

Applying the Flipped Learning Model to an English-Medium Nursing Course

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Purpose: An emerging trend in Asian higher education is English-medium instruction (EMI), which uses English as the primary instructional language. EMI prepares domestic students for international leadership; however, students report difficulty in learning, and educators have raised questions concerning the effectiveness of EMI. The flipped learning model (FLM), in which lecture and homework activities for a course are reversed, was applied to an English-medium course offered by a college of nursing in Korea. The aims of this study were to: 1) revise an existing English-medium nursing course using the FLM; 2) explore students' learning experiences and their acceptance of the FLM; and 3) identify key factors in the success of FLM. **Methods:** We used a descriptive, cross-sectional, mixed-methods design and the participants were students at one nursing school in Korea. A series of course development meetings with faculties from the nursing school and the center for teaching and learning were used to develop the course format and content. We conducted course evaluations using the Flipped Course Evaluation Questionnaire with open-ended questions and focus group interviews. **Results:** Students (N=75) in a 15-week nursing course responded to a survey after completing the course. Among them, seven students participated in one of two focus groups. Overall, students accepted and favored the flipped learning strategy, and indicated that the method enhanced lecture content and their understanding of it. Factors associated with effective instruction included structured monitoring systems and motivational environments. **Conclusion:** The FLM requires sufficient preparation to facilitate student motivation and maximize learning outcomes.

Key words: Educational model; English; Learning; Nursing education

INTRODUCTION

One of the emerging trends in higher education in Asian countries is English-medium instruction (EMI), which uses English as the primary instructional language [1]. EMI has been widely used across diverse disciplines, including nursing, with the expectation of preparing domestic students for leadership and of attracting promising foreign students in the era of internationalization [2]. In addition to the number of foreign professors and stu-

dents, the number of English-medium courses (EMCs) is one of the criteria by which Korean colleges are evaluated [3,4]. As of 2013, EMCs comprised 30~40% of the courses offered at prestigious universities in Korea [5].

As EMI increases in popularity, the feasibility and effectiveness of this instructional method have received attention from educators and researchers. Although faculty and students agree on the need for EMI and students have benefitted from the instructional method, significant numbers of them have experienced difficulty

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comprehending the lectures [3,6]. In a study conducted with 360 undergraduate students in Taiwan, fewer than 6% of the students reported that they understood more than 90% of the lectures and fewer than 25% of the students reported that they understood more than 75% of the lectures [7]. In a study conducted in Korea [8], about 25% of the college students registered for EMCs to improve their English. Approximately 63% of the students who took them reported that the EMCs actually helped them to improve their English proficiency [7]. However, of those, about 31% reported that the course was helpful only for improving their English proficiency, but not for mastering the content related to the class. Poor comprehension of the core content is a critical issue. This is particularly true for the discipline of nursing, which deals with human lives and prepares students for society's evolving healthcare needs, challenges that are beyond passing the nursing board examination.

The flipped learning model (FLM) is a new pedagogical method in which the lecture and homework activities of a course are reversed [9]. Students are required to review pre-recorded lectures or lecture materials before each class, and in-class hours are used for various learning activities, including open discussion, collaborative group activities, critical thinking activities, and guest lectures. Learning activities inside and outside of the classroom are switched using multimedia technologies. Beyond flipping the sequence of the instruction, FLM is "an open approach that facilitates interaction between students and teachers and differentiated learning" (p. 38) [10]. This model encourages students to take the initiative in learning and allows them to study at their own pace and reflect on what they learn.

The FLM, a student-centered learning model, which has emerged as an effective approach, has been implemented in many courses and fields of study, such as pharmacy [11–13], adult health nursing [14], statistics in a nursing PhD program [15], pediatric nursing in a family nurse practitioner program [16], engineering, sociology, and the humanities [10]. Students in flipped courses have demonstrated significantly higher examination scores than students in other teaching methods ($M=81.89 \pm 5.02$ for the flipped course; $M=80.70 \pm 4.25$ for a lecture plus recorded-lectures course; and $M=79.79 \pm 4.51$ for a traditional course, $p=.001$) [14] and students from the previous year ($M=81.6 \pm 4.4$ for FLM students; and $M=77.7 \pm 4.7$ for previous

year students, $p=.024$) [13]. Students also perceived that the FLM is a useful and favorable method. However, findings from previous studies of students' satisfaction with the FLM were inconclusive [17]. Differences in course content, institutional support and environment, and classroom activities across courses may contribute to contradictory findings.

