

The Effectiveness of a Set of Serious Mini-Games on Advertising Literacy as Educational Tool for Adolescents to Enhance Their Critical Reflection on Digital Advertising

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This document is an extended abstract of an article that was submitted to an international peer-reviewed journal and forms part of the 'AdLit' (Advertising Literacy) research project. AdLit is a four-year interdisciplinary research project on advertising literacy, which is funded by VLAIO (Flanders Innovation & Entrepreneurship). The main goal of the AdLit project is to investigate how we can empower children and youth to cope with advertising, so that they can grow up to be critical, informed consumers who make their own conscious choices in today's new media environment.

Objectives. Adolescents are increasingly exposed to digital advertising, such as advergames, online banners, and sponsored vlogs. These digital advertising formats are interactive and fun, and are characterized by a high level of integration of commercial content into media content, which makes it more difficult to discriminate between advertising and entertainment. Therefore, digital advertising challenges adolescents' abilities to critically cope with and process advertising as its characteristics make it more difficult for adolescents to activate their advertising literacy. Advertising literacy is defined as an individual's abilities and skills to cope with advertising (Boush, Friestad, and Rose 1994).

Some authors have suggested that children should be empowered to critically cope with and process advertising through interventions and educational programs (Eagle 2007; Austin and Johnson 1997). Most previous research responded to this by examining the potential impact of advertising literacy training (traditional lessons) on children's (under twelve years) advertising literacy and advertising effects (e.g., Hudders, Cauberghe, and Panic 2016; De Jans, Hudders, et al. 2017; Nelson 2016). However, despite the widely held belief that children are more susceptible to advertising than adolescents, adolescents' cognitive and information processing skills are still developing (Boush, Friestad, and Rose 1994; Friestad and Wright 1994). Therefore, their advertising literacy is not yet fully developed, especially when it comes to digital and embedded advertising, which makes them not fully capable to critically reflect on advertising on a conscious level (Vanwesenbeeck et al. 2016). To the authors' knowledge, no studies have been conducted on how adolescents can be empowered to critically cope with digital advertising through advertising literacy interventions (besides the traditional lessons).

The current study therefore examines the impact of educational games to empower adolescents to critically process and respond to digital advertising. Nowadays, gaming plays a central role in the daily lives of adolescents, as they spend more than 12 hours gaming a week



(Ofcom 2017). In addition, adolescents are bored and disengaged from the traditional learning process. It was therefore assumed that digital game-based learning (DGBL) might counter this and be an appropriate method to educate adolescents about advertising and empower them to resist implicit persuasion. DGBL refers to merging the content of learning with the entertaining power of digital games to use it as an educational tool (Prensky 2003). Despite the promising results of DGBL (e.g., Brom, Preuss, and Klement 2011; Qian and Clark 2016), the educational value of conventional serious games has been questioned; therefore, the current study examines the impact of a set of serious mini-games, short games that each focus on a specific concept or learning goal (Illanas et al. 2011; Smith and Sanchez 2010).

The current study aims to examine 1) **the impact of an advertising literacy intervention** (serious mini-game platform and informational brochure on advertising literacy) compared to no intervention on adolescents' (10-16 years) dispositional advertising literacy (i.e., knowledge and skills related to advertising) and critical processing of advertising, 2) **the effects of an advertising literacy serious mini-game platform** (compared to an informational brochure on advertising literacy) on game experiences (i.e., flow and enjoyment), and 3) **how these game experiences** (i.e., flow and enjoyment) **mediate the relationship between advertising literacy intervention on adolescents' learning effects** (i.e., dispositional advertising literacy, critical processing of advertising, perceived learning, and intention to repeat the experience).

Methods. A three-level, between-subjects experimental study (advertising literacy intervention: control condition versus advertising literacy brochure versus advertising literacy serious mini-game platform) was conducted among 211 adolescents between 10 and 16 years (Mage = 13.22, SD = 1.83).

The control group completed a 20-minute regular course, which was unrelated to advertising or advertising literacy, given to the adolescents by their usual teacher. A second group of adolescents read a brochure about advertising, and a third group played a set of serious mini-games on advertising literacy. After completing the regular course, reading the brochure, or playing the serious mini-games, the adolescents were instructed to complete a questionnaire. The adolescents were randomly allocated to one of the three conditions.

Results. The results indicated that an advertising literacy intervention resulted in a higher level of dispositional advertising literacy among adolescents ($M = 3.02$, $SD = .85$) compared to the control condition ($M = 2.64$, $SD = .73$; $t(191) = -3.05$, $p = .003$). In addition, adolescents also intended to cope more critically with advertising after being exposed to an advertising literacy intervention ($M = 2.63$, $SD = .99$) compared to no intervention ($M = 2.29$, $SD = .82$; $t(191) = -2.32$, $p = .021$). The advertising literacy serious mini-game platform (compared to the informational brochure) increased the experience of flow ($a = .38$, $SE = .19$, $t = 2.05$, $p = .042$), and flow further positively affected enjoyment ($d = .36$, $SE = .06$, $t = 6.11$, $p < .001$). Enjoyment then positively affected teenager's critical processing of advertising ($b_1 = .48$, $SE = .12$, $t = 4.11$, $p < .001$), perceived learning ($b_2 = .80$, $SE = .09$, $t = 8.69$, $p < .001$), and intention to repeat the experience ($b_3 = .07$, $SE = .11$, $t = .60$, $p = .551$). However, enjoyment did not affect dispositional advertising literacy ($b_4 = .07$, $SE = .11$, $t = .60$, $p = .551$).



Discussion. To conclude, the current study shows that an advertising literacy intervention is successful in enhancing adolescents' cognitive learning outcomes on advertising. In addition, the DGBL approach indirectly affected adolescents' learning outcomes via the experiences of flow and enjoyment. In particular, it was shown that the adolescents had a greater experience of flow when playing the serious mini-game platform (compared to when reading the informational brochure), which enhanced enjoyment, and further increased adolescents' learning outcomes.

This study addresses some important implications for public policy. It was examined whether adolescents ability to critically reflect on advertising could be enhanced by implementing an advertising literacy intervention. More specifically, the current study investigated the effectiveness of an advertising literacy serious mini-game platform by comparing it with an informational brochure. It is suggested that serious mini-games (or a serious mini-game platform) can be useful tools for educational purposes and can thus be incorporated into the curriculum to support pedagogical packages. These games can be integrated into lessons as an introduction or closing of a didactic package. They can also be used as a homework assignment for the students to introduce them to the pedagogical package before the lessons or as a repetition at the end of the teaching package.

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