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Digital exclusion in higher education contexts: A systematic literature review

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Abstract

The integration and adoption of digital technologies have enabled improvements in the quality of and inclusion in higher education. However, a significant proportion of the population has either remained or become digitally excluded. This systematic literature review elucidates the factors underlying the concepts of “digital exclusion” and the “digital divide” in higher education. The identified factors are grouped into three categories: social exclusion (i.e., low income, ICT-avoidance as the norm, lack of motivation and commitment, and physical or mental disability), digital exclusion (i.e., lack of hardware devices and Internet services) and accessibility (which include the division between rural and urban areas, as well as disparities in ICT literacy and information literacy). These factors are multi-tiered and overlapping. Studies on the digital divide, digital exclusion, and barriers to ICT adoption in higher education deal with similar factors, but these are experienced differently in different contexts. While generalizing these factors into categories enables a better understanding of the nature of digital exclusion, solving and circumventing them remains complex due their dependency on the particular context of a higher education institution.

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Keywords: digital divide; digital exclusion; higher education; ICT; university education; tertiary education.

1. Introduction

Information and communication technology (ICT) is present nearly everywhere in our high-end technological and globalized society. There is rapid growth in the adoption of Internet-enabled devices (Barnaghi & Sheth, 2014),

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which facilitate web browsing and allow access to social media and communication across borders. Around the world, these new technologies make it possible for more people to access learning resources for higher education (HE) and contribute to an increase in the number of students completing higher education.

In higher education contexts, ICT is embedded in the form of virtual learning environments (Sims, Vidgen, & Powell, 2008), augmented reality, and virtual reality. In many universities, massively open online courses (MOOCs) and video conferencing systems offer multimodal teaching that transcends time and space. However, the introduction of ICTs has not been beneficial to all. There are people for whom digital technologies result limitations and exclusion from community participation; this process is termed digital exclusion, a concept that is addressed in the European Union’s research and innovation program “Platform for ICT for Learning and Inclusion” (European Commission, 2014). This systematic literature review examines which factors constitute the concepts of the *digital divide* and *digital exclusion*. Existing literature offers an understanding of the *barriers to ICT adoption*, also reported as the “barriers to the integration and adoption of educational technologies” (Bingimlas, 2009; Hew & Brush, 2006; Khalid, 2014; Pelgrum, 2001). Presumably, the terms *barriers* and *divide* are related to digital exclusion and refer to the same pattern of factors. However, there is a dearth of evidence and knowledge regarding digital exclusion in the context of HE. Thus, the research question is as follows: Which concepts and interpretations comprise the terms “digital exclusion” and “digital divide” in higher education contexts?

The paper contains three main sections. First, the data collection and analysis methods are presented. Second, the selected articles are categorized and analyzed according to the country of empirical investigation. Third, the factors underlying concepts of the “digital divide” and “digital exclusion” are analyzed.

2. Methodology

The selection of articles was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram (Moher, Liberati, Tetzlaff, & Altman, 2009), which includes four phases: identification, screening, eligibility, and included (See Fig. 1.).

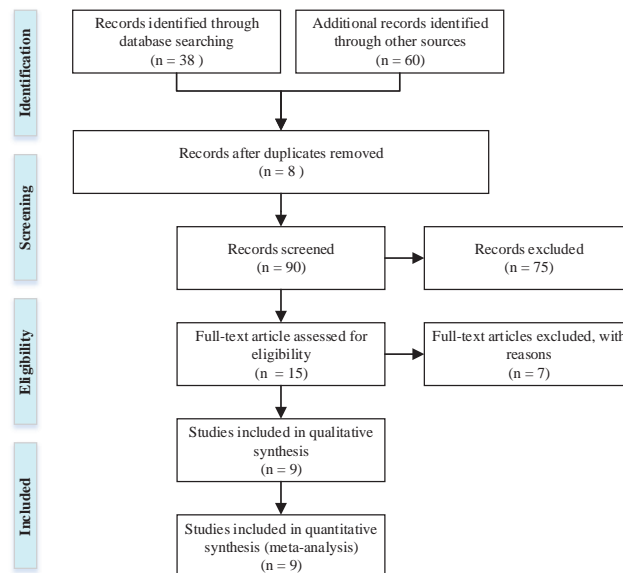


Fig. 1. PRISMA Flow Diagram (Moher et al., 2009)

First, using EBSCOhost, two databases, Academic Search Premier and ERIC, were searched; these were selected because they cover a wide spectrum of articles related to HE. Both abstracts and full texts were searched with different combinations of the keywords “higher education,” “university,” “college,” “digital exclusion,” and “digital

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