THE USE OF MOODLE TO ENRICH FLIPPED LEARNING FOR ENGLISH AS A FOREIGN LANGUAGE EDUCATION

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ABSTRACT

The paradigm of education has been changed around the globe because of the recent development of smart technology. Thanks to these changes, various web-based course management systems or instructional approaches have been integrated into classroom learning and teaching in order to inspire the study of digital native young generation. This study investigates university students' learning experiences in using Moodle as the online learning management system which is intended to facilitate flipped learning procedures within the context of English as a foreign language (EFL). Moodle is a web-based learning management system with pedagogical approaches based on constructivism, which emphasizes the roles of shared learning communities, learner-centeredness, and social interaction in the learning context. Flipped learning has been introduced as an effective instructional method which can supplement conventional teacher-centered instruction and help to promote learner-centered learning milieu in language classrooms. Along with the use of Moodle as the learning management system, adopting flipped learning as an effective instructional strategy can accomplish the pedagogical paradigm of constructivism. This paper examines a variety of issues about adopting Moodle as an online learning management system and implementing flipped learning in EFL education. This study also scrutinizes how integrating Moodle into flipped classrooms has improved students' English language learning and classroom interaction.

Keywords: *Moodle, Learning management system, Flipped learning, Collaborative learning, EFL*

1. INTRODUCTION

Pioneering educators have always been seeking instructional approaches that can enhance students' learning as well as motivate students to thrive [1]. Among the pedagogical strategies, research about flipped learning in the context of higher education has recently gained increasing attention among educators, so flipping the instructional procedures has become an intriguing issue. Flipped learning has been regarded as a viable alternative which can complement traditional teacher-initiated instruction and as an effective instructional method to achieve enriched satisfaction in student language learning experience and academic achievement [2] [3].

Flipped classroom has been introduced as an innovative instructional method which converses the role of homework and classroom learning practice. In the traditional learning, students learn new knowledge in the classroom through teacher's lectures, and deepen the knowledge at home through the form of homework. However, in the flipped classroom, students learn basic new knowledge at home through studying course materials prepared by the teacher, such as watching

course videos or reading the assigned written text, and then extend the knowledge during the in-class sessions through relevant classroom learning activities [4].

In the past several decades, technology-integrated learning such as e-learning, m-learning, or computer-assisted language learning (CALL) has had a meaningful influence on learning and teaching. Since these innovative instructional styles and strategies have been improving, many educators and researchers have investigated the impact of utilizing new technologies in language education. Digital native university students preferred technology-integrated learning to traditional learning [5]. With the integration of digital technology into their learning, they achieved longer knowledge retention rate and were more highly motivated to study and succeed [6].

Flipped learning instruction inevitably includes the use of information and communication technology for the out-of-classroom learning activities [7]. Studying basic concepts at home requires students to watch course videos created by the instructor on the course management system,

which includes various multimedia learning materials and online interaction between the instructor and classmates. The advance of digital technology has changed the prototype of education around the world, so pedagogical perspectives and instructional strategies have been also evolving. Technologies such as virtual reality or augmented reality have made it possible for classroom learning and teaching to be so real and tangible. Accordingly, in some fields of education such as biology, anatomy, geology, medicine and astronomy, the utilization of virtual reality-based learning has become the curricular focus so that the learners' learning experience and opportunities have significantly been enhanced through the interactional assistance with multi-dimensional objects, digital environment, and new technologies [8]. In addition, massive open online content movement such as Khan Academy has brought innovation in higher education while expanding the concept of university campus beyond the real physical space into the virtual cyber campus [9]. These changes have resulted in incorporating various online learning management systems (LMS) such as modular object-oriented dynamic learning environment (Moodle) or instructional approaches in learning and teaching in order to motivate digital native university students. This change closely supports numerous recent studies showing the pedagogical advantages of mobile learning (m-learning) and multimedia-assisted language learning (MALL) [10] [11].

