ANALYSIS OF LEARNING EFFECT OF FLIPPED LEARNING BASED COMPUTER USE LESSON

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Abstract

This paper suggests efficient learning improvement method of computer use instruction based on flipped learning. Traditional computer use classes were difficult to practice and collaborative with sufficient lectures. However, we used KOCW (Korea Open Courseware) as a footstep video in the class using the flipped learning method and learned in advance before entering the classroom. In the classroom, we conducted collaborative hands on class based on mutual discussion. After the instruction, we measured learning motivation and satisfaction by grade, and major using the motivation test tool. The results showed that degree of attention awareness, perception of class relevance and perception of learning satisfaction were analyzed as 'very satisfied' and 'satisfied' more than 90%. The flip-learning-based instructional model proposed in this paper is composed of ‘Before class’, ‘In class’, and ‘After class’. Because students participate in classes by watching class-related videos beforehand in class, students should concentrate on hands-on lessons during class and spend lots of time in practical exercises due to the nature of computer use classes. This study was conducted for college students. The learning motivation test tool used in this study was developed by Lee(2015). The questionnaires were composed of 20 items, 5 items of attention, 4 items of relatedness, 5 items of self-confidence, and 6 items of satisfaction. As a result, the degree of attention of students of natural science majors was rated as 4.4 points and the learning satisfaction as 4.1 points. It was found out that students were pre-studying the footstep video using KOCW and were actively involved in learning by curiosity about learning contents. In addition, students with diverse backgrounds conducted collaborative discussion-based instruction, which enabled active lectures led by learners, which enabled students to solve the questions they had in the lecture room.

Keywords: Flipped Learning, Learning Satisfaction, Computer Use Instruction, Inspection Tool, Learning Motivation Convergence, Convergence Education.

1 INTRODUCTION

Since the current “computer use” class is based on traditional teaching methods, students have problems such as losing interest in classes, lack of interaction, and lack of individual learning. In addition, due to the nature of the liberal arts classes, students take a lecture by various students by gender, grade, department, and nationality. Therefore, linguistic communication problems among students of various nationalities, and the interest and concentration problems of each grade are shown.

The majority of students are not computer majors and they have a desperate need to use computers. But traditional class lessons have to learn everything in a limited class time. If students were not able to follow the lectures of the professors, they would lose interest in the class more and more. Therefore, in this paper, we apply flipped learning to the computer classroom, which was conducted in the traditional classroom, so that we can learn the contents related to the classroom in KOCW(Korea Open Courseware).

During the class, students can study the contents of the lesson in advance and repeat the lessons that they did not understand, so they can come to know the knowledge about the lesson in advance and concentrate on the practice. The questions are solved through collaborative discussions with the team members or through discussions including the professors. As a result, students are able to get various learning outcomes because of their high level of class satisfaction and class participation due to active participation in class through interaction [1, 2, 3, 4, 5, 6, 7].
2 COMPUTER USE INSTRUCTIONAL DESIGN MODEL

Computer use lesson using flip-learning is a self-directed learning method that allows students to actively participate in learning. In this class, we don’t spend most of my time explaining my theory but effective practice-based lessons are held. In the existing class, about 70% of the time was used for lecture, and only about 30% was used for practice. However, in this class with flip-learning, 100% use time to interact with students through hand-on class. In addition, the theoretical background necessary to use the computer lesson is we could improve the understanding of the class by precedence.

The proposed flipped learning based instructional model as shown in “Fig. 1”, In class, After class and Before class. Students should check out the class-related videos from KOCW, and they participate in the lesson class. During the class, students can concentrate on hands-on lessons and spend more time on the lessons, which can improve the efficiency of the lessons by enhancing the participation and satisfaction of the lessons [1, 8, 9, 10, 11].

3 EVALUATION

3.1 Subject

The subjects of this study were 30 students in the 1st to 4th grade who took computer use lesson course at K University. According to the questionnaire, there are five students majoring in the College of Education, 14 students in the College of Humanities and Social Sciences, 8 students in the College of Natural Sciences, 1 student in the College of Arts, and 2 students in the College of Nursing. By nationality, three foreigners are included.

3.2 Measuring tools

Keller developed the learning motivation test tool used in this study and revised the items by relating the items used in the study of Lee (2015) to computer-based instruction. The test items of the learning motivation test consisted of 20 items and consisted of five items of attention, four items of relevance, five items of self-confidence, and six items of satisfaction [12].

3.3 Research experiment

The results of analyzing the learning satisfaction about whether the flip - learning class helped to understand the contents of the class in advance through the learning motivation test by gender, grade, major and nationality were as follows. “Table 1” shows the validity of the significance level for the hypothesis because the significance level is less than 5% in the confidence interval for the Attention concentration, Relevance, Confidence, and Satisfaction hypothesis as a t-test result by the independent variable of the learning motivation test.
Table 1. Learning motivation test.

<table>
<thead>
<tr>
<th>Division</th>
<th>t</th>
<th>df</th>
<th>Significance level (both sides)</th>
<th>Average difference</th>
<th>95% confidence interval of difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower limit</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>maximum</td>
</tr>
<tr>
<td>Attention</td>
<td>34.937</td>
<td>26</td>
<td>.000</td>
<td>4.18519</td>
<td>3.9389</td>
</tr>
<tr>
<td>Relevance</td>
<td>32.459</td>
<td>26</td>
<td>.000</td>
<td>4.27407</td>
<td>4.0034</td>
</tr>
<tr>
<td>Confidence</td>
<td>39.595</td>
<td>26</td>
<td>.000</td>
<td>3.28704</td>
<td>3.1164</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>51.507</td>
<td>26</td>
<td>.000</td>
<td>3.96914</td>
<td>3.8107</td>
</tr>
</tbody>
</table>

“Fig. 2” showed an average score of 4.51 for Attention concentration, Relevance, Confidence, and Satisfaction of students of natural science major, and 4.12 of average score for other major students.

The t-test was used as a sample. The degree of awareness of the attention concentration in the learner’s motivation for learning was very high (4.2 points). The questions about motivation of learners are as follows.

“I was able to concentrate on using computers for a semester”, “When a professor explains important things, he concentrates on us”, “I am interested in questions or problems in computer use class hours”, “Learning KOCW’s videos through computer-based instruction will help me understand the contents in class.”

Fig. 2” showed an average score of 4.51 for Attention concentration, Relevance, Confidence, and Satisfaction of students of natural science major, and 4.12 of average score for other major students, appear.

The level of perception of the learners’ motivation for learning was very high (4.3 points). The questions are as follows. “I participated in computer-based classes very much.” “I think it would be
more effective to study the contents of computer-based instruction through KOCW's videos than to perform face-to-face classes."

Confidence in learners’ learning motivation was very high, 4.3 points overall. The questions are as follows. "I think I can get good grades if I listen to the class very hard.,” "When I learn the contents related to the computer using KOCW's video, I can listen to the insufficient part repeatedly. It seems likely."

Satisfaction was 4.4 points higher than the average. The questions are as follows. "I am very satisfied with computer use classes," "I am interesting with computer use classes," "I am often disappointed with computer use classes (1.7 points)," "I would like to recommend it to other students (4.593 points)."

3.4 Research results

In this study, we obtained the following results. First, it prepares through the before class and increases curiosity about learning contents. This contributes to motivation for learning. As learning motivation increased, they participated more enthusiastically in learning and eventually had higher learning satisfaction.

Second, computer use instruction is more practical, so communication among peers is more important than lecture by professors.

As a whole, the existing lecture class was a one-sided class led by the professor. In this class, however, students can fully understand the contents of the lesson by using the smart phone or the internet and have a question about subjects. In this class, students with diverse backgrounds conduct collaborative discussion-based practice-oriented lessons. It is possible to make active class led by learners and to get the sense of accomplishment by solving the questions that learners have in the classroom.

4 CONCLUSIONS

This paper showed that learners’ learning motivation and learning satisfaction are improved by applying flipped learning to university computer use lesson. It was found out that students were pre-studying the footstep video using KOCW and were actively involved in learning by curiosity about learning contents. In addition, students with diverse backgrounds conducted collaborative discussion-based instruction, which enabled active lectures led by learners, which enabled students to solve the questions they had in the lecture room.

The limitations of the proposed teaching method are as follows. The most important thing in using computer using flipped learning is to obtain good learning materials. If teachers could not provide the learning materials, they could not give curiosity and satisfaction to students. It is therefore important to select and provide data to students based on objectivity and reliability.

REFERENCES


