Fifth graders' flow experience in a digital game-based science learning environment

Meixun Zheng

(Under the direction of Dr. Hiller A. Spires)

ABSTRACT

This mixed methods study examined 73 5th graders' flow experience in a game-based science learning environment using two gameplay conditions (solo and face-to-face collaborative gameplay). Findings from both the adapted flow experience survey and focus group interviews revealed that students had high game flow experience; however, there were no flow experience differences that were contingent upon gameplay conditions. Results identified factors that significantly impacted students' game flow experience, including game design features such as balance of challenge and perceived skills, immediate and clear feedback, gamefulness, and clear game background story, and student personal factors such as reading proficiency. Students made significant science content learning gains as a result of gameplay, but flow experience was not found to be a predictor of learning gains.

The study demonstrated that the game was effective in supporting students' enjoyable flow experience and science content learning gains. In particular, this study demonstrated that flow theory provided a new lens to examine upper elementary students' game-based learning experience/emotion and that the adapted game flow experience survey provided a satisfactory measure of students' game flow experience. The results also have implications for educational game design, as game design features that significantly contributed to students' flow experience were identified. The focus group interviews disclosed important supplementary information regarding students' game flow experience, suggesting that future studies employing a mixed method design will more aptly capture the phenomenon.