

The Effects of Question-Prompt Scaffolding Designs on Students' Decision-Making on Socio-Scientific Issues

Jen-Yi Wu * Wen-Xin Zhang ** Ying-Shao Hsu ***

To explore the effects of question prompt scaffolding on students' decision-making on socio-scientific issues in a computer-supported collaborative learning environment, this study designed a SSI online module with open-ended question prompts and another module mixed with open-ended or close-ended question prompts. Using the quasi-experimental research method, the 11th-grade classes in a senior high school were randomly assigned to two modules to learn about the decision-making on issues of water reservoir and green building lasting for four class periods. The results of 41 valid samples showed no significant difference found between the performances on the pretest about electricity supply of students in the two modules. Regarding their performances on the tasks in the first water-reservoir issue, the students in the module with mixture design performed significantly better than those in the module of open-ended question prompts. However, no significant difference was found between the performances on tasks about the second green-building issue of students in the two modules. Moreover, in the posttest about nuclear power issue, the students in the module of open-ended question prompts performed better than those in the module with mixture design. In addition, the performance gap between the students with low decision-making ability and high decision-making ability was no longer obvious. It is suggested that in the collaborative learning environment, open-ended question prompts provide certain optimal challenges that can significantly promote students' performances on decision-making.

Keywords: decision-making ability, collaborative learning, socio-scientific issue, scaffold