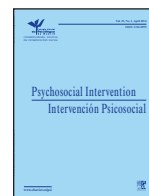# Psychosocial Intervention

"It's like you're actually playing as yourself": Development and preliminary evaluation of 'Green Acres High', a serious game-based primary intervention to combat adolescent dating violence[+]

Erica Bowen[a], Kate Walker[a], Matthew Mawer[a], Emma Holdsworth[a], Emma Sorbring[b], Bo Helsing[b], Annette Bolin[b], Eline Leen[c], Paul Held[c], Valère Awouters[d], and Sebastiaan Jans[d]

[a]Coventry University, England
[b]University West, Sweden
[c]Friedrich-Alexander University Erlangen, Germany
[d]Limburg Catholic University College, Belgium

ARTICLE INFORMATION

ABSTRACT

This paper provides an overview of the development of 'Green Acres High', a serious game-based primary intervention to raise awareness of and change attitudes towards dating violence in adolescents, and an analysis of how adolescents described their experience of playing this game. Transcripts from focus group data were analysed using thematic analysis. The global theme that was developed, *Assessment of the game*, was represented by two organising themes, *Positive assessment: Pedagogical Underpinnings* and *Negative Assessment: Functionality Limitations and Frustrations*. These represented the fact that overall the learning experience was positive based on the pedagogical principles and content that could be embedded in this digital game but that technical issues with the game needed to be addressed as these could impinge on the learning experience of the adolescents. It was seen that using a serious game was a valid and meaningful way for adolescents to learn about dating violence and that this is a viable alternative or adjunct to traditional teaching methods.

"Es como si realmente actuaras como tú mismo": Desarrollo y evaluación preliminar de "Green Acres High", una intervención que utiliza un juego serio para combatir la violencia en las relaciones sentimentales

RESUMEN

Este artículo presenta una revisión del desarrollo de "Green Acres High" [la colina de los verdes acres], una intervención primaria de verdad utilizando un juego con la finalidad de despertar la conciencia adolescente acerca de la violencia en las relaciones sentimentales y cambiar sus actitudes, así como un análisis de la descripción de los adolescentes de su experiencia con el juego. Se utilizó el análisis temático para analizar las transcripciones del grupo de discusión. La temática desarrollada, *Evaluación del juego*, fue organizada mediante dos temas, *La evaluación positiva: fundamentos pedagógicos* y *La evaluación negativa: limitaciones y frustraciones de la funcionalidad*. Representaban el hecho de que en general la experiencia de aprendizaje fue positiva en cuanto a los principios pedagógicos y el contenido que podían incorporarse en este juego digital pero necesitaron abordarse los aspectos técnicos del juego, dada su posible influencia en la experiencia de aprendizaje de los adolescentes. Se vio que la utilización de un juego serio era un modo válido y con sentido para que los adolescentes aprendan acerca de la violencia en las relaciones sentimentales y que se trata de una alternativa viable o un complemento a los métodos de entrenamiento tradicionales.

Adolescent Dating Violence

Aggression and violence perpetration and victimisation in intimate relationships begins during adolescence (Gómez, 2011; Kury, Obergfell-Fuchs, & Woessner, 2004; Lewis & Fremouw, 2001), and can be precursors to aggression in later adult relationships (Capaldi, Shortt, & Crosby, 2003; Gómez, 2011; Muñoz-Rivas, Graña, O'Leary, & González, 2007; Whitaker, Le, & Niolon, 2010). Verbal, psychological, physical and sexual aggression are common features of adolescent dating relationships (e.g., Banyard & Cross, 2008; Burman & Cartmel, 2005; Danielsson, Blom, Nilses, Heimer, & Högberg, 2009; Krahé & Berger, 2005; Reed, Silverman, Raj, Decker, & Miller, 2011), and for many young people this is deemed as 'normal' within their relationships (Hird, 2000). A comprehensive international (Europe and North America) review of the prevalence of adolescent dating violence (ADV) by Leen at al. (2013) found that rates of physical ADV ranged between 10 and 20% of the general population samples with rates similar for boys and girls. Great variability was reported in rates of sexual ADV (from 1.2% to 75%), although the inclusion of verbal sexual aggression may account for some of the higher rates found. Across studies however, victimisation was reported to be higher for girls than boys. Overall, the authors identified two general trends despite methodological variations: psychological ADV is more prevalent than physical and sexual ADV, and prevalence rates are similar for girls and boys in the majority of the reported studies across all forms of ADV (Leen et al., 2013).

ADV is associated with a range of negative outcomes including lower self-esteem and negative self-concept (Ackard, Croll, & Kearney-Cooke, 2002), anxiety and depressive symptoms (Hanby, Fales, Nangle, Serwik, & Hedrich, 2012; Holt & Espelage, 2005; Kaura & Lohman, 2007), reported suicidal thoughts and attempts (Belshaw, Siddique, Tanner, & Osho, 2012; Coker et al., 2000; Howard, Wang, & Yan, 2008) and alcohol abuse (McNaughton Reyes, Foshee, Bauer, & Ennett, 2012; Temple, Shorey, Fite, Stuart, & Le, 2013). As summarised by Ackard, Eisenberg and Neumark-Sztainer (2007), the long-term impact of ADV on the behavioural and psychological health of male and female youths include smoking cigarettes and suicide attempts for both sexes, binge eating and suicide ideation for males and smoking marijuana and high depressive symptoms in females. This highlights a need to educate adolescents about ADV so that they can recognise potential problems with this in their own relationships and that of their peers and learn how to deal with the situation should it arise. Indeed, school-based programmes have been found to be effective in the prevention of violence within adolescent (Foshee et al., 2004; Foshee et al., 2005; Wolfe et al., 2009) and adult intimate relationships (Foshee, Reyes, & Wyckoff, 2009).