According to a review of studies evaluating FLM in higher education [17], the majority of them (23 out of 28) were conducted in the U.S. and only two studies have been conducted in Asian countries (one in Taiwan and one in Malaysia). Considering the differences between western and eastern teaching/learning styles, educational environment, and social context, it is important to evaluate the acceptance of the FLM in more diverse Asian countries, such as Korea. Furthermore, there are no studies on the use of the FLM in a course delivered in a second language; thus, the usefulness of the FLM in EMI needs evaluation. In a study by Moraros et al. [18] conducted in Canada, a small group of international students enrolled in a class using the FLM rated its effectiveness significantly higher than the North American students in the same class did. This finding provides preliminary evidence that the FLM could be a useful teaching model for EMI. To assess the feasibility of integrating EMI and FLM and thus to overcome the limitations of EMI, we applied a flipped learning strategy to one of the English-medium core courses offered by a nursing school in Korea. The specific aims of the present study were to: 1) revise the existing English-medium nursing course using the FLM; 2) explore students' learning experiences and their acceptance of the FLM; and 3) identify key factors in the success of the FLM.

METHODS

1. Study design

A descriptive, cross-sectional, and mixed-methods design was used in this study.

2. Setting and sample

The present study was conducted at one nursing school in Korea in 2014. Potential participants were students enrolled in one

of the core courses titled, “Human Beings and Health.”

3. Research context: Course description

The course we chose for the present study is the first core course titled, “Human beings and health”. This course is for first year nursing students and it covers the philosophical and psychological bases of the nursing discipline. This course also covers human developmental characteristics from conception to death in terms of one’s physical, psychological, social, and spiritual aspects. In addition, it is an introduction to the meta-paradigms of nursing (i.e., human beings, environment, health, and nursing practice), through which a person as a recipient of nursing care can be approached.

Course development included revision of the course format and content based on a series of course development meetings with nursing faculties from five different nursing specialties, including adult health, child health, informatics, psychiatric and mental health, and management. We also held a number of consultation meetings with faculties from the Center for Teaching and Learning (CTL) at S. University to maximize the utilization of the university e-Teaching & Learning (eTL) system, a learning management system that provides a platform for students, lecture material, assignments, and class community management for various educational activities. As a result of the meetings, we were able to identify core lecture content, special lecture topics to broaden students’ perspectives on human beings and health, various learning activities and instructional strategies motivating students to engage in learning and effective evaluation strategies.

4. Instrument

To evaluate students’ learning experiences and the acceptance of the FLM, we used the Flipped Course Evaluation Questionnaire. The CTL at S. University developed this questionnaire to evaluate the flipped courses offered there. The questionnaire was designed to assess students’ experiences (e.g., effectiveness, ease-of-use, and usefulness) with various components of the flipped course, including pre-recorded lectures (5 items), online presentation assignments (4 items), and online and offline classroom activities (3 items). The questionnaire also assesses

the overall evaluation of the FLM (7 items) and students’ intention to take the flipped courses in the future (3 items). In addition, we used 13 open-ended questions to provide in depth exploration of students’ experiences with the FLM.

5. Study procedure

This study was reviewed and approved by S University’s institutional review board (IRB No. 2013-108). We explained the purposes and procedure of the study, and students who agreed to participate in it signed the written consent form. We assured the students of confidentiality and anonymity. They were also informed that participation was voluntary and that their grades would not be affected by not participating in the survey. Students completed the Flipped Course Evaluation Questionnaire within 15 minutes as a group on the first and last days of the course.

For further assessment of students’ experiences with the flipped course and areas for improvement, we conducted two focus-group interviews with seven students. Seven students participated because they had previously taken traditional nursing courses. We developed the interview questions using the stems of the questions of the Flipped Course Evaluation Questionnaire. At the beginning of the focus groups, we explained the purposes and ground rules for the interviews. Each focus group lasted approximately an hour and the interviews were recorded and transcribed.

6. Data analysis

To examine students’ learning experiences and acceptance of the FLM, we used both quantitative and qualitative data analysis methods. Descriptive analyses were conducted for quantitative data collected using the questionnaire. Conventional content analysis was selected as the main method of analyzing the qualitative data collected using the open-ended questions and focus-group interviews. For analysis of qualitative data, two research team members reviewed and coded the transcripts independently. They discussed and resolved any differences in the coding. Next, we categorized data according to a matrix (benefits, limitations, and challenges, and success factors).

