IMPROVING COGNITIVE LEVEL OF STUDENTS IN EFL SMARTWATCH SUPPORTED LEARNING ACTIVITIES

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ABSTARCT

Mobile technology is a useful tool to assist English as a Foreign Language (EFL) learning because it can help students produce language input and output (Shadiev, Hwang & Huang, 2017). Mobility of this technology enables so-called "seamless learning" in which learning experiences are smoothly connected inside and outside the classroom (Looi, Seow, Zhang, So, Chen, & Wong, 2010). One type of mobile technology are wearable devices, e.g. smart-watches (Shadiev & Yang, 2020). Smart-watches incorporate computing functions and various sensors (Bower & Sturman, 2015). For example, sensors of smart-watches can continuously measure, record, and display different physiological information of a learner (Sawaya, 2015). Smart-watches also feature such functions as texting, recording, communicating, positioning, and monitoring (Shadiev et al., 2018). In a language learning environment, learners may use a virtual keyboard or built-in microphone to create textual or verbal content and send it to other learners for peer review and comparison. Smartwatch sensors can easily measure a learner's location when they learn in the real world to provide contextually related learning content. Smartwatches can also monitor learners' physiological states and notify the instructor to intervene if a learner is anxious or feels discouraged.

In this study, we designed EFL learning activity for junior high school students. The students learned the language in class and then applied newly learned knowledge to the real world. For example, in class, the participants learned the new vocabulary, grammar, and sentence patterns as well as practiced dialogues and worked on textbook assignments related to different topics. Out of the classroom, the participants applied newly learned knowledge to the real world by describing real people, objects, and situations in their neighborhood using new vocabulary, grammar, sentence patterns, and examples from their textbook. Using such learning design, we aimed to facilitate their cognitive processes related to language learning. Smartwatches were provided to the participants so that they could practice their language skills and be physically active. We aimed to explore how learning activity supported by smartwatches can improve cognitive levels of students such as Remembering (i.e., remembering new knowledge), Understanding (i.e., understanding new knowledge), and Applying (i.e., applying acquired knowledge in new situations). We also explored student learning experiences during the smartwatch-supported language learning process.

Our results showed that students' cognitive level was significantly higher at the end of the learning activity than that at the beginning of the learning activity. From the interviews, we found that the students' learning experience can be categorized into EFL learning, physical exercise, smartwatch usage, learning satisfaction, and problems. The results revealed that the learning activity supported by smartwatches was useful for language learning and physical exercise, and the students were satisfied with their learning experiences. The students used smartwatch functions such as texting, recording, sharing, and monitoring their language practice in the real world. Based on our results,

we suggest designing real-world language learning activities supported by smartwatches as they may facilitate cognitive processes from low to high levels because they enable students to learn new knowledge and apply it in everyday life.

References

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