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MOVING FROM THEORY TO PRACTICE: CREATING EMPIRICAL, DIGITAL GAME-BASED RESEARCH WITH K-12 TEACHERS

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Background

Educators and educational theorists have long recognized the potential of digital games to transform educational experiences in K-12 classrooms (Gee, 2003, 2007; Prensky, 2007). In our increasingly digital knowledge economy, conceptions of literacy have been slowly shifting to acknowledge the importance of multimodality and multiliteracies over singular, print-based texts that have, for quite some time, been the central focus of the curriculum (De Castell & Jenson, 2003; Rowsell & Walsh, 2011; The New London Group, 1996). As 21st century citizenship requires a wide range of competencies, engagement with digital games in classrooms can develop students' capacities to recognize, gather, and address pertinent material in a wide variety of forms (de Zengotita, Avrich, Koster & Johnson, 2006; Gee, 2003, 2007; Kafai, 2010; Rieber, 1996).

Though the potential of digital games to support student learning in a wide range of areas has been well documented, empirical evidence for these claims, including studies that can replicate outcomes across contexts, is desperately needed (Linderoth, 2012; Young et al., 2012). This is especially important when considering that canonical texts in the field are often devoid of this empirical basis (Gee, 2003; 2009; Prensky, 2005; 2007)

Recognizing the prevalence of arguments in favour of the use of educational games and the gap between claims and evidence, this project addresses the question of how teachers can be best supported in using digital games in their classrooms, with a specific focus on teaching strategies developed through professional development and

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guided support. In this paper, we detail the most effective teaching strategies for digital game-play in K-12 classrooms.

Implementing Videogames in Classrooms

In this project, we used an IOS and browser-based game, *Sprite's Quest*, designed to support physical and human geography learning for grade 7 and 8 students. 34 teachers from the province of Ontario were invited to attend a two-day workshop that attempted to provide the scaffolding and tools necessary to use games in the classroom prior to the game's implementation. The effectiveness of this support was evaluated by way of classroom observations as well as interviews with the teachers.

Observations demonstrated that classroom environments in which the game and game-based learning were well integrated into the curriculum contained meaningful learning activities that connected the game to prior learning, the geography curriculum more broadly, and the real world (including the local community). In this classroom ecology, game play was focused; the teacher set up the game play activity, and the game play period was then followed by a specific learning activity that required an application of knowledge, e.g., in the completion of a culminating task.

In classroom environments that meaningfully integrated the game and game-based learning, tasks centered on game content rather than technology. While most teachers in this group used electronic platforms such as Google Classroom and board D2L sites as a component of their *Sprite's Quest* lessons specifically and physical geography units generally, the platforms were positioned as tangential to the content. For example, teachers might remind students that an activity should be completed and submitted for evaluation through Google Classroom or they might demonstrate submission techniques through a brief modeling activity, but the game and learning activities remained the point of focus. In situations where technology failed to function properly, troubleshooting took place quickly and effectively while the learning task was positioned as the focal point for students.

Classrooms that integrated game play into a curriculum that was also structured and focused typically asked students to collect facts while they played and/or to pay attention to particular items or objects while working through the game. This focused play also translated into accountability for learning during play, with students often asked to submit artifacts such as jot notes as evidence of learning at the end of game play. More often than not, students were required to complete more than one task per period or were given multiple tasks to work on if a single task had been completed.

Finally, in classroom contexts where game play was well supported and integrated, teachers were engaged in game play, demonstrating knowledge of the game and speaking with students about their own experiences and their students' experiences while playing the game. Engagement also extended to game-based learning, with teachers regularly checking in with their students by circulating during game play to ask questions, including those connected to learning and the follow-up activities. Consequently, students in these environments were often on task.

This is essential and timely research greatly needed to inform policy and practice guiding the development and deployment of digital games in formal, classroom learning contexts, as well as to contribute to a re-conceptualization the practical experiences, including the everyday realities and struggles relating to using videogames in the classroom. With respect to teacher training, much more work is needed to ensure that teachers conceptualize videogame use in the classroom in a manner that is productive to and impactful for learning: as tools that exist as part of a larger nexus of educative texts and around which a comprehensive curriculum can be developed.

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