RESULTS

1. Description of the revised course

Table 1 shows the main content areas, activities, and assignments for the revised course. The revised course consisted of pre-recorded lectures, a group project (an analysis of a movie or drama using four nursing meta-paradigms), a health promotion project, and self-videos on the concepts of health, human beings, and nursing practice. Other than those assignments, we used quizzes and a final examination to evaluate students' per-

formance. We provided quizzes on the main content areas to assess the students' learning readiness and levels of comprehension. The quizzes consisted of varied types of questions, including multiple choice, true or false, and short-answer formats; students were able to complete their quizzes within 10~20 minutes. We utilized the next 30~40 minutes to review the quiz and lecture materials in order to enhance the students' learning. The flipped course format for the course, "Human Beings and Health" is depicted in Figure 1.

Pre-recorded lectures were prepared in two different formats—MP3 and MP4 files—so that students could choose either

Table 1. Content Outline of the Course

Content	Activities and assignments
Main Topics 1. Meta-paradigms in nursing: Humans, health, environment, & nursing 2. Theories of human development: Physical, psychosocial, cognitive, and moral development 3. Human developmental characteristics: Prenatal and infancy 4. Human developmental characteristics: Childhood 5. Human developmental characteristics: Adolescence 6. Human developmental characteristics: Early and middle adulthood 7. Human developmental characteristics: Late adulthood and theories of aging	2-minute self-video on the concepts of health, humans, and nursing: Peer feedback and class discussions Group project: An analysis of a movie or drama using four nursing meta-paradigms: Peer feedback Health promotion project: Peer feedback on both progress and final outcomes of each other's projects Critical thinking activities: Euthanasia, sexual behaviors among adolescents, depression and suicide among college students, health disparities
Special Topics 1. How to utilize cTL and eTL services 2. How to create self-videos 3. How to use movie maker program 4. Mass media influences on health and sexuality 5. Hospice care and nursing 6. Facts about suicide among college student	

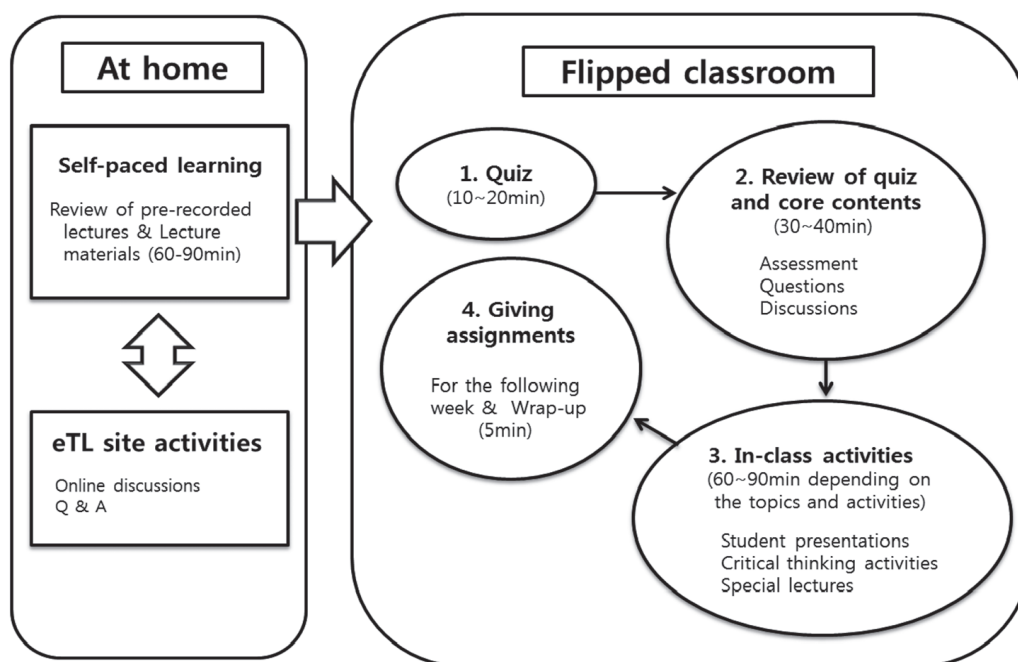


Figure 1. Flipped course format for the course titled, "Human Beings and Health".

audio or video lectures. The pre-recorded lectures were 60-90 minutes long, and longer lectures required more than one media file. All lecture materials, assignments, and discussion boards were managed in the class eTL site. For assignments, students were required to create presentations on health promotion projects and upload the recorded files on the class eTL site. At the beginning of the course, we offered special lectures on “how to create self-videos” and “movie maker programs” to prepare students for the online activities. Through the online discussion board, students shared ideas and comments on other students’ presentations. Students’ participation was monitored regularly.