The purpose of this study is to examine Korean EFL university students' experiences of using Moodle as an online learning management system and of engaging in flipped learning for their English language study. This paper first investigates various ideas related to integrating Moodle as a course management system and implementing flipped learning in English language instruction. This study then examines how the integration of Moodle and flipped learning has influenced students' English language learning experience and classroom interaction.

2. RELATED RESEARCH

2.1 The Use of Technology in EFL Education

New digital generation born after 1980s has grown to be digital natives who have developed fluent digital literacy through much contact to multimedia and new digital devices [12]. This generation has been called as instant messenger generation, keyboard generation, or digital kid. Through the plentiful experience of utilizing various innovative technologies, they have developed fundamentally different learning mechanisms from the former generation. This new generation has adopted learning strategies to attain new knowledge through visual and auditory processing modes rather than through textual modes of learning. According to research results, students who preferred the ICT-based learning style to the traditional learning style yielded better learning outcome, had longer knowledge retention rate, and were greatly motivated to succeed [13] [14]. Both of the students' and instructors' perceptions about the classroom environment can play a crucial role in the outcome of the learning and teaching. Their perceived challenges and advantages can affect the quality and results of classroom instructional practice. With the assistance of new technologies, educators can coordinate their daily teaching practice with various educational factors within a specific curricular demands. The ICT-assisted educational factors can serve to enhance learner-centered learning environment and improve classroom interaction. Digital native students' perception about their ICT-assisted learning environment can directly and indirectly affect the result of the whole instructional goals. Accordingly, integrating new instructional approach with smart technology and innovative teaching methods has been more and more important to enhance the motivation of digital-smart learners. Along with all these evolving educational situations, schools and universities around the world have tried to integrate various technology-related instructional methods and strategies into the traditional curriculum to customize the educational needs and interests of the learners in the digital era.

The use of learning management systems can provide teachers and students with a protected online learning and teaching community. Due to the development of technology, schools have been adopting various ICT-based learning management systems. Among them, Moodle was originally developed by Martin Dougiamas to facilitate educators to build online courses with an emphasis on classroom interaction and collaborative structure of learning contents [15]. As an open online systems, Moodle is still updated in constant development through the collective intelligence of educators and experts. In contrast to a single private web-blog or other social networks, Moodle combines all instructional strategies and tools in

one space. Using online LMS has the advantage that learners can access the online learning management space at any time and from anywhere. Therefore, the utilization of Moodle can be effective in promoting learner autonomy as well as in supporting collaboration and learner-centered learning environment. These innovative online classes have used technological tools to collaboratively construct instructional models [16]. Through Moodle, teachers have also used various technology-focused teaching techniques to help their students engage in numerous learning contents such as language, literature, or social sciences by planning a greatly evolving concept of place and time [17].

2.2 The Use of Flipped Learning Methods in Education

Throughout the history of education, there have been the ardent search for best method to learn and teach in the classrooms across the various disciplinary fields. In the search for effective teaching methods, flipped learning has recently been regarded as an effective approach that converses the characteristics of homework and classroom learning activities [18]. In the traditional classroom, learners get new knowledge in the classroom mostly through teachers' lectures. Then they are required to extend the newly acquired knowledge at home as the form of homework. However, in flipped learning, learners acquire new course contents at home by watching course videos prepared by the teacher, and then deepen the knowledge in class, in which teachers can easily monitor the in-class learning process and facilitate their students' learning. Figure 1 below shows the symbolic representation of flipped learning.
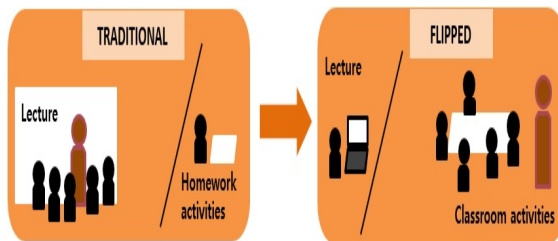

Figure 1: Symbolic representation of flipped learning

Many classes have used flipped learning as the innovative instructional technique to realize the concept of mastery learning. This flipped learning provides a dynamic and interactive learning environment, so teachers can help their students when they apply newly acquired concepts and extend the knowledge creatively in their learning.