Digital-based Learning

Digital technologies are a ubiquitous feature of Western society and their use is particularly salient during adolescence. This age group is more likely to use the internet, own gaming devices, go online wirelessly (via laptops and phones), use social networking sites and download and use apps on their phones (Zickhur, 2011). The rise in their popularity has raised questions about the potential pedagogical benefits of incorporating digital media in the classroom (Smetana & Bell, 2012). Certainly the use of computer technology has become more and more popular in elementary and secondary school (Li & Ma, 2010). Computers are used to facilitate learning across a range of different subjects and to gain experience in computer technology skills and knowledge. Several meta-analyses identify positive effects for the use of technology-assisted learning in maths (Li & Ma, 2010), science (Bayraktar, 2001), and reading progression (Blok, Oostdam, Otter, & Overmaat, 2002). In addition, positive effects have been found when students participate in distance

learning (Cavanaugh, 2001) which is reliant on technology by its very nature. Using technology as a teaching mechanism is also associated with positive cognitive and affective outcomes (Lee, Waxman, Wu, Michko, & Lin, 2013). It has also been suggested using technology to teach can be beneficial for both individual learning as well as group learning, although the most positive results have been found when using computer technology in small groups compared to individuals when measuring amount of knowledge gained (Lou, Abrami, & d'Apollonia, 2001).

Preferred mode of learning, or learning style, varies within student groups (Felder & Brent, 2005; Graf, Viola, Leo, & Kinshuk, 2007). It has therefore been argued that the reliance on print materials that are typically used in classroom teaching may not meet the diverse needs of all the children in a classroom (Shin, Sutherland, Norris, & Soloway, 2012). Therefore, educational material that appeals to multiple modes of learning e.g., text, picture, video, animation and audio, will address the different abilities, needs, and interests of the individual learner in the classroom (Rose, Meyer, & Hitchcock, 2005). It has been suggested that today's students see traditional methods of teaching unacceptable (Kovačević, Minović, Milovanović, de Pablos, & Starčević, 2013), and there is interest in including student's daily activities, e.g., computer games, within educational settings. These 'serious games' can encourage children to explore new ideas (Hoffmann, 2009). By definition, a serious game (SG) is an application developed that uses technologies from computer games that serve purposes other than pure entertainment (Arnab et al., 2013). Modern educational SGs are thought to be effective teaching tools for enhancing learning as they use action, encourage motivation, accommodate multiple learning styles, reinforce skills, and provide an interactive and decision making context (Charles & McAlister, 2004; Holland, Jenkins, & Squire, 2003). In addition, SGs allow students to gather new information and align this with previous knowledge and experience as well as enabling them to be active in the control of their learning in an individualised way (Dempsey, Haynes, Lucassen, & Casey, 2002).

Researchers agree that SGs have all the attributes to be effective learning platforms (Connolly, Boyle, MacArthur, Hainey, & Boyle, 2012; Moreno & Mayer, 2007; Prensky, 2001). There is evidence to suggest that the use of digital games in educational settings is a positive and beneficial experience for students across different subject matters e.g., maths, (Ke, 2013; Kim & Chang, 2010; Shin et al., 2012), science (Sung & Hwang, 2013), and geography (Virvou & Katsionis, 2008). In addition there are reports of games promoting: active learning (Mellecker, Witherspoon, & Watterson, 2013); curiosity, positive learning attitudes and motivation (Kovačević et al., 2013); improvement in learning achievement and self-efficacy (Sung & Hwang, 2013); learning of high level or complex skills (Hainey, Connolly, Stansfield, & Boyle, 2011); and engagement with curriculum content (Walsh, 2010). Several literature reviews have also corroborated that educational games have a positive effect on learning quality in comparison with more formal traditional teaching methods (Hays, 2005; Randel & Morris, 1992; Vogel et al., 2006). However, some studies question this and authors express reservations about the use of digital games as effective educational mediums (e.g., Connolly et al., 2012; Girard, Ecalle, & Magnan, 2013; Kebritchi, Hirumi, & Bai, 2010; Papastergiou, 2009b). As Hays (2005) suggests, it is possible that the observed benefits of using SGs in education may only arise in certain situations. It could therefore be argued that games should therefore not be seen as standalone sessions but perhaps something that can be used as adjuncts (Hays, 2005; Shaffer, 2006).

The consensus view is that SGs have a place in education, particularly for learning traditional (or STEM) topics, e.g., maths (Kim & Chang, 2010), science (Sung & Hwang, 2013), geography (Virvou & Katsionis, 2008), and reading (De Marco, Evain, & Gutierrez, 2013). A small corpus of literature also indicates that SGs are now being used