We were able to utilize in-class hours for interactive and creative learning activities, including critical thinking activities, group discussions about controversial issues (e.g., euthanasia and health disparities), students’ presentations, and reviews of lecture materials. To facilitate students’ engagement in class activities, we also conducted real-time polls to select the best presentations on the health promotion projects.

2. Students’ learning experiences and acceptance of FLM

Seventy-five students completed the 15-week course. Of the 75 students, 71 were women and four were men, and their mean age was 19.09 years (SD=1.46). In addition, seven students (one man and six women) participated in one of the two focus groups. Approximately 95% of the students reported that they had no previous experience with online courses.

As shown in Table 2, more than 97% of the students reported watching all or almost all of the pre-recorded lectures before class. About 65.3% watched them multiple times and 6.7% reported that they watched only the parts that they did not understand. Students used the pre-recorded lectures more often when studying for examinations; 68% of the students reviewed the pre-recorded lectures again when studying for examinations, and 74.5% of those students found that strategy to be useful.

Overall, students accepted and favored the flipped learning strategy (See Table 3). Only 20% of them perceived that the

Table 2. Learning Activities using Pre-recorded Lectures

(N=75)

Learning activities	Categories	n (%)
1. Have you watched the pre-recorded lectures prior to the class?	I watched every pre-recorded lecture	40 (53.3)
	I missed the pre-recorded lectures 1~2 times	33 (44.0)
	I missed the pre-recorded lectures 3~4 times	2 (2.7)
	I missed the pre-recorded lectures more than 5 times	0 (0.0)
2. How did you watch the pre-recorded lectures?	I watched the pre-recorded lectures from beginning to end	19 (25.3)
	I watched all of the pre-recorded lectures and the parts that I did not understand again	49 (65.3)
	I watched only the parts that I did not understand	5 (6.7)
	No response	2 (2.7)
3. Have you reviewed pre-recorded lectures when preparing for the final exam?	Yes	51 (68.0)
	No	24 (32.0)
4. Do you think reviewing recorded lectures helped you to prepare for the final exam?*	Yes, it was helpful because I could repeatedly review parts that I did not understand	38 (74.5)
	Yes, it was helpful because I could review only parts I did not understand	10 (19.6)
	No, it was not helpful for examinations	1 (2.0)
	No response	2 (3.9)

*Only students who answered “yes” to question #3 responded to question #4 (n=51).

Table 3. Evaluations of the Flipped Learning Method

(N=75)

Compared to traditional learning methods, the flipped learning method	Disagree	Neutral	Agree	No response
	n (%)	n (%)	n (%)	n (%)
was strange and more uncomfortable	27 (36.0)	32 (42.7)	15 (20.0)	1 (1.3)
was more time-consuming	8 (10.7)	10 (13.3)	56 (74.7)	1 (1.3)
was more difficult to understand	42 (56.0)	19 (25.3)	11 (14.7)	3 (4.0)
was less interesting	33 (44.0)	22 (29.3)	19 (25.4)	1 (1.3)
was less efficient than a traditional class	39 (52.0)	18 (24.0)	18 (24.0)	0 (0.0)
made it harder to concentrate	23 (30.7)	14 (18.7)	38 (50.6)	0 (0.0)
was less effective in academic achievement	40 (53.3)	21 (28.0)	12 (16.0)	2 (2.7)

new learning method was strange and more uncomfortable than the traditional learning method. Compared to the traditional learning method, more than half of students (56%) in the FLM class stated that it was more understandable. Forty-four percent of the students reported that this learning method was more interesting than the traditional one and 29.3% of them perceived this format to be as interesting as the traditional one. Regarding perceptions of academic achievement, 53.3% of students reported that the FLM was more effective for learning than the traditional method, and 28% of them perceived this format to be as effective as the traditional one. On the other hand, approximately 50.6% of the students did not find merit in this new learning method due to difficulties in concentration, and about 74.7% of them perceived the FLM as being more time consuming than the traditional method. When asked if they would take flipped courses in the future, about 71% of the students said that they would choose the FLM depending on the course and the lecturer.

