

Title	遠隔教育におけるビデオ会議を用いたグループ学習システムの構築
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A group learning system for videoconferencing in Distance education

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The computer, which can deal with multimedia data like moving picture, came out by the progress of PC and network technologies. In the distance education system, a lot of groupware, which uses videoconferencing, is developed, and the education through the communication media has become popular.

There are not many researches on the influence on the effect of study by the difference of the teaching method and the study form, while the expectation for the education through various communication media of distance education rises, and technical development of the distance education system advances remarkably.

In the education through media, if media used are appropriate, the difference is assumed not to contribute the effect of study. However, it is thought that there is not only influences in which appropriate media but also influence on the effect of study by using a suitable teaching method and study form for media.

In the group study by a remote class and a facing class, it is shown that there is a difference in the ratio of the intervention of the teacher, in the communication of the teacher and the learner, and in the communication of the learner and the learner. As for the ratio of the intervention of the teacher, teachers intervene a facing class more positively than remote classes, and they are taking the leadership of the facing class than a remote class. There is a difference that the utterance of the learner is more than the teacher in a remote class, and the utterance of the teacher is more than the learner in a facing class.

In this research, for the group learning system using videoconferencing in the distance education, three experimental systems, which differ in the combination of the presence of the intervention of the teacher and the presence of the communication between groups

are constructed, to analyze the teacher and learner's interactions and the influence of the effect of study by the difference of the system.

The experiment system is evaluated from two viewpoints, which consist of educational and technological. The questionnaire survey, the measurement of the utterance frequency and the utterance time, and the interaction analyses are made as an evaluation in an educational viewpoint. Here, the interaction analysis is a technique by which the appearance of communications in the class of the teacher and the learner is analyzed. The influence on teacher and learner's effects of study by the difference of the system can be seen by this analysis method. The operativeness of the application used by the class in experiment system is evaluated as an evaluation in a technical viewpoint. In addition, to examine the factor of an effective group study system, the factor analysis is given.

According to the result of the analysis, the seven factors to provide for the evaluation of the system are found : "The whole consciousness of study which contains quality of picture and voice", "Communications and study activity in group study", "Operativeness of system", "Picture switch method", "Teacher's sense of existence", "Participation volition for class by taking communications with person outside group", and "Operativeness of system to take communications with person outside group".

It is shown that the utterance by which the problem is led to the solution increases by the communication between groups from the result of the interaction analysis. The score of "A lot of opinions of the problem came out" is high because of the communication between groups from the result of questionnaire. It is also shown that "Communications and study activity in the group study" is one of factors to decide the goodness of the group study system from the result of the factor analysis. When these results are synthesized and considered, the system that can do the communication between groups is thought that the discussion becomes active in the group study system.

More effective group study will be achieved by improving the system in consideration of these factors in the future.