Digital literacy games: A systematic literature review

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ABSTRACT

This paper presents the results of a systematic literature review of papers published on the topic of digital literacy games. For decades, digital literacy has been an important theme in the research agenda of national and international policies (Livingstone, 2004; Opree, 2017; Opree et al., 2021). The widespread access to the internet since the turn of the century has given people in the digital society opportunities in terms of knowledge exchange, communication with others and entertainment, but has also implied threats in terms of fake news, radicalization and cybercrime (Berkhout, 2018; Opree et al., 2021). Information and communication technology (ICT) skills are important for the involvement of individuals in current and future societies. At an individual level, these skills facilitate social and economic well-being, and at a

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national level are relevant to ensure a diverse and sustainable economy and equitable participation (Deursen & Helsper, 2020). Thus, it is more critical than ever for everyone to remain media-savvy (Opree et al., 2021).

Several studies have shown, however, that children and young people were less digitally literate than many were inclined to think (Dirkx, A. et al., 2013; Kennisnet, 2017; Nieuwelink, 2020). In concrete, two studies showed that only 51% of the children in the age group of 10 to 12, and 36% in the age group 13 to 18 years were digital literate at a level that could be expected of them (Opree et al., 2021). Taking into consideration that the early childhood process of learning takes place through learning while playing, and playing while learning, several studies claim that the introduction of the use of technology at a young age should be done through play (Andersen & Mirrels, 2014; Naranjo-Bock & Ito, 2017). For this reason, digital games are an interesting tool to gain digital literacy skills at a young age (Rakimahwati & Ardi, 2019). In concrete, digital games designed to support digital skills acquisition, cannot only support players to gain knowledge on this topic through the content of game itself, but are also capable of stimulating the acquisition of these skills through their interaction with the game and the technologies used to play it (Gallardo-Echenique et al., 2015; Meyers et al., 2013).

Taking into consideration the relevance of the acquisition of digital literacy skills and the role digital games can play in this process, this study proposes to provide an overview of current academic knowledge on the topic. With this study, we aim to provide a comprehensive summary of the results of a critical analysis on existing research of the intersection between media literacy and game research including recommendations. We have therefore conducted a systematic literature review of academic papers published on the topic of digital literacy games. We have analyzed a total of 63 papers published between the years 2005 and 2021 and stored in Scopus. Web of Science was explored as a complementary database, but did not result in complementary papers.

Depending on the field of study and preferences of researchers, digital literacy games are referred to in many different ways, so we included several forms of naming them to make sure we got access to all papers written about this topic. Taking this into consideration, we used the following searching string in Scopus: (TITLE-ABS-KEY("Game design" OR "Serious game*" OR "Applied game*" OR "Persuasive game*" OR "Gamifi*" OR "Educational game*" OR "Civic game*" OR "Video game*" OR "Digital game*" OR "Computer game*" OR "Electronic game*" OR "Board game*" OR "Mobile game*" OR "Games-based learning" OR "video game*")) AND (TITLE-ABS-KEY("Digital literacy" OR "Media literacy" OR "Digital media literacy" OR "Digital skills" OR "Computer literacy" OR "Ict skills" OR "Computing skills" OR "Digital competence" OR "Cybersecurity" OR "Games literacy" OR "Technolog* skill*" OR "Digital literate" OR "21st-century skills" OR "Citizenship" OR "Critical thinking " OR "Computational thinking" OR "Information skills" OR "Online safety" OR "Fake news")). This search yielded 1746 potentially eligible papers. After the exclusion of non-accessible papers, duplicates, those related to non-digital games or not clearly related to digital literacy games, 63 remained.

The results of this literature review report on the digital literacy skills fostered through the digital literacy games studied. It also provides an overview of strategies, in the form of game mechanics and dynamics, used in these games to train digital literacy skills. Furthermore, this paper provides a summary of the effects of digital literacy games reported in the papers analyzed.

This paper is part of three research studies within the larger project titled “DIGITAL LITERACY GAMES: Digital games designed to support digital literacy skills acquisition” funded by the Dutch Research Council (NWO). The results of the other two studies focus on a large-scale content analysis of existing media literacy games (Glas et al., 2023), and the evaluation and validation of the effects of actual classroom use of a digital literacy game on primary education students (Kneer et al., In Prep).

Keywords
digital literacy games; digital literacy; systematic literature review; serious games; serious games effects

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