More detailed description of the benefits, limitations, and key factors in the model’s success that were identified from the qualitative data analyses are summarized in Table 4. One of the chief

benefits that students reported was comprehension. Students reported that the FLM improved comprehension because they were able to “pause and rewind the lecture videos”, “search for words in a dictionary”, and “take notes as needed”. Students found the self-paced learning strategy particularly useful for this EMC with which they usually have to struggle to comprehend its content. Among the 75 participants, 42 of them made positive comments about the self-paced learning. Students said:

I marked the parts that I couldn’t understand while watching the pre-recorded lectures and got the answers for the questions during the class. That helped me to be prepared for the class and master the content.

I could pause and rewind the lecture videos until I was able to fully understand difficult English words and comprehend sentences, which would not be possible in a traditional classroom.

Flexibility and efficiency also were strengths of the FLM. Students were satisfied with the FLM because they were able to

Table 4. Major Themes and Subthemes Extracted from the Focus Group Interviews

Main themes	Subthemes
Benefits of the flipped course	<ul style="list-style-type: none"> Improved comprehension <ul style="list-style-type: none"> Able to preview and review material as needed Able to watch the lectures at one’s own pace Able to prepare questions for instructor Able to identify key concepts Flexibility & Efficiency <ul style="list-style-type: none"> Able to choose best time and place for learning Able to concentrate on materials Able to review material regularly and avoid cramming for final exam Enhanced learning experiences <ul style="list-style-type: none"> Able to pursue in-depth knowledge through critical questions and class discussions Experience sense of accomplishment as a result of self-directed learning Understand concepts of human beings and nursing from diverse perspectives Gain critical thinking skills Experience new ways of learning Gain ability to engage in diverse activities during class Being exposed to diverse lecture content
Limitations or challenges	<ul style="list-style-type: none"> Demands, both time and effort A lack of timely assessment and feedback on students’ questions Not familiar with class discussions Class size matters
Key success factors	<ul style="list-style-type: none"> Structured monitoring systems <ul style="list-style-type: none"> Strategies to assess students’ performance Mandatory participation on online discussions Maintaining an open communication channel Motivational environment: Well-thought-out plans <ul style="list-style-type: none"> For class activities: Effective utilization of class hours For class discussion: Topics appropriate to the learning level and class size Pre-recorded lecture: Proper length (25~30 minutes, no more than 40 minutes)

“watch lectures at a time and place convenient for [them].”

A student commented:

I prefer the flipped classroom. It was hard to stay awake in the class as the class is offered from 2~5 pm on Friday, but online lectures gave me opportunities to watch lectures when I was alert at my own time.

Another student said:

I also enjoyed the convenience of watching the pre-recorded lectures. I watched video lectures at home first, and then listened to the sound file repeatedly on the subway while commuting to school. I could use my time efficiently.

The last but most meaningful strength of the FLM was that it enhanced students' learning experiences. Various class activities and discussions enabled students to “pursue in-depth knowledge,” and “share diverse opinions in an open environment”. Students said that the enhanced learning experience is particularly meaningful for first-year students who are less motivated and committed than upper-class students. A student said,

Class discussions helped me to understand the concepts of human beings, health, and nursing from diverse perspectives.

Another student said:

I was able to experience a sense of accomplishment by watching the pre-recorded lectures and mastering the concepts.

On the contrary, many students reported that the increased time commitment and academic effort was the main shortcoming of the FLM. Regarding the demands, students exhibited ambivalent attitudes, saying:

During the semester, it was stressful to watch lectures and study for quizzes before coming to class. However, I have to say that I found that work extremely useful for mastering the content and preparing for the exam. Watching videos and

preparing for quizzes were demanding; however, I felt like I learned more than in traditional classes.

The second drawback of the FLM that students reported was the lack of timely assessment, feedback, and answers to students' questions. Although the eTL Q&A site was found to be a useful tool for communication, some students reported that they “had to hold questions until the next class” and “the instructor was not able to monitor students' understanding of the lecture in real time.”

3. Key factors in the success of FLM

When asked to identify what was needed for the success of the flipped course, the students mentioned structured monitoring systems and motivational environments. The structured monitoring system included weekly quizzes and active discussion boards. Students reported that the online discussion board provided a comfortable and safe space to communicate with the instructor and other classmates for students who ordinarily would be reluctant to ask questions in English during class. Students suggested that some degree of participation in online discussions should be mandatory as Korean students are usually unfamiliar with the culture of discussion. Students also stated that maintaining an open communication channel between the instructor and the students, in addition to monitoring their progress, is important.

