

Playing In The Virtual Sandbox: Students' Collaborative Practices In Minecraft

Minecraft is among the most popular video games ever, selling over 100 million copies since its launch in 2009 (Huddleston 2016). Sandbox games, in which players build, explore and discover ways to survive in virtual landscapes is especially popular among young gamers (Thompson, 2016). Teachers are beginning to recognize the potential benefits of Minecraft and are looking for ways to integrate it into their classrooms (Timoner 2014). Minecraft is being used in classrooms to teach subjects such as physics and math computational thinking and creativity, digital citizenship, history and collaboration (e.g. Cipollone, Schifter, and Moffat, 2014; Craft 2016, 2016; Hill 2015; Overby & Jones 2015; Short 2012). There is even a Minecraft: Education Edition that is designed to help teachers utilize Minecraft with their students. Outside of the classroom, Minecraft camps and workshops have become popular in informal learning environments such as libraries (e.g., Cilauro, 2015; Gauquier & Schneider, 2013). The interest of educators in Minecraft is part of a larger trend in game-based learning (Gee, 2007; Plass, Homer, & Kinzer, 2015; Squire, 2006 and 2008). PROXYLIST101.COM These initiatives are founded on a constructivist method to education, where learners actively build knowledge by engaging in open-ended tasks that involve problem solving and decision-making as well as following one's passions (Plass et al., 2015).

Despite the widespread enthusiasm for using Minecraft to enhance learning, there is little research investigating its effectiveness. There is no evidence to support the learning benefits that are that are associated with using Minecraft to teach specific skills, as well as the conditions in which these benefits can be realized. The incorporation of Minecraft and other games that are multiplayer into teaching and learning is not possible until we have evidence.

The present study aims to fill in this gap in knowledge through an exploratory investigation of middle school students' collaboration while playing Minecraft in small groups of 2-4 players. We decided to focus on collaboration due to its centrality to learning (Johnson Johnson & Johnson 1989; Rogoff, 1998; Roschelle 1992) and because multiplayer games are especially well-suited to collaboration (Gee, 2007; Plass et al. 2015; Squire, 2006, 2008; Steinkuehler, 2004.). While we acknowledge that collaboration is usually employed in conjunction with other pedagogical goals, this study intentionally isolates collaboration as the focus of investigation. Research has previously demonstrated that students struggle to collaborate effectively, which could cause negative consequences to their learning outcomes (e.g. Barron, 2003). Collaboration is a skill students need to master in order to reap the benefits of collaborative learning. This requires a thorough investigation.

We focused our analysis on the types of discourse functions that players engaged in while playing the game, such as Engaging, Questioning, Instructing, and Encouraging (Bluemink, Hamalainen, Manninen and Jarvela 2010). These findings provide fresh insights into the factors that facilitate or hinder collaboration of high quality in Minecraft. These insights will be useful to educators who are interested in using Minecraft and other multiplayer games to encourage collaboration among their students.