than when participating in regular classes. This was consistent with studies conducted in Egypt[18] and the US which found no statistically significant differences in the learning achievements when compared to regular classes[19].

From the studies mentioned above, it could be seen that blended learning can be used effectively in some groups depending on their level of motivation and readiness for self-directed learning[17]. Li et al. (2014)[19] found that the obstacles for blended learning that may result in low achievement were students' unwillingness to spend time in online study. These learners believed that face-to-face learning aided in the understanding of content. This in turn led to poor motivation towards online content. Within this study, some of the tested sample indicated that too many assignments were assigned prior to classes during the same time period. Students may have had a problem allocating sufficient time.

2. Satisfaction with the blended learning method

The study revealed that the samples were satisfied with the blended learning method in three overall aspects comprising the atmosphere, the student activities and the benefits of receiving in a high level ($\overline{X}$= 4.03, S.D. = 0.58). Considering each item, the highest score concerned the opportunity to work with others and its resulting benefits ($\overline{X}$= 4.23, S.D. = 0.69). This may have been caused by blended learning increasing the number of opportunities for personal interaction among learners and teachers anywhere and anytime[20]. This was consistent with a study by Ketkanya Chaiwongsa[6] which revealed that blended learning mean score in a nutrition course for

the 1st year Bachelor of Nursing Science students helped develop interpersonal relationship skills and responsibilities ($\overline{X}$=4.39, S.D.=0.15). Furthermore, blended learning helped motivate students to be more enthusiastic in their learning. A study by Sevinc Gulsecen (2004)[21] supported this assumption by indicated that blended learning helped uninterested students to be more enthusiastic and motivated as well as increasing the rate of attendance and general afforded attention. A study by Apiradee Natsupawat and Remual Nunsupawat[5] also stated that blended learning helped nursing students to be more enthusiastic in their learning, improved the learning atmosphere, was more enjoyable, less repetitious and useful when allocating their learning time. They did not need to learn only in the classroom. Further studies have revealed high levels of blended learning student[16, 18, 22]. Within the tested sample, the students were also pleased with other aspects. For example, the promotionof various ideas with their video presentations creation as well as the learning atmosphere which provided opportunities to conduct their activities freely because of access to internet based learning. This could contribute to greater understanding of content. Students felt they could further their own understanding within the blended learning method. However, having a high blended learning satisfaction level did not raise the learning achievement to a satisfactory level. The reason might have been that the students' motivation for self-directed study was not high, and the problems faced within time allocation for pre-class self-directed online study.

3. Comparison of Self-Directed Learning before and after Blended Learning

The overall mean score after the implementation of blended learning was significantly higher than prior (p=0.045). Considering each item, the score after experiencing blended learning had the tendency to increase, although without significance. Nonetheless, the mean scores of self-directed learning were the belief in one's own competency and generally being an efficient learner ($\overline{X}$= 3.62, S.D.= 0.60 and $\overline{X}$= 3.91, S.D.= 0.56, respectively). The levels of students' creative thinking after blended learning were higher than those prior the blended learning($\overline{X}$= 3.22, S.D. = 0.64 and $\overline{X}$= 3.46, S.D. = 0.67), respectively). The types of blended learning activities used in this study constituted a mixture of traditional face-to-face and asynchronous online self-paced learning. These methods enabled students to direct their own learning and in turn allowed selection of learning methods according to their own interests. The learners were responsible for attempting to discover new material independently to achieve their preset goals. Thus, the material learned through blended learning built the learners' confidence. Students believed they could arrange sufficient learning time. The learner became curious and demonstrated discipline within their learning. Students knew what they sought to learn and how to enhance their understanding. In addition, blended learning encouraged the endeavor to accomplish tasks by themselves, to think creatively and to discover new and various methods to solve difficult problems.[23] This may have caused the post-test scores of blended learning to be higher than the pretest. This was consistent with a study by Sriarunrasmee, Techataweewan and Mebusaya[24] situated around 1st year Faculty of Science students, Srinagarinwirot

University, which indicated that students, using blended learning together with face-to-face and self-paced learning and the use of electronic media to interact with others, had significantly higher scores in self-directed learning and development of communication skills after the blended learning implementation compared to traditional face-to-face study (p<0.05). These researchers suggested that blended learning was a useful method and could be used effectively in learning and teaching organization for classes of 80 to 120 students. They also stipulated that learning through electronic media can reduce the gap between learners and the teachers. Blended learning aids the teacher's ability to organize their learning and teaching. Teachers and learners could discuss methods to increase the number of potential academic sources available. It also helps teachers to monitor learners' competencies. When learners uploaded their group work, instructors can provide feedback and suggestions immediately. Moreover, conducting online testing allowed learners and teachers to view their scores post assessment. Teachers and students can plan the best methods to improve comprehension of their lessons[3].

Conclusion and Recommendations

The findings of this study suggest that blended learning could significantly impact the students' satisfaction levels regarding blended and self-directed learning. This article suggests that blended learning can be applied in other courses related to developing self-directed learning skill. Most students stated that online activities promote the comprehension and further their ability to practice materials. Students' reflective journals also revealed that blended learning was able to improve their understanding and interest in the content of maternal child and midwifery nursing and should make different from a common teacher-centered learning, which is happening in Thailand in some education level. Therefore, supporting blended learning by providing materials and equipment, organizing necessary topic, and providing adequate media, for instance, platform for web-based lessons, group projects, on-line testing and e-mail are necessary. The challenge for further study is the development of an appropriate blended learning model in order to increase learning achievement.

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