Regarding motivational environments, students emphasized that it is important to prepare group discussion topics that require critical thinking abilities rather than specific nursing knowledge, particularly for courses for first year students in nursing. Students also stated that the format and length of pre-recorded lectures are crucial factors in learning. According to focus-group interviews, the optimal length of a single lecture is 30 minutes. Students stressed that lectures should not exceed 40 minutes as it would double the actual amount of time spent.

DISCUSSION

Overall, students accepted and favored the flipped learning strategy, and indicated that the method enhanced the lecture content and their understanding of it. The results of the present

study reveal that the main benefits of the FLM were comprehension, flexibility, efficiency, and an enhanced learning experience. Improved academic performance and learning experiences among students enrolled in flipped courses have been consistently reported in previous studies [11,17]. The FLM enabled students to preview and review the lecture materials at their discretion and come to class prepared; thus, they found it that it was a very useful strategy, particularly for EMCs. Students reported positive learning experiences and satisfaction in relation to self-paced learning using pre-recorded lectures. The findings provide evidence that students with limited English proficiency might benefit from this learning model, and that the FLM may be a remedy for the shortcomings of the EMI.

A previous study [19] also identified the flexibility of the course design as the most satisfying characteristic of the FLM. In our study, students were satisfied with the fact that they could choose the time and place for optimal learning. As a result of the aforementioned advantages of the FLM, students ultimately found that their learning experiences were enhanced and they experienced a sense of accomplishment. In previous studies, students reported that their learning experiences in flipped courses were rewarding and empowering [11,20].

However, the identified shortcomings of the FLM were additional time and academic demands and a lack of timely assessment and feedback. Regarding the rigor involved in this learning method, students in our study tended not to see the benefits of the FLM until the end of the semester or final exam. In most of the previous studies, students usually experienced unfamiliarity with the new method, and they also did not see the benefits of the method early in the semester [15,19]. As the course progressed, students became more aware of the FLM's advantages and realized that their efforts had finally paid off at the end of the semester.

Another limitation of the FLM is a lack of timely assessment and feedback. As the main learning activities take place outside the classroom, students may perceive that as providing less support. This disadvantage could be corrected by ensuring structured monitoring systems and motivational environments. Among the diverse monitoring systems, we used quizzes and review sessions. In the present study, we found this approach to be effective and the focus-group participants suggested taking quizzes on a weekly basis in the future. In a previous study [21], the

quiz/review sessions were found to be useful tools in flipped classrooms for enhancing students' learning, clarifying their misconceptions, and assessing their preparedness for class and their understanding of the content [10].

Creating environments that facilitate students' motivation is also important. Creating a learning environment, experience, and culture, in which all students are comfortable and motivated is critical, particularly, for courses taught in a second language. We maintain that learning environments capable of motivating diverse student groups should include the following core features, as identified by Ginsberg and Wlodkowski [22]. First, the environment should provide challenging and interesting learning experiences that reflect the students' perspectives and values. This study demonstrated that thought-provoking topics for class discussions and collaborative activities are crucial to the FLM. Tajvidi et al. [23] also said that critical thinking ability is one of the core competencies leading to professional accountability and development and this ability needs to be strengthened through nursing education. Thus, using effective content with a clear intention is important to take full advantage of the available classroom hours and face-to-face time [24].

Second, students and instructors must feel that they belong to the learning group and share identical goals. The FLM is a teaching strategy that embraces a wide spectrum of learners and their learning styles [25]. It is critical to maintain a flexible learning environment that accommodates different learning styles and diverse topics. By utilizing various learning tools, including multimedia technologies, students can find ways that work best for them in mastering the content in the flipped courses. Students in the present study reported that they were able to share diverse perspectives and experience a sense of belonging and collegiality through group projects and online and class discussions.

The format and length of pre-recorded lectures is another important motivational factor. Participants of the study reported that lengthy lectures might result in difficulty concentrating, increased time commitment, and decreased satisfaction. A previous study also reported that lectures longer than 30 minutes reduced student satisfaction [26]. Gilboy et al. [27] recommended that the pre-recorded lectures should be segmented (e. g., 10~15 minutes per segment) to maintain optimal attention.

