The Relationship between Learner Characteristic and Interest in Teachable Agent

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Introduction

The researchers in the field of cognitive science and learning science suggest that teachable agent (TA) induces the effective learning (Kim et al., 2005). However, the effects of TA on interest are not universal. Rather its motivational effect may vary depending on individual characteristics of the learner. This study is conducted to investigate what kinds of learner's individual characteristics are related to the task interest in using a teachable agent (TA) program.

Experiment

Method

Forty (20 males, 20 females) fifth graders participated in this experiment. Before the experiment, individual characteristics of participants such as metacognition, achievement goal orientation and self-efficacy were measured by questionnaire. Participants took the instruction of how to use KORI program for 30 minutes. Then, they were asked to use TA program at home at least 20 minutes a day for 10 days. While participants were using TA program, log data of learner's response were collected through the networked computer. After the experiment, the level of task interest was examined by a questionnaire.

Results

Multiple regression analysis indicated that independent variables such as frequency of login and duration as they using KORI explained 21% of variance of task interest (F = 4.86, p < .05).

In contrast, 40% of variance of task interest was accounted for by four individual characteristic variables. Metacognition was positively related to task interest (β = .09, p < .05), whereas performance goal orientation (β =-.35, p < .05) and mastery goal orientation (β = -.70, p <. 05) were shown to be negatively related to task interest (see Table 1). However, self-efficacy did not make a significant contribution to the prediction of interest (p > .05).

Table 1: regression analysis with individual characteristics

Independent variables	β	t
Metacognition	0.90	4.22*
Performance goal orientation	-0.35	-2.62*
Mastery goal orientation	-0.70	-3.20*
Self-efficacy	0.01	0.08

Dependent variable: Interest, *p<.05. R^2=0.40, F= 5.93. Independent variables appear in the order in which they were entered into the model.

Conclusion

It was found that learner's response patterns such as the frequency of log-in and the time spent in a program were good predictors for task interests in TA. Also, the results of experiment showed that the motivational effects of TA could vary depending on participants' individual characteristics such as meta-cognition, performance goal orientation and mastery goal orientation. It suggests that individual characteristics in motivational variable should be considered in order to provide adaptive interfaces to enhance motivation of learner in TA.

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References

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