A Cross Case Analysis of Two Out-of-School Programs Based on Virtual Worlds

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ABSTRACT

There is renewed interest in out-of-school programs for informal learning as a way to complement or supplement formal classrooms. Compelling evidence of learning in the context of virtual worlds is emerging, but few empirically detailed comparisons of programs based on such technologies exist. This article presents a cross-case analysis conducted on two out-of-school programs based on virtual environments involving Global Kid’s “I Dig Science” situated in the virtual platform Teen Second Life and Games, Learning & Society Program’s “Casual Learning Lab” based on the massively multiplayer online game World of Warcraft. Ethnographic methods were used for data collection across both in-game and face-to-face contexts at both sites with virtual and face-to-face data collection techniques used in combination. Analysis involved a code set of eleven a priori themes based on the shared goals of each program, resulting in 44 codes total. In this paper, the authors detail contrasts between the two programs in terms of argumentation, problem-solving, information literacy, and workplace skills, highlighting differences between the two programs in terms of their contrasting “locus of intentionality” (designer versus participant) and concluding with a set of “petite generalizations” in the form of design heuristics for future virtual worlds based programs.

Keywords: Cross-Case Analysis, Intentionality, Massively Multiplayer Online Games, Out-of-School Programs, Virtual Platforms, Virtual Worlds

INTRODUCTION

There is renewed interest in out-of-school programs for informal learning as a way to complement (if not supplement) formal learning in classrooms (Afterschool Alliance, 2004; “Home Alone,” 2009). Recent calls from the White House for an expansion of effective after-school programs (Obama, 2009) coupled with an increased desire to not simply do “more of the same” (Smerconish, 2009) have led to increased attention to innovative informal spaces, including those leveraging new technologies for learning. One technology of particular interest
has been 3D multi-user environments, including both massively multiplayer online games (MMOs) and virtual worlds. In the next ten years, 22% of global broadband users will have registered to inhabit at least one such world online (“Virtual worlds projected to mushroom,” 2008). Additionally, in a recent report it is forecasted that there will be around 500 virtual worlds in existence by the end of 2011 (KZero, 2011). Commercial worlds such as *Second Life*, There.com, and World of Warcraft – along with intentional learning environments such as River City (Nelson & Ketelhut, 2008), Quest Atlantis (Barab, Arceci, & Jackson, 2005), and Whyville (Fields & Kafai, 2009) – have become “evocative objects” for educators interested in using technology as a means for fostering social interaction, increasing motivation and engagement, and enabling quasi-authentic scientific inquiry in the context of virtual environments instead of real ones. Compelling evidence of learning in the context of virtual worlds is beginning to emerge, but few empirically detailed descriptions of programs based on such technologies exist to date, let alone comparisons among the varying approaches taken in terms of structure, methods, or participant outcomes.

This article presents a cross-case analysis conducted on two such out-of-school programs based on virtual environments. The sites studied in this work – Global Kid’s (GK) “I Dig Science” curriculum in the context of the virtual platform Teen Second Life and Games, Learning & Society Program’s (GLS) “Casual Learning Lab” based on the massively multiplayer online game World of Warcraft – were selected for their comparable use of technology platform (i.e., virtual world) and desired pedagogical outcomes yet contrasting approaches to instructional design. Using a shared theoretical framework based on the instructional goals of both programs to analyze ethnographic data from both sites, we attempt to tease out the similarities and differences in the forms of learning that took place in each context and their relationship to the instructional context of each case. In what follows, we present an overview of the research literature on programs for learning based on virtual worlds, detail the data collection and analysis methods used, and discuss our cross-case case findings in terms of the two programs’ shared goals. We conclude with an overview of the “petit generalizations” (Stake, 2003) we draw from this work and potential considerations for future educators interested in leveraging virtual worlds for intentional learning.

**LITERATURE REVIEW**

Virtual worlds are online persistent digital worlds inhabited online by participants via digital characters (avatars) that represent a physical environment, either fantastical or real. *Narrative virtual worlds*, such as massively multiplayer online games like World of Warcraft (WoW), are virtual spaces crafted to represent some coherent fictional environment (typically science fiction or fantasy based); *non-narrative virtual worlds*, such as Teen Second Life (TSL), are more-or-less realistic looking virtual spaces where players can engage in a variety of activities that range from social interaction to content creation to entrepreneurial business development. Both have a perceptive visual space, in-world natural laws (e.g., gravity, object permanence), and avatar movement and communication; however, whereas the former tends toward game type environments, the latter tend toward simulations. Yet, both have dual status as both designed object and emergent culture (Steinkuehler, 2006), functioning, on the one hand, as technological platforms with particular affordances yet, on the other hand, as cultural spaces with their own shared understandings, practices, and worldviews. Productive research on virtual worlds and learning tends to locate at this intersection, examining the knowledge and practices afforded by a given technological platform but made meaningful the people who use it.

Previous research on virtual worlds includes studies of identity development and representation (Beals & Bers, 2009; Boyd, 2008; Raessens, 2006), race and gender (Devane &
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