In addition to the key factors mentioned above, the FLM re-

quires careful planning and the instructors need to consider several issues [28]. The first factor to consider is the time and resources required by the FLM. Instructors need to be mindful that more time is required to prepare and update pre-recorded lectures and classroom activities and that more supervision is needed to monitor students' participation both offline and online compared to traditional lecture method. More importantly, adequate institutional resources and technical support, such as the funds for developing pre-recorded lectures, facilities appropriate for diverse classroom activities, and ongoing IT support are essential. Finally, when applying the FLM to Asian students, the instructors need to be aware that this approach may not be effective if students are not familiar with open discussions and are reluctant to participate in the class discussions. Students who are accustomed to assuming the role of a passive recipient of knowledge may perceive the FLM as an academic experience with overwhelming demands. Thus, it is important to tailor each component of the course to students' learning needs.

In our study, students' responses regarding difficulty concentrating were somewhat contradictory. Although some students reported that they found it difficult to stay focused on the pre-recorded lecture, another group of students preferred the self-study method of using pre-recorded lectures to the in-class lectures. We believe that the inconsistent finding is attributable to individual preferences; however, it needs further investigation.

The findings of the study demonstrate that the FLM created a learning environment for diverse student groups while simultaneously valuing their unique learning styles. This is a promising model for learning; however, we need to be mindful that the success of the FLM depends on many factors beyond just flipping the order of instruction. Although the present paper is on experiences at one Korean university, the findings have significant implications for nursing institutions in other Asian countries that offer EMIs. More studies investigating the FLM with diverse disciplines in varied educational settings and evaluating long-term learning outcomes are needed [16].

CONCLUSIONS

Along with globalization and technological advances in education, new educational models (i.e., EMI and the FLM) have

evolved and are attracting the attention of educators. We have combined both teaching models to facilitate learning among nursing students in Korea. The findings of this preliminary study demonstrate that the FLM is an appropriate model to use with EMI, and that the students accepted and favored it. Moreover, the FLM enhanced students' understanding of the lecture's content. Key factors in the success of EMC using the flipped learning approach were also identified. An FLM should be carefully designed and key factors in its success should be considered to facilitate students' motivation and maximize learning outcomes.

CONFLICTS OF INTEREST

The authors declared no conflict of interest.

REFERENCES

1. Byun K, Chu H, Kim M, Park I, Kim S, Jung J. English-medium teaching in Korean higher education: Policy debates and reality. *Higher Education*. 2011;62(4):431-449. <http://dx.doi.org/10.1007/s10734-010-9397-4>
2. Manh LD. English as a medium of instruction in Asian universities: The case of Vietnam. *Language Education in Asia*. 2012;3(2):263-267. <http://dx.doi.org/10.5746/LEiA/12/V3/12/A14/Manh>
3. Kang HS. English-only instruction at Korean universities: Help or hindrance to higher learning? *English Today*. 2012;28(1):29-34. <http://dx.doi.org/10.1017/S0266078411000654>
4. Kim KR. Korean professor and student perceptions of the efficacy of English-medium instruction. *Linguistic Research*. 2011;28(3):711-741.
5. Joongangilbo. The Joongang daily university ranking [Internet]. Seoul: Author; 2013 [cited 2014 September 21]. Available from: <http://univ.joongang.co.kr/university/totalRankingReport.asp>.
6. Joe YJ, Lee HK. Does English-medium instruction benefit students in EFL contexts? A case study of medical students in Korea. *The Asia-Pacific Education Researcher*. 2013;22(2):201-207. <http://dx.doi.org/10.1007/s40299-012-0003-7>
7. Chang YY. English-medium instruction for subject courses in tertiary education: Reactions from Taiwanese undergraduate students. *Taiwan International ESP Journal*. 2010;2(1):55-84.
8. Kim M. Korean students' responses to English-medium classes and their implications. *Studies in English Education*. 2009;14(1):30-50.
9. Bergmann J, Sams A. Flip your classroom: Reach every student in every class every day [Internet]. Washington, DC: International Society for Technology in Education; 2012 [cited 2014 August 25]. Available from: <http://www.ascd.org/publications/books/112060.aspx>.