Consistent with the learner-centered instructional strategy to learning, the most important aspect of flipped learning is what the students do and not what the teachers do [19]. Accordingly, the role of teachers has been transformed from the only knowledge distributer in the classroom to the facilitator of the students' learning performance. In the flipped learning, the initiative agents of the whole classroom educational process become the students, not the teacher.

Generally flipped learning has divided into three procedural steps for classroom implementation. These instructional steps are as follows:

1) Flipped learning occurs in the before-class session as prerequisite learning step.
2) More advanced learning occurs in the during-class session as individualized, supplementary, or advanced learning step.
3) Reflective learning occurs in the after-class session as evaluative and collaborative learning step.

Figure 2 shows the cyclic aspects of instructional procedures of flipped learning which can be implemented in the classroom.
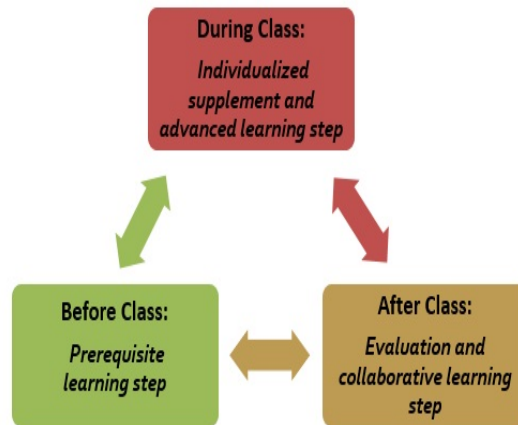

Figure 2: The cyclic procedure of flipped learning

The instructional implementation procedures to flip a classroom can be processed into the cyclic stages [4]. To begin, teachers adopting flipped learning can convert traditional face-to-face lectures into creating instructional course videos or using any ready-made pedagogical videos or text from various sources. Teachers let their students study basic knowledge before attending class in order to accommodate class time for cooperative and interactive learning activities. In class, students can engage in cooperative and interactive learning through various learning activities such as

discussion activities, problem-solving activities, or task-based activities. Meanwhile, teachers can assist and monitor their students learning process as a facilitator or a guide. After class, students can have opportunities to summarize or retrospect their learning.

3. RESEARCH CONTEXT AND METHOD

The participants of this study were 22 university students who majored in English education at a university located in the central area of Korea. The course design of this study was based on a blended learning with in-class learning activities and online self-study sessions. The objectives of this course were to develop English four language skills and strategies using the flipped instructional framework and Moodle as a learning management system. This course also aimed at cultivating theoretical understanding of the students about the use of educational technologies in English language learning and teaching. Figure 3 shows the main page of Moodle as the course management system which was utilized to facilitate flipped learning process for the course.
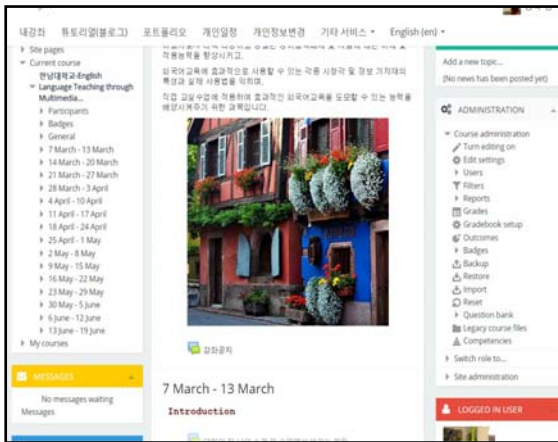

Figure 3: Moodle as the online learning management system

As the instructional framework for the course, flipped learning method was employed in order to foster student-centered cooperative learning and to encourage students to take part in more dynamic and interactive English language learning. For the course, three cyclic classroom procedures of flipped learning were implemented. The stages were divided into: 1) before-class stage as the prerequisite learning step, 2) during-class stage as the individualized learning step, both with supplementary learning step and with advanced learning step, and 3) after-class stage as the evaluative and collaborative learning step.

