Research Article

Digital Literacy, Digital Culture and Digitalization in Europe

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Abstract

The main goal of the research is to analyse and disclose linkage between digital literacy, digital culture and digitalization. The literature review covers explanation of the main concepts of European culture and digital literacy and provides an overview of previous research on digital literacy and culture. The importance of digital literacy in the European context is analysed as well. The paper also comprises digital equivalents in traditional cultural forms and the role of digital identity in the development of culture, which could progress together with technological development. Comparative analysis of the two extremes concerning Internet users creates the basis of the main part of the research in order to highlight conditions and factors, which promote or hinder digitalization and the acquisition of digital literacy.

Keywords: Digitalization; Digital Literacy; Cultural Forms; Digital Technology; Competences

Introduction

Contrastive culture analysis of digital literacy in Europe reflects the impact of increasing technological innovations upon culture and their various forms. Various aspects of digitalization have been discussed concerning business, education and science; however, few studies have been carried out regarding digital literacy in culture. Moreover, the importance of digital literacy and digital transformation are comprised in the Latvian state-funded research programme INTERFRAME, which analyses the impact of

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digitalization on the development of economic, technological and societal areas.

The culture in Europe and the concept of digital literacy are the core aspects of this research and their interrelation forms the focus. A broader discussion on the status quo of digital literacy in Europe will be carried out in order to evaluate the opportunities and threats of digitalization. Therefore, the paper identifies the core issues underlying the process of digitalization and highlights how this process might affect culture in various areas and forms.

A contrastive analysis of two extremes regarding the Internet user spectrum in Europe forms the main part of the research. The analysis helps to reveal positive and negative conditions for digitalization and implementation of digital literacy skills as well as determine how culture is affected in this context. Finally, conclusions and recommendations derived from the contrastive analysis pinpoint the main cultural processes and forms affected, conditions, which facilitate digitalization and the economic aspects of digitalization and societal changes.

Literature Review

The Culture of Europe and Digital Literacy of Europe

The concept of European culture can mostly be characterised as a common understanding of the Western world, and the culture of Europe comprises art, architecture, film, music, economics, literature and philosophy originating in the continent of Europe (Mason 2018). Contemporary European culture includes digital development, which is closely linked to digital literacy and is further identified and observed in the paper. The promotion of European cultural heritage is associated with the idea of cultural diversity (Calligaro 2014), and the European Union is striving towards a unified culture of varieties where each member state represents something unique and different.

The effects of globalization and more intense Internet usage have brought the above-mentioned diversities even closer. To ensure some monitoring over the interaction between the diverse European cultures, the concept of intercultural dialogue was introduced by the European Union. The concept was introduced at the beginning of this century by Calligaro (2014) and reflects the recent development of cultural diversity discourse in the EU.

The development of technological devices and solutions and their importance in policy making and everyday life had led to the necessity to create a singular understanding of how to interact with technology and how to measure such interaction. The concept of digital literacy is analogous to a number of defining principles in other fields that use modifiers in front of literacy to define specific knowledge or competence, so the term has become popular in education and is introduced in national and international standards (Lankshear and Knobel 2008). Renee Hobbs developed a list of competencies that demonstrate both digital and media literacy, including the ability to examine and understand the meaning of messages, evaluate credibility and assess the quality of a digital work (Martens and Hobbs 2015). This is also related to the ability to produce other forms of media including videos (Heitin 2016; Barnhart 2019).

Digital literacy refers to disparities between people who are living in developing and developed countries and relates to their access to and ability to use information and communication technology (Lim 2002). The concept of digital literacy can be explained using Max Weber's social stratification theory, which is focused on access to production rather than ownership of the capital (Ragnedda and Muschert 2015). Within the framework of the stratification theory, production becomes the access to ICT, therefore, an individual can accomplish interaction and produce information or create new products and without this access individuals are not able to participate and gain

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the benefits of learning, collaboration, and production processes (Ragnedda and Muschert 2015). Moreover, if individuals cannot obtain the products and solutions of ICT, they are not able to advance their digital literacy, which widens the gap between those who can freely access and interact with technology and those who are unable to do so. The inability to access and participate in digital literacy also constrains a person's ability to increase economic stability in the modern world.