10. Kim MK, Kim SM, Khera O, Getman J. The experience of three flipped classrooms in an urban university: An exploration of design principles. *The Internet and Higher Education*. 2014;22:37–50. <http://dx.doi.org/10.1016/j.iheduc.2014.04.003>
11. McLaughlin JE, Griffin LM, Esserman DA, Davidson CA, Glatt DM, Roth MT, et al. Pharmacy student engagement, performance, and perception in a flipped satellite classroom. *American Journal of Pharmaceutical Education*. 2013;77(9):196. <http://dx.doi.org/10.5688/ajpe779196>
12. McLaughlin JE, Roth MT, Glatt DM, Gharkholonarehe N, Davidson CA, Griffin LM, et al. The flipped classroom: A course redesign to foster learning and engagement in a health professions school. *Academic Medicine*. 2014;89(2):236–243. <http://dx.doi.org/10.1097/acm.0000000000000086>
13. Pierce R, Fox J. Vodcasts and active-learning exercises in a “flipped classroom” model of a renal pharmacotherapy module. *American Journal of Pharmaceutical Education*. 2012;76(10):196. <http://dx.doi.org/10.5688/ajpe7610196>
14. Missildine K, Fountain R, Summers L, Gosselin K. Flipping the classroom to improve student performance and satisfaction. *The Journal of Nursing Education*. 2013;52(10):597–599. <http://dx.doi.org/10.3928/01484834-20130919-03>
15. Schwartz TA. Flipping the statistics classroom in nursing education. *The Journal of Nursing Education*. 2014;53(4):199–206. <http://dx.doi.org/10.3928/01484834-20140325-02>
16. Critz CM, Knight D. Using the flipped classroom in graduate nursing education. *Nurse Educator*. 2013;38(5):210–213. <http://dx.doi.org/10.1097/NNE.0b013e3182a0e56a>
17. O’Flaherty J, Phillips C. The use of flipped classrooms in higher education: A scoping review. *The Internet and Higher Education*. 2015;25:85–95. <http://dx.doi.org/10.1016/j.iheduc.2015.02.002>
18. Moraros J, Islam A, Yu S, Banow R, Schindelka B. Flipping for success: Evaluating the effectiveness of a novel teaching approach in a graduate level setting. *BMC Medical Education*. 2015;15:27. <http://dx.doi.org/10.1186/s12909-015-0317-2>
19. Simpson V, Richards E. Flipping the classroom to teach population health: Increasing the relevance. *Nurse Education in Practice*. 2015;15(3):162–167. <http://dx.doi.org/10.1016/j.nepr.2014.12.001>
20. Ferreri SP, O’Connor SK. Redesign of a large lecture course into a small-group learning course. *American Journal of Pharmaceutical Education*. 2013;77(1):13. <http://dx.doi.org/10.5688/ajpe77113>
21. Maher ML, Lipford H, Singh V. Flipped classroom strategies using online videos [Internet]. Charlotte, NC: University of North Carolina; 2014 [cited 2014 November 25]. Available from: <http://cei.uncc.edu/sites/default/files/CEI%20Tech%20Report%203.pdf>.
22. Ginsberg MB, Wlodkowski RJ. Diversity and motivation: Culturally responsive teaching in college. 2nd ed. San Francisco, CA: Jossey-Bass; 2009.
23. Tajvidi M, Ghiyasvandian S, Salsali M. Probing concept of critical thinking in nursing education in Iran: A concept analysis. *Asian Nursing Research*. 2014;8(2):158–164. <http://dx.doi.org/10.1016/j.anr.2014.02.005>
24. Hamdan N, McKnight P, McKnight K, Arfstrom KM. The flipped learning model: A white paper based on the literature review titled “a review of flipped learning” [Internet]. Lake Forest, IL: Flipped Learning Network; 2013 [cited 2014 December 2]. Available from: http://www.flippedlearning.org/cms/lib07/VA01923112/Centricity/Domain/41/WhitePaper_FlippedLearning.pdf.
25. Lage MJ, Platt GJ, Treglia M. Inverting the classroom: A gateway to creating an inclusive learning environment. *The Journal of Economic Education*. 2000;31(1):30–43.
26. Boucher B, Robertson E, Wainner R, Sanders B. “Flipping” Texas state university’s physical therapist musculoskeletal curriculum: Implementation of a hybrid learning model. *Journal of Physical Therapy Education*. 2013;27(3):72–77.
27. Gilboy MB, Heinerichs S, Pazzaglia G. Enhancing student engagement using the flipped classroom. *Journal of Nutrition Education and Behavior*. 2015;47(1):109–114. <http://dx.doi.org/10.1016/j.jneb.2014.08.008>
28. Moffett J. Twelve tips for “flipping” the classroom. *Medical Teacher*. 2015;37(4):331–336. <http://dx.doi.org/10.3109/0142159x.2014.943710>