BLENDED LESSONS OF TEACHING METHOD FOR INFORMATION STUDIES IN WHICH STUDENTS PRODUCE A LEARNING GUIDANCE PLAN

Isao Miyaji
Faculty of Informatics, Okayama University of Science
Ridai-cho 1-1, Kita-ku, Okayama-city, Okayama, Japan

ABSTRACT

Adopting exercise-making and evaluation activities, we conducted a teaching method of Information Studies which is a teaching-training course subject. We surveyed the learners' recognition rate of terms related to lessons at both the beginning and the end of lessons. Then we tested the significance of the differences between both rates. Those results revealed that the participants' amount of knowledge had increased significantly. The participants' awareness related to ability had surveyed. Significant difference tests about their awareness revealed that they had improved significantly.

KEYWORDS

Teaching method for information studies, Teaching guidance plan, Evaluation activity, E-learning, Blended lesson

1. INTRODUCTION

Academic education using manufacturing and evaluation activities to cultivate students' ability to solve problems has been advanced by the author (Miyaji 2009). To help students taking college lecture courses, methods developed in earlier studies supported them so that they can prepare and review their lessons anywhere and anytime on a personal basis, thereby increasing learning opportunities for various students (Miyaji 2011). As a part of that effort, the author implemented blended lessons related to the introduction of computer science. Moreover, development of lectures combining lecture process notebooks, e-learning, and a quiz elicited some effects (Miyaji et al. 2005). In Japan, such blended learning lessons are often conducted. Mutual reinforcement between lectures and e-learning is beneficial (Miyaji 2009).

Some have compared and reported trial runs of educational curricula for teacher-training course subjects (Matsuda 1999). However, few reports have described educational methods that have been actually introduced, or their effects (Miyaji 2011).

An intensive training course for teaching methods used in information studies was conducted at A University. It uses blended lessons, in which students can learn lesson contents using lecture slides with e-learning outside lessons. We report herein that such lessons increased their amount of knowledge and improved their awareness.

2. CONTENTS AND PLANS OF LESSONS

A University, the teaching methods course for Information Studies is a teacher-training subject. The methods are taught in this subject so that students in high school collect proper information from a large amount of information, subsequently they can sort it and can use the "information". For students in high school to solve problems, they must be able to build their own knowledge from that collected information, to communicate it properly with others, and to transmit it to others. In other words, teachers in Information Studies must be able to have their students in high school think about large amounts of information, conduct repeated trial and error, and improve what they have worked on and expressed. In the lessons, the teaching methods were taught the students based on a textbook (Miyaji 2004).

The purposes of the lessons offered at A University were that a student came to be able to do the following: to know teaching goals and composition of the subject "information," to know the subject outline and instruction points, to master practical method, to teach students Information Studies, and then to evaluate their knowledge. The students must be able to understand the teaching method for information studies and be able to produce a teaching guidance plan under which they will actually conduct classes. Additionally, they must increase their necessary capability to administer and conduct classes, and to master the capability to solve problems that can be predicted to occur in information studies lessons.

The information studies teaching method was conducted in a closely packed series of 15 lessons of 90 min for four days. Using a textbook (Miyaji 2004), face-to-face classes were conducted by projecting slides on the screen. The contents were given in order of the textbook's chapters 1–7. During the fourth, eighth, and twelfth lessons, the last lessons of the respective days, assignments related to a learning guidance plan were done: the students were asked to produce a report and submit it. Furthermore, by the twelfth lesson of the third day, they were obligated to produce their own learning guidance plan including PowerPoint (Microsoft Corp.) slides.

For the thirteenth lesson of the fourth day, they were asked to make a presentation with the slides and to evaluate it with other students. For the fifteenth (final) lesson, the final examination was administered: 15 students took the test.

To intensify the effects of this lecture and to enable the students to make a peer assessment, e-learning functions were added as follows: (1) learning with 254 lecture slides; (2) documents and templates of seven kinds which can be downloaded; (3) exercises of seven kinds to submit and be uploaded; (4) uploading opinions to a bulletin board and browsing them; and (5) sending question mail.

Students were asked to download the template to produce a report. Later, they submitted the report printed on A-4 size paper during the lesson period.

We requested that they make and submit reports by the four exercises: (1) explain the reason why they want to be an information studies teacher; (2) produce a learning guidance plan for an information studies' lesson; (3) make slides for the learning guidance plan; and (4) write a presentation manuscript for the learning guidance plan and then present. Only in terms of the presentation in assignment 4 did we have them make peer assessments.

With exercise 2, participants were asked to design concrete lessons in Information B and Information C so that their students can solve their problems. They were requested to make a learning guidance plan for two-unit lessons (100 min). To the 16 items, participants filled out a file presented on Excel software (Microsoft Corp.).

With exercise 3, based on exercise 2, the students compiled their teaching guidance plan to be executed in two unit hours (100 min) on six slides of PowerPoint software (Microsoft Corp.).

With exercise 4, students presented their own prepared slide on the screen in front of other students after making a presentation manuscript. The allotted time was five minutes, of which three minutes were allotted for the presentation and two minutes were allocated for questions and answers. Subsequently, they mutually evaluated what had been presented. After the evaluation, they filled out their evaluations of others on the evaluation sheet and submitted it.

3. ANALYTICAL RESULTS AND DISCUSSION

After conducting lessons of teacher-training methods for Information Studies, we surveyed the recognition rate to ascertain the change of the participants' knowledge amount and conducted a consciousness survey to elucidate the extent of change of their awareness. We analyzed the data using tests of significant difference. We explained the results.

With regard to 50 terms related to the lecture content of teacher-training methods for information studies, we conducted a pre-survey of the recognition rate at the first lesson and the post-survey at the fourteenth lesson. All 15 participants responded to both surveys. The recognition rate responses were the following three: 1. I do not know it; 2. I do not know the details, but I have heard of it; 3. I know it.

The pre-average and post-average rating values were, respectively, 1.9 and 2.8. From results of *t*-tests corresponding to 50 items, we were able to infer significant differences. Because the recognition rate of the terms became higher overall, it was found that the amount of knowledge about the terms had increased.

In terms of the pre-average and post-average rating values, the results of the *t*-tests corresponding to each term are presented. Results show significant differences for 45 out of 50 terms. From this result, we infer that knowledge about the terms increased.

In terms of the awareness related to the ability of 30 items, we conducted a pre-survey at the first lesson and a post-survey at the fourteenth lesson (Miyaji 2005). The rating scale values were of following nine stages: 1. no ability; 3. little ability; 5. a little ability; 7. not a little ability; 9. sufficient ability.

Respondents to both the pre-survey and the post-survey were 15. The results of *t*-tests assessing between the pre-rating scale value and post rating scale value for 30 items related to the ability showed a significant difference: awareness related to ability had improved as a whole.

The *t*-tests between pre-average and post-average rating scale values of each item of awareness related to ability were conducted compared, revealing significant differences for 11 items. Furthermore, we found a tendency of significant differences for three items.

One purpose of the lecture is to develop the ability necessary to conduct classes. In other words, it is to solve problems that might arise when giving lessons in information studies. Because “ability to solve problems” and the rating scale values related to many other abilities increased, results suggest that the abilities necessary to conduct classes in information studies courses should have also increased.

4. CONCLUSION

For students of teacher-training in the information studies at A University, we requested that students use e-learning, produce a learning guidance plan and its slides, and give a presentation. Furthermore, we had them mutually evaluate the presentations along with other students.

Analysis of the educational information obtained through conduct of those classes revealed the following:

(1) Because the recognition rate survey of the terms showed that the knowledge amount of the terms increased overall and the knowledge amount of almost terms increased, it suggests that the students became to be able to understand the teaching method for information studies and be able to produce a teaching guidance plan.

(2) Because a survey of awareness related to ability showed that the awareness improved significantly overall, it suggests that the students have increased their necessary capability to administer and conduct classes, and to master the capability to solve problems that can be predicted to occur in information studies lessons.

The author appreciates the support of the Grant-in-Aid for Scientific Research, foundation study (C22500949) provided by the Ministry of Education, Culture, Sports, Science and Technology, Japan for this research. The author would like to express appreciation to the students who were surveyed and who helped collect educational information.

REFERENCES

Matsuda, T., Hatano, K., Emoto, R., Nomura, T., 1999. *Teaching Method of Information Study in Pre-service Teacher Training Course (2) Improvement of Training Curriculum and Connection with In-service Teacher Training*, Proceeding of the 1999 Conference of JET, pp.411-412.

Miyaji, I. (Ed.) 2004. *Method of a Theory and the Practice of New Information Education*, Gendai Kyouiku-sha, Tokyo, Japan.

Miyaji, I. and Yoshida, K., 2005. *The Practice and Learning Effect of Education by Blending of Lecture and E-learning*, *Transactions of Japanese Society for Information and Systems in Education*, Vol.22, No.4, pp.230-239.

Miyaji, I. (Ed.), 2009. *Toward Blended Learning from E-learning*, Kyouritu-Shuppan, Tokyo, Japan.

Miyaji, I., 2011. *Effect of the Blended Lessons of the Education Method for Information Studies to Produce a Learning Guidance Plan and to Evaluate Mutually it*, Journal of Japanese Association for Education of Information Studies, Vol.4, No.1, pp.11-19.