According to Kilicaslan and Tongur (2019) and Feinstein (2020), the impact of ICT on employment can be approached from two main perspectives: the substitution and compensation mechanisms. These researchers also state that the substitution effect propagates a destruction of employment as traditional manufacturing is improving technologically and less labour is required, however, the compensation effect propagates employment generation in the long run. The interrelationship of these effects might be adverse for developing countries, whereas developed countries have solved this issue by establishing various state-funded educational programmes with a specific focus on ICT skills.

The European Union has established a number of policy initiatives that strengthen the framework of ICT skills development for all citizens (European Commission 2018; 2020). The EU Digital Education Action Plan was set up to foster better use of digital technology for teaching and learning, to develop relevant digital competences for digital transformation and to improve education using data analysis and foresight more efficiently. Moreover, the European Union has recognized the importance of education regarding digitalization as education and training are vital for growth, innovation and job creation.

The concept of digital literacy is closely linked to the term *access*, and there are four types of access that relate to individual users in the process of digital appropriation: motivational access, material access, skills access and usage access (Chadwick et al. 2010). To better understand how those types of access interact in real life, Van Dijk designed a cumulative and recursive model of successive kinds of access to digital technologies (2005).

Motivational access relates to the user's motivation to interact with and use technology. If a potential user is not interested in using the technology, the rest of the steps or above-mentioned types of access will not follow. Motivational access is closely linked to social, cultural and psychological matters. Researchers also stress that computer anxiety and technophobia are core issues related to motivation especially among seniors and people with a low level of education (Chadwick et al. 2010).

Renee Hobbs developed a list of competencies that demonstrate both digital and media literacy. This includes the ability to examine and understand the meaning of messages, evaluate credibility, and assess the quality of a digital work; it also pertains to the ability to produce other forms of media, such as videos (Heitin 2020).

Material access differences should be viewed among countries and regions in Europe and by age, educational level, type of employment and other factors. According to Eurostat, in 2019 in 22 EU regions, at least 9 out of 10 adults were using the Internet on a daily basis; the highest proportion was observed in the South West region of the UK and the lowest was recorded in Romania (Eurostat Regional Yearbook 2019). The material welfare of the residents in European regions and/or countries facilitates motivation which is linked to the availability of technological products and broadband availability at home, thus, confirming the interrelation between material, skills and motivation access. Material access is also closely linked to some background factors, including the availability and cost of digital technology, the general level of literacy and education, language skills, the level of democracy, the strength of policies to promote the information society, and the

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cultural disposition towards technology (Chadwick et al. 2010). Finally, material access is also closely related to the level of education, therefore, students who have prematurely left their education, have a risk of missing key skills for employment which might lead to social exclusion and subsequent poverty (Begg et al. 2010).

Skills access is the next step in the model designed by Van Dijk, and it occurs together with material access after a user has acquired the motivation to start using technology. Operational, information and strategic skills form the core of digital skills (Steyaert 2000). Operational skills are the most basic and relate to working with hardware and software, whereas information skills are related to searching, selecting and processing information using computer and network sources. Information skills are divided into two sub-categories; formal and substantial information skills (Chadwick et al. 2010). Finally, strategic skills are defined as the capability to use computer and Internet resources in order to execute specific queries and thus improve one's position in society.

Usage access is the final stage in the process of technological appropriation i.e., apart from sufficient motivation, material access and skills, it is necessary to carry out actual use. Usage access can be measured by usage time, usage applications (number and diversity), broadband connection and more or less active and creative use. Internet usage is related to the so-called Matthew effect which means that regarding societal participation (economic, social, political and cultural), those occupying the strongest positions tend to benefit more from access to and usage of ICT than those who are not on the high end of spectrum.

To highlight digital divide in Europe, in 2006 the European Union introduced several broad policy areas including e-accessibility and usability, digital literacy and cultural diversity in relation to inclusion (Ministerial Declaration 2006). Digital solutions help to foster cultural diversity by promoting pluralism, cultural identity and linguistic diversity in the digital environment, which in turn will unify society while maintaining diversity and cultural pluralism.

