Abstract

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Title of research paper: Taking to the (Virtual) Stage: Developing a Questionnaire to Measure Immersion in the Mobile Augmented Reality Music Application 'Firstage'

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This research paper is concerned with devising a questionnaire which could be used to measure immersion in *Firstage,* a mobile augmented reality (MAR) music performance application. *Firstage* overlays pre-recorded live music performances onto a user's smartphone screen and commingles it with the immediate environment captured through the device's camera in order to create a blended space. Thus music artists can appear to perform anywhere the user chooses, freeing them from physical stages and turning any surface into a potential 'virtual' stage.

As described in Kim et al. (2014), many MAR applications fail due to low uptake and success is often determined by their ability to exploit augmented reality's primary strength over other media, that of creating immersive experiences. A review of the relevant literature gives an overview of MAR technology, illustrates a number of theories of immersion applicable to mediated experiences, outlines the role of audio in immersion, and analyses a selection of relevant studies which measure for immersion in MAR. Through analysis of *Firstage*, it is determined that two models of immersion may be employed to measure the application's immersive performance: the models of mobile augmented reality immersion in Georgiou & Kyza (2017) and context immersion in Lee & Kim (2011) and Kim (2013).

Using the models identified, the paper goes on to create a potential questionnaire which could be used to measure immersion in Firstage. The theoretical approach to item generation, a proposed method of implementation, and the means through which results may be analysed are each described in detail.

Discussion suggests that while each model measures for different conceptions of immersion there is some overlap, and, in the particular case of *Firstage*, perhaps context immersion might be more indicative of the application's immersive performance.