As the before-class procedure, the instructor prepared the course contents as video clips from various sources and uploaded them on the course website using Moodle. Students were required to study the basic course contents by watching the video clips as preview learning activities. They also engaged in online discussion forums to be motivated with the sense of shared learning community. As the during-class procedure, students had opportunities to extend their knowledge that they had studied as self-study by watching course video clips. They could develop their intercultural understanding through the more in-depth explanation of instructor and have chances to improve their communicative competence. As the after-class procedure, students were asked to access the course website Moodle and take online quizzes. The quiz was administered as the open-book format so as to provide students with the opportunities to review their learning. Once they completed the online quiz, they had instant feedback to their performance and could check their learning outcome and retrospect their learning process. Figure 4 shows the example of the online quiz that was administered as the after-class learning activity for flipped learning.

Figure 4: The example of online quiz via Moodle as the after-class learning activity

In addition, for one of the most important course activities, students were encouraged to take part in online course discussion in order to share their learning experience with other students and to offer mutual support. Through the online interaction via the forum of the course management system Moodle, students could feel the sense of

belonging to the shared learning community and could be encouraged both with cognitive aspects and with affective aspects. This activity also could improve the interaction between the instructor and the students.

The instructional procedures of flipped learning using Moodle as the learning management system were cyclically and interdependently interweaved in the instructional process, so each procedure was interconnected and closely interrelated. The learning activity of each step could have an impact on the other steps. The instructional procedures of flipped learning using Moodle as the learning management system for this study were as follows in Figure 5.
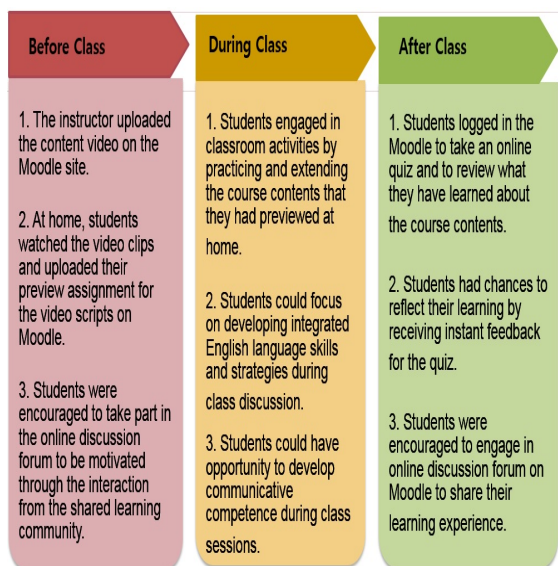

Figure 5: The instructional framework for the course

For data collection of this study, course survey was conducted using questionnaires with Google forms and semi-structured focus group interview was also administered at the end of the semester to examine students' perspective and attitude of using Moodle as the course management system and flipped learning as the course instructional method.

4. RESULT AND DISCUSSION

The survey result revealed that the participants responded positively to the use of flipped learning as the instructional framework and Moodle as the course management system. The results of five Likert-scale questionnaire items that show students' responses are as follows in Table 1.

TABLE 1: ONLINE SURVEY ABOUT FLIPPED LEARNING THROUGH THE USE OF MOODLE

Question items	Mean
• Do you think that course learning materials such as video clips or audio files for flipped learning could be effective learning resources for your English study?	4.1
• Do you think you could be motivated to study English more autonomously through your flipped learning experience?	3.8
• Do you think you could focus on your English study more effectively with the assistance of Moodle as the course learning management system for this semester?	4.2
• Do you think the participation in Moodle learning activities and discussion could increase interaction between the students and instructor throughout the course?	4.3
• Do you think you would be willing to adopt Moodle as the learning management system into your future teaching practice for your prospective digital native studetns?	4.5

According to the research result, nineteen students (86.4%) responded that course learning materials such as video clips or audio files for flipped learning were effective learning resources for their English study. Students responded that authentic learning materials using multimedia for the flipped learning activities were very informative as well as entertaining for their self-directed English learning. They also responded that they could develop intercultural understanding as well as linguistic performance through the study of genuine English expression prepared for the flipped learning resources of the course.

