

## **Design and development of an augmented reality application to learn Mandarin**

### **ABSTRACT**

This paper presents the design and development of an augmented reality (AR) app to enhance learning Mandarin among university students using a user-centered design life cycle (UCDL). A survey was conducted to investigate the difficulty of learning Mandarin and the thoughts of using technology to assist the students in learning the language. Forty-five students participated in the survey. The results show that participants have difficulty learning to speak, write, read, or listen in Mandarin, with writing was found to be the most difficult ( $M = 3.49$ ,  $SD = .94$ ). The majority of the participants ( $n = 39$ , 87%) reported having never seen or used an AR education app. However, most ( $n = 36$ , 80%) also said that they are interested in using an AR app to learn Mandarin. A low-fidelity prototype of an AR app to assist students in learning Mandarin was designed. An expert usability evaluation was conducted with three experts. Thirty-three usability problems were found, and further changes to the low-fi were designed. A usability evaluation of the low-fi with a group of students will be conducted followed by the app's development. A final round of usability testing of the final app will also be conducted.