Digital Competence Assessment Across Generations
A Finnish Sample Using the Digcomp Framework

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ABSTRACT

Based on the European framework (DigComp), a self-assessment tool digital competency wheel is used for this quantitative study to measure the individuals’ perceptions toward digital competence. With a sample of 197 individuals from different generations in Finland, this study aims to provide empirical evidence that generational technological abilities are diverse. The data in this study show that “Net Generation,” also coined as “digital natives,” has obtained the highest level of digital competence. Nevertheless, when looking at the performance of all the investigated groups, the slight inter-generational difference was found in the case of problem-solving, whereas programming was found as the least developed competency among these groups. Based on the results, the study concludes that digital competence is very much distributed across generations. This also contributes to intergenerational learning that may enhance technological skills across generations.

KEYWORDS

INTRODUCTION

With the advent of digital technologies, learning has been centred on the information produced, processed through the communication technologies and applied to the core activities of every citizen (i.e., social, economic and cultural; Siemens, 2004). Moreover, with the rapid recognition and the effective use of the information and communication technologies (ICT) in everyday life, the need for individuals to develop critical thinking and awareness, and to use technological tools with a sufficient degree of autonomy, grew rapidly (Ilomäki et al., 2014). Further, with the ongoing technological advancements, the increasing digitalization and the free flow of information, the interest among knowledge societies have increased, in particular, to equip citizens to access, evaluate, organize, interpret and disseminate information in digital formats (Echenique et al., 2015). Furthermore, considering the importance of digital technologies for socio economic success, several institutions
have undertaken a number of projects that provide citizens with the necessary tools for a correct acquisition of digital skills within a society (Ferrari, 2013).

From this point, in the European context, many efforts made by the European Commission, contributed to a framework of competences for lifelong learning (EQF) European commission (2008), to improve citizen’s competencies. Moreover, the EQF framework, presents the digital competence as the confident, critical, and creative use of ICTs to achieve goals related to work, employability, learning, leisure, inclusion and/or participation in society (Ferrari, 2013). Eventually, a number of countries recognized the digital competence as a key factor in contributing to personal fulfilment and development, active citizenship, social inclusion, and employment in a knowledge-society (Kluzer & Priego, 2018). Subsequently, the increasing focus on citizens to develop knowledge, skills, attitudes and competencies such as digital competence, has received attention in national and international context and thereby, policies are often aimed at preparing citizens to thrive in an increasingly digitalized society. In addition, the Organization for Economic Cooperation and Development (OECD; 2015) and the European Commission (2016) have acknowledged the importance of digital competences, and they have encouraged member states to develop frameworks for digital competence towards socio-economic productivity. It is therefore essential that citizens develop their digital skills, knowledge, and self-confidence to master technology and digital services, as such skills will serve them well in the future.

**AIM OF THE STUDY**

The aim of the study is to explore the digital competences in a sample of Finnish individuals that belong to different age groups, using the Digital competency wheel, a tool based on digital competence framework.

More specifically, the present study aims to identify:

1. What is the digital competence proficiency levels of different age groups by following the Digcomp framework 2.1?
2. What are the strongest and the weakest competence areas in overall Finnish sample?
3. What are the highest and lowest digital competencies in overall Finnish sample?

**CONCEPTUAL FRAMEWORK**

The concept of Digital competence has been used for describing technology-related skills, such as problem solving, critical thinking, computational thinking, creativity, ability to cooperate and self-regulation (Kirschner & Stoyanov, 2018). In many academic debates, digital competence refers to the ability to use technologies, such as, technology skills, information technology skills, 21st century skills, information literacy, digital literacy, media literacy, and internet literacy (Ilomäki & Lakakala, 2011). In the policy context, digital competence has been used for the development of skills needed for new technologies, and their use for socio economic growth and competitiveness (Ala-Mutka et al., 2008). Likewise, in the field of education, digital competence is used in schools for teachers to identify and analyse the needs for the students’ 21st century skills, and to equip them with skills to be able to use digital tools and technology (Hatlevik & Christophersen, 2013). In the European context, the digital competences are considered as key competences in the framework for lifelong learning (Ala-Mutka et al., 2008). The very first digital competence framework for citizens (Ferrari, 2013) revised in 2016 and 2017 (Vuorikari et al., 2016) (DigComp 2.0) (Carretero et al., 2017) (DigComp 2.1) became a reference for many digital competence initiatives, such as framework for consumers (DigCompConsumers) (Brečko, & Ferrari, 2016), the entrepreneurship competence framework (EntreComp) (Bacigalupo et al., 2016), and most recently, a framework for the digital competence
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