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Analyzing students' language learning experience in an augmented reality mobile game: an exploration of an emergent learning environment

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Abstract

In order to better promote the use of mobile technology in the field of language education, we created an augmented reality mobile game, Guardians of the Moʻo, for ESL (English as Second Language) learners to enhance their cultural understanding, communicational skills and also language development. Through detailed analysis of the video recorded play-through data, we found that students were able to coordinate their actions and engage in both the virtual and physical world during problem-solving processes. Thus, we argue that the embodied gaming environment which Guardians of the Moʻo provided afforded the dynamic learning experience, and it is a successful exploration of using mobile technology in creating a new learning environment.

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Keywords: Place-based Learning; MALL ; gamification

1. Introduction and Theoretical Grounding

Associated with term 'Web 2.0,' educators working in the field of Second Language Acquisition (SLA) have recently begun integrating various online language learning tools into the classroom (Steel & Levy, 2013). While this has been an excellent first step, 21st century educators must also be thinking about the emerging literacies that are being developed by their students every day with their increasing usage of newer technologies. As language teachers, it is their responsibility to play the role in guiding these students in how they use this new technology and

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presenting them with the affordances of having such devices both inside and outsides the classroom (Thorne, Black, & Sykes, 2009; Steinkuehler & Squire, 2014). In fact, some educators have already been focusing on creating language learning experiences that extend beyond traditional classroom situations (see Thorne, 2008; Holden & Sykes, 2011; Zheng & Newgarden, 2012), and one of these key ways has been through gamification.

Playing video games can be educationally beneficial (Barab et al, 2007). In the domain of language education, societal interest in computer games, especially Massive Multiple Online Role-Playing Games (MMORPGs), has fueled interest in Computer Assisted Language Learning (CALL) for the past two decades (Newgarden et al, 2015). A good video game provides rich opportunities for players to experience the problem-solving and goal-pursuing processes (Gee, 2005). Players need to establish relationships with their partners, and negotiate with each other for a collaborative action (co-action, Zheng, Newgarden, & Young 2012). Mobile games, on the other hand, have created an extended space to the MMORPG virtual environment, in the sense that the situated and embodied environment can both exist in the virtual storyline and in the physical world. Combining the findings from MMORPG studies and the theories of mobile place-based learning, we created an augmented reality mobile game, Guardians of the Moʻo, to enhance cultural understanding, linguistic awareness, and ultimately to promote students' active language learning.

2. Methodology

2.1. Our Game: Guardians of the Moʻo

In the spring of 2015, Dr. Dongping Zheng at University of Hawai'i at Mānoa led her research team to start creating an augmented reality mobile game using the open-source platform ARIS. Developed by David Gagnon at UW-Madison, ARIS, or Augmented Reality for Interactive Storytelling, allows us to design place-based quests using GPS tracking functions on mobile devices without an on-site program, and also to create a non-linear and complex storyline for our game. Adopting ideas from Hawaiian mythology, our research team created the game Guardians of the Moʻo around the story of players being the helpers or guardians of the Moʻo (who is a gecko or Lizard Goddess in Hawaiian culture) that is ill and in need of help. Using both virtual objects such as drawings or notes and physical items such as the trees or works of art on campus, we were able to afford students' new experiences and interaction in both the virtual and physical space.

2.2. Participants and Procedure

This project received a tremendous amount of support from the Department of Second Language Studies, especially the Hawaiʻi English Language Program (HELP), whose students became our target players for the game. Having interviewed HELP students to understand their attitude and experience towards English learning via (mobile) technology, and after having taken several trips to various sites ourselves, we selected various locations on campus for our players to explore and interact with. In the data that we presenting, the three HELP students are all from South Korea, and their English proficiency level is intermediate (300 level at HELP). Student 1 (S1) and student 2 (S2) are female students, and student 3 (S3) is male. On the days of the gameplay, each of the student groups were accompanied on their gameplay sessions by two members of the research team. Each group received an iPad with the ARIS game downloaded for them. Simple training on ARIS was given before students began to play the game. For the students to progress through the game, they had to physically orient themselves in places that we selected from the UH campus. At each new space they arrived at, there was a new challenge or task that needed to be completed in order to advance to the next stage. The game play data was video recorded with the permission of all of the students and later selectively transcribed for analytical purposes. We adopted Conversation Analysis (Schegloff, 2007) to look closely at the turn by turn organization of students' interaction. Also with the embodied nature of the gaming environment, we also used Multimodal Analysis (Baldry and Thibault, 2005) to understand the semiotic resources that students use, and how it would affect their interaction and learning.