


# Chapter 36

## Evaluating Social Change Games: Employing the RETAIN Model

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### ABSTRACT

*The RETAIN Model is a game design and evaluation model for serious games. In this study, educators evaluated social change web-based and mobile app games using the RETAIN model rubric. In general, web-based games scored higher on the RETAIN rubric than their mobile app counterparts. In addition, the educators analyzed the social change games for their “hidden curriculum.” In some cases, the rubric and “hidden curriculum” contributed to educators altering the way they used the games they had appraised by supplementing context, incorporating discussion, or not using the games at all. The RETAIN model rubric offered educators a tool to evaluate digital games.*

### INTRODUCTION

As educators pursue active learning options to engage and incentivize students to learn course content, incorporating games in learning has been found to be an active learning option that moves students from being passive recipients to active learners (Koster, 2013). The interactive nature of games, students’ motivation to play, increased engagement, and advancing technologies have teachers vested in planning instruction that includes gamification (Dominguez, et al. 2013) and serious games (Gouveia, Lopes, &

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de Carvalho, 2011; Iten, & Petko, 2016). Research regarding the pedagogy of serious games in teaching and learning is scant. Further, educators are often unaware as to which games are the most effective for transfer of learning (Kenny & McDaniel, 2011) and how to incorporate serious games (Azadegan, 2012). Teacher's dispositions and beliefs towards the academic benefits of games and personal efficacy for implementing games in instruction lags in comparison to the research (Kenny and Gunter, 2011).

As access to mobile devices burgeons in education, through the availability of tablets, smartphones, and laptop programs, the use of mobile and Web-based digital game apps has grown (Seilhamer, Chen, Bauer, Salter, & Bennett, 2015). Increased accessibility, devices ease of use, and students' natural adeptness towards mobile apps and digital learning afford new and multiple active learning opportunities. Additionally, since many apps and Web-based games are free or low cost, instruction of academic content may be supplemented through web and mobile apps with their affordances of personalized and active learning. By fostering, "learning by doing" deeper learning can be promoted (Altamirano and Jaurez, 2013) and learner-centered pedagogies supported (Crompton, 2013).

Mobile and web-based game apps are not only incorporated into learning to compliment core academic content areas, but digital game apps have been assigned to inform and persuade players regarding social and community concerns. Social changes games are characterized by their purpose to develop: (a) a social issue awareness (Schreiner, 2008), (b) personal empathy (Mariani, & Gandolfi, 2016), and (c) positive actions towards community change (Gerber, & Gaitan, 2017). Apps for social change leverage technology to inspire community action (Fogg, 2003). Examining this genre of mobile and Web-based apps has not been examined beyond a pilot case study (Campbell & Gunter, 2017).

Screening the validity of educational mobile apps intended to support classroom instruction offers teachers a rationale for including mobile apps in instruction. For these reasons, the current study was developed to assess the effectiveness of Web-based games and mobile game apps for social change learning. A rubric built on the RETAIN model provided a means for educators to quickly assess social change games for transfer of knowledge. The RETAIN model, which was developed by an instructional designer, an educator, and a game designer (Gunter et al. 2007; Kenny & Gunter, 2011), was chosen because it had previously been utilized to assess console-based and computer-based games (Gunter, 2011; Zhang, Fan, & Xing, 2010). Further, the RETAIN model has been used as a framework for the design of a multi-player tablet application developed to teach students about the water cycle WaterOn! (Dos Santos., Strada, Martina, & Bottino, 2016). Because of these reasons, the following study, utilized the RETAIN model rubric to assess apps for social change for knowledge transfer.

## **DIGITAL GAMES**

Digital games are pervasive in our culture. In the United States, approximately 97% of children and adolescents play games daily for at least one hour (Granic, Lobel, and Engels, 2014). Lee and Hammer (2011), attributed students' motivation to play games to the social, emotional, and cognitive connections that take place when players are engaged in game playing. While motivation can contribute to game play and engagement, motivation does not ensure learning. However, some studies attribute game play to improved cognitive skills such as increased working memory (Barlett et al., 2009) and problem-solving, although multiple studies yielded differing results (Connolly, 2012).

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