The Role of Teachers During Grammar Learning Using Drill-Type CAI Teaching Materials

--- Basic Research to Develop Effective Instructional Methods ---

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Key word: Drill-type CAI, Grammar learning, Teacher's role, Teaching method's development

Accompanying the spread of computers, a broad range of CAI teaching materials is being developed and used in Japanese education. As a result, research on the effects of Japanese education using computers is now actively being conducted.

Although there is little research on the effects of CAI learning in Japanese education, the problems and effects of CAI learning in various education fields are being researched in Europe and in the United States. Most research on the effects of CAI learning originates in the fact that individual learning has become possible with the use of computers. In addition, various effects have been presented including increased learning motivation and improved accuracy.

One of the effects of CAI is the high number of interactions between learners and computers. Rosenbaum (1968) compared the interaction between learners and computers during CAI learning with the interaction between teachers and learners during regular classroom lessons. Rosenbaum pointed out that CAI learning has 10 times the number of interactions compared with regular classroom learning.

I also noticed the high number of interactions between learners and computers during CAI learning compared with regular classroom activities through an analysis of lessons using drill-type CAI teaching materials developed by myself and an analysis of learning histories. I question however the validity of comparing the interaction between computers and learners with the interaction between teachers (i.e., human beings) and learners. Through CAI lessons conducted over a period of approximately two years, I witnessed the importance of the interaction between teachers and learners during CAI lessons. As well, my earlier research revealed

that with/without appropriate teacher instruction on voice hint use influenced the learning of kanji and vocabulary during drill-type CAI learning. As such, I recognized the importance of the teacher's role during CAI learning.

As basic research to clarify the effective role of a teacher during drill-type CAI learning, this paper examines differences in the CAI learning effects with/without the instruction of a teacher. It also clarifies differences in the interaction between computers and learners, and teachers and learners, by comparing CAI classroom learning with regular classroom lessons.

As a result of tests with 30 Japanese learners as subjects, when the interaction between computers and learners, and teachers and learners, is considered to similar, the number of interactions was highest for the group without teacher instruction, followed by the group with teacher instruction and regular classroom lessons. However, post-testing revealed that the number of interactions was highest for the CAI learning group with teacher instruction, followed by the group without teacher instruction and regular classroom lessons.

Furthermore, when I compared the content of the interaction of each group, the majority of interactions in the regular classroom lessons concerned questions on grammar and feedback. On the other hand, interaction during CAI learning with teacher instruction included many questions on the CAI teaching materials, computer operation, and instructions given in the teaching materials.

This test is only a pilot study for future surveys and tests, and its reliability is not high due to the small number of tests subjects. As well, questions on the operation and instruction of the CAI teaching materials are a result of problems related to the teaching materials used this survey. If we can improve on these problems, different results may be observed. Based on these results, effective instructional methods during CAI learning and the appropriate role of teachers should be clarified by improving the teaching materials. Moreover, data reliability should be improved by increasing the number of subjects and by extending the test period.

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