New Faces of Digital Divide and How to Bridge It

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INTRODUCTION

The objective of our chapter is to explore, through the lenses of digital divide, what are challenges to alleviating socio-economic and intellectual limitations for prosperity of each individual. Will new technologies and access to them really help to develop citizens who are able to contribute in creative and democratic ways to society? In order to answer this question, we extend our work presented in Martinovic and Freiman (2013) to:

- Identify factors to consider in designing flexible, innovative, and inclusive programs for all citizens to enable them to successfully function in the era of the Internet, new media, and computer technologies.
- Analyze how digital divide problematizes one's chances to be involved in the knowledge economy.
- Investigate ways in which digital divide may be circumvented.

In the past 15 years or so, Information and Communication Technologies (ICT; e.g., personal computers, cell phones, Internet) have become pervasive in developed countries, such as Canada and the USA. These tools can be used for both in-school and out-of-school activities, and are particularly suitable for connecting individuals and communities globally (Beetham, McGill, & Littlejohn, 2009). However, many countries could not provide to their citizens the same level of access to digital technology, which, in its turns risks to deprive them of opportunities to develop abilities necessary for a meaningful use of digital technology and computer networks, including the Internet to gather, manage, and evaluate information, to create documents in multiple media forms, and to communicate at distance, are all aspects of digital literacy, as delineated in various policy documents (e.g., California Emerging Technology Fund, 2008). In fact, digital literacy has become almost a prerequisite for creativity, innovation, and entrepreneurship, all the irreplaceable attributes of the 21st century citizen (Beetham, McGill, & Littlejohn, 2009). However, although it is recognized that technology may positively affect both social and cognitive development of every citizen, it may also create or maintain economic divide across students, teachers, and schools (AERA, 2013), as well as between social groups or societies, even in the most developed countries..

Our effort to examine these tensions that in our opinion go beyond the usual issues of "have's" and "have not's" arises from the literature review study (Freiman, Martinovic, & Karadag 2011) we conducted upon request of the Ontario Ministry of Children and Youth Services (MCYS, 2012). Authors of numerous sources we reviewed, including position papers, government-ordered reports, as well as research data, relate digital divide to

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several aspects of ICT, such as machine vintage, connectivity, online skills, autonomy and freedom of access, technical support, and interest in using the technology (Hawkins & Oblinger, 2006; Oblinger, 2008).

BACKGROUND

By introducing the concept in early 2000s, an OECD report (OECD, 2001) identifies two types of digital divide, the first one, based on the opportunity to access digital tools, including the Internet, and the second one, related to the ability to use those tools. For example, Norris (2001) argues that digital divide appears as result of uneven growth of the Internet resources, their multi-dimensional character, as well as transitory nature of the process associated to this growth. Also, in early 2000s, Attewell (2001) and Swain and Pearson (2001) identify the discrepancies in access to technology as the first digital divide, while differences in the effective use of ICT belong to the second digital divide; thus users with only basic access to technology can be disadvantaged, being technologically illiterate because of their limited opportunity to use digital resources. This view is shared by Dance (2003), who compares the cyberspace netizenry to citizenship in the ancient Athenian democracy that excluded women, slaves, and those with foreign origins. In like fashion, today's cyber netizenry ends up forming cyber-elite (i.e., an information-rich, digerati, and virtual class). Dance (2003) further points to some older reports that demonstrated that the digital divide in the USA was growing and had a deeper and more far-reaching impact than before. In this way, the digital divide resembles the economic divide: The (information) rich get richer, while the (information) poor get poorer.

In order to better grasp a potential impact of digital divide on individual, groups and societies, we should start with a brief clarification of terminology. First, as pointed out by Chen and Wellman (2003), the digital divide has multiple faces and should be termed "digital divides" (p.3). In order to be addressed, various aspects need to be considered: physical access, financial access, cognitive access, content access, and political access (Wilson & Wilson, 2000). Second, the term "digital divide" has both technological and social resonances. Next, DiMaggio and Hargittai (2001) identify five dimensions of digital inequality: equipment, autonomy of use (location of access), skill, social support, and purposes for using the Internet, while Cuneo (2002) lists twelve perspectives on the digital divide. These include: demographics (e.g., computer per person ratio), age, gender, geography (i.e., where one lives-infrastructure), disposition to ICT (e.g., fear, lack of confidence), learning (e.g., traditional vs. on-line), disabilities, and economic, social, labor-related, cultural, and political factors. The author further declares that "in some ways education is at the heart of the Internet and the Digital Divide because of the importance to society of transmitting information and knowledge" (p. 25). This view is shared by Negroponte whose quotation "… The digital divide is a learning divide - digital is the means through which children learn learning " can be found in many reports of the launch of the "$100 laptop" project (see, for example, Twist, 2005, para. 36-37). Moreover, van Dijk (2006) resumes his review of studies on digital divide conducted in 2000-2005 by arguing that "in terms of physical access the divide seems to be closing in the most developed countries; concerning digital skills and the use of applications the divide persists or widens" (p. 221).

In this optics, an analysis of digital divide conducted by Dewan and Riggins (2005) pointed at the importance of taking into consideration three levels of digital divide, namely individual, organizational and global ones. According to them, at the individual level, variations in access and/or the ability to use technology can be analysed among different segments of a social system, as well as policies that address these divides. At the organizational level, several factors (size, geographical location, industry, and ownership