Recently, A-B Gran et al. (2021) carried out research which evaluates the increasing importance of algorithm awareness in relation to a new reinforced digital divide. The study analysed different levels of awareness and opinions about algorithms across Norway which is a highly digitalized country.

Digital Equivalence in Culture

The impact of digital technology has transformed activities such as painting, drawing music and sound art with new forms, e.g. net art, digital installation art and virtual reality (Kuspit n.d.). One of the digital equivalents in culture is bitmap editing which applies to visual processing in the digital environment using specially designed software. The digital method mitigates the presence of the human factor as inputs are placed algorithmically and a computer generates the visual medium which the artist intends to make thus demonstrating synergy between the analogue and digital equivalent.

Technological applications transform the way art is perceived, with digital solutions being applied to enact other human sense, thus, expanding visual art in a multimodal sense where digital installation art serves as an example of the digital equivalent of visual art. Another paradigm in digital arts fosters the generation of 2D and 3D art by introducing algorithms coded into computer software (Smith 2019). Similar trends are observed in music where digital audio workstations are used for recording, editing and producing any kind of audio files including music, speech, radio, television and podcasts.

Research by Soley and Hannon (2010) highlights that people tend to prefer and remember music from their own cultural tradition. Availability of music as a product of culture has various effects on the further development of society. Streaming services quickly and easily provides access to various

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cultures; therefore, they foster the foundation for a more multicultural society. It should be mentioned that societies with more open cultural views foster various ways in which individuals perceive music (Teo et al. 2008). Research also reveals (Wong et al. 2009) that constant exposure to music from different cultures can propagate a type of cognitive sensitivity to different music styles. Regarding the nature of music in digital solutions, the constant consumption of various music styles may increase the number of culturally aware individuals, which in the case of the European Union can be considered as a crucial step towards a society which is culturally plural and intelligent.

Digital writing is another digital equivalent where technological solutions can have a significant impact on the way texts are produced. Digital writing has become an integral part of 21st-century society, and most social media platforms including Twitter enable users to create text-based posts for sharing their thoughts and other types of content. Twitter has also been developed as a communication and learning tool in educational and research institutions and the social media platform has improved communication between students and faculty, informal learning and the overall student engagement (Grandjean 2016).

Social media platforms encourage society to be engaged in text-based communication. Users can interact with representatives of various nations and cultures which in turn highlights the necessity and benefits of digital writing skills and the need to improve them. Also, proficiency in digital writing may beneficially affect the way individuals participate in intercultural discourse and create a more culturally aware society.

Digital equivalents indicate the importance of digital literacy, and in the context of the European Union, this also stresses the necessity to acquire digital literacy skills, as these are vital to everyone's livelihood and welfare and are directly related to employability. Therefore, digital literacy can be perceived as the new standard for any working individual. Technological advancements and the shift towards digitalization enable all groups of people to interact with each other and be included in society.

Research Methodology

The current study is based on an interpretive paradigm, which allows the authors to posit reality as a subjective phenomenon that can only be understood through subjective insight (Saunders et al. 2018). The authors believe this approach can be considered as the most suitable for the given research. The phenomenon of total digitalisation might be understood only by considering the differences in culture, digital literacy, competence and skills that are very pronounced in different European countries. As the most extreme examples among European countries, Norway and Romania were selected for the qualitative research. We used a contrastive analysis of these two extremes regarding the Internet user's spectrum. The most popular social media platforms available online, especially the so-called fan-fiction works, were analysed. Online films, series streaming platforms, and users' interactions with these services comprised another object of the investigation. Special attention was paid to virtual reality as computer-generated "reality" (Dörner et at. 2013) and individuals' perceptions of culture in museums using virtual reality.

The themes of digital literacy for addressing in the study and the findings were identified, reviewed by two independent consultants – who are experts in the information and communication field in Latvia. The regulations and documents of European Union organizations were used as a framework for the research (European Commission 2020; European Union 2020).

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Contrastive Analysis of Norway and Romania

An analysis of two European countries: Norway and Romