

The third recommendation is to add a slightly more challenging applied assignment that is not required to be submitted. Students will receive extra points for submitting the applied assignment, but no points will be deducted for not submitting it. Difficult assignments stimulated students' learning activity. From this, we believe that motivated students will increase their learning activity by working on applied tasks.

The final step is to improve the question-and-answer session. We attempted to respond to questions from students using the video conferencing system during lectures. However, the number of students who accessed the video conference system was very small, approximately one or two per week. We also provided a forum for questions, but there were only 16 postings. However, there were 513 e-mail inquiries from students. In asynchronous distance lectures, the lack of information in the e-mail inquiries resulted in extra correspondence, which was burdensome for students and teachers. In addition, e-mails are handled individually, meaning that information cannot be shared, and this has an impact on the number of students posing similar questions. We assume that the reason for the high volume of e-mails and low usage of the forum is the display of usernames. Therefore, to reduce the burden of answering questions by e-mail, we propose an anonymous questionnaire that allows students to request the information needed to answer the question. We will also attempt to make the questions more relevant by providing examples of good questions and material on how to ask them. We aim to improve these points to make asynchronous distance learning more effective.

8 Conclusion

In this paper, we modified blended lecture materials to deliver asynchronous and distance information literacy lectures. The part designed for asynchronous distance lectures allowed students to continue their learning activities during the lecture period. In addition, students learned slightly less from the redesigned self-learning materials than from the blended lectures; however, the learning effect did not drop significantly. As a result, we were able to effectively reuse the materials of blended lectures to achieve asynchronous distance lectures.

In addition, we divided the students into three groups based on their learning effectiveness and analyzed their learning activities. As a result, some students were found to have not learned enough by the assignment deadline. Based on these analyses, we proposed three ways to improve the teaching materials and question-and-answer sessions.

In the future, we intend to implement asynchronous distance lectures with improved teaching materials and analyze the subsequent learning effects and activities. The learning analysis in this paper shows that students who have not fully learned the material are more likely to submit it just before the due date and are more likely to have a low score. Therefore, we expect to be able to follow them as well. Our ultimate goal is to establish a more effective distance lecture course.

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