Students generally perceived that flipped learning framework was the effective English learning and teaching method. This response was compatible with the previous research result that flipped learning could be regarded as an effective approach that converses the characteristics of homework and classroom learning activities [18].

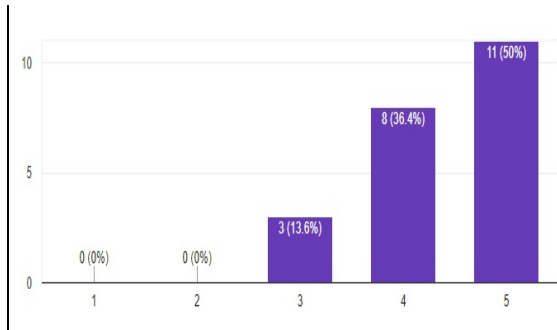Figure 6 shows students' perception of the effectiveness of learning materials of flipped learning.

Figure 6: Students' perception of the effectiveness of learning materials of flipped learning

Among the participants, fifteen students (68.1%) also responded that they could be motivated to study English more autonomously through flipped learning experience. From the semi-structured interview, one of the students said that he could pleasantly expect next class since he developed self-confidence in his learning through the online previewing flipped learning process of the course. As various research results already indicated, flipped instructional strategy could contribute to promoting learner autonomy and learner-centered dynamic classroom learning environment [2] [3]. Figure 7 shows students' perception of motivational factors of flipped learning.
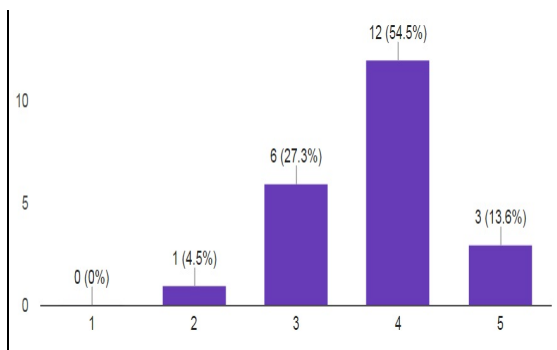

Figure 7: Students' perception of motivational factors of flipped learning

Among the participants, eighteen students (81.8%) responded that they could focus on their English study more effectively with the help of Moodle as the course learning management system. This result indicates that students regarded the use of Moodle as an effective learning management system for the course to facilitate their flipped learning. One of the interviewees said that using Moodle was

effective and efficient in that he could access the course materials and study them whenever and wherever he wanted. These responses were compatible with the previous research result that this new learning environment assisted students to accomplish their learning outcomes and helped English learning and teaching process to become more engaging, dynamic and student-centered [20]. Figure 8 shows students' perception for Moodle as the effective learning management system.
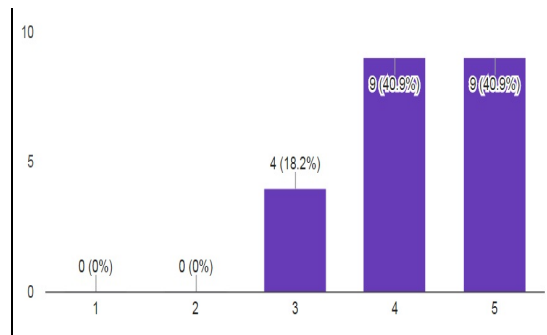

Figure 8: Students' perception for Moodle as the effective LMS

Among the students, twenty students (90.9%) responded that using the learning management system like Moodle could work as an effective tool for classroom interaction between the instructor and the students. This response was coherent to the previous research results in that the integration of learning management systems could help educators to build flexible online learning environment and to promote classroom interaction and collaborative learning of their students [15].

One of the interviewees responded from the semi-structured interview as follows:

> It was a great experience for me to communicate with the instructor through the discussion forum on the course learning management system. In other courses, I rarely had opportunities to interact with the instructor. At first, it was a little awkward for me to exchange postings with my instructor, but soon I got accustomed to this new experience. Actually, it was really pleasant to respond to my instructor's posting and got responses to my posting from the

instructor (Data from the semi-structured interview).

Figure 9 shows students' perception of Moodle as the effective interactional tool between the students and instructor.
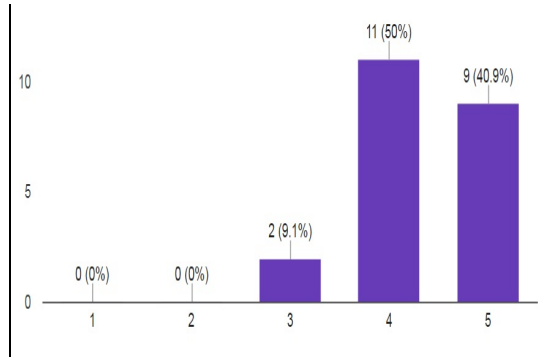

Figure 9: Students' perception of Moodle as the effective interactional tool between the students and instructor

Among the students, twenty two students (100%) responded that they would be willing to adopt the course management system like Moodle into their future teaching. This result supports the research result that the students as pre-service teachers could develop awareness of the advantages of technology-enhanced language instruction through their learning experience, while engaging into the use of educational technology such as the course management system [21]. They could understand these innovative online course management platforms could be used as effective technological tools in order to collaboratively build instructional frameworks [16]. Figure 10 shows students' willingness to adopt Moodle as the learning management system for their prospective teaching practice.
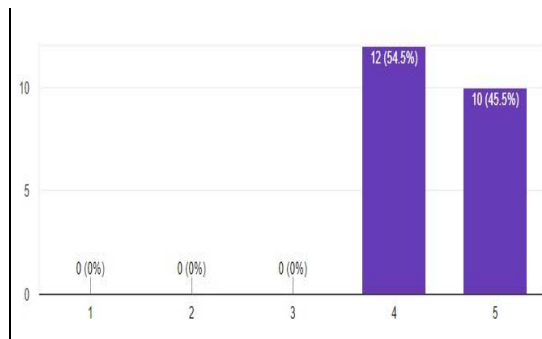

Figure 10: Students' willingness to adopt Moodle as the LMS for their prospective teaching practice

In summary, some of the students' responses from open-ended questionnaire and semi-structured interviews are as follows:

✓ Through the flipped learning experience, I could actively participate in the class time because I was prepared for the course learning contents.
✓ I could work together with my classmates to complete the learning task through interactive and cooperative classroom activities of flipped learning.
✓ The use of Moodle had some benefits and we could easily access the course website and study whenever we wanted.
✓ It was convenient that I could watch the course videos on Moodle website using my smart phone.

5. CONCLUSION

Educators in this digital era have been constantly embracing innovative technologies and instructional pedagogies [22]. This study aimed at investigating how flipped learning could influence university students' English language learning experience and examining students' perceptions of the use of Moodle as the course management system to support their flipped learning experience. The purpose of flipped learning is to help learners engage in before-class study in order to encourage classroom participation for during-class study and eventually to accomplish more fruitful learning outcomes. As a whole, the use of Moodle and flipped instruction could help to promote not only students' English communicative competence but also their interactional and sociocultural competence. Although the current study revealed significant pedagogical benefits and issues using flipped learning and Moodle as the learning management system, one specific case may not be generalizable into other research contexts. In that sense, follow-up research may be needed in the broader context with more subjects so that the effectiveness of the suggested instructional method and strategy can be proved to be reliable and valid. Meanwhile, the results of this study can be used to offer insights to support more effective flipped learning activities as well as pedagogical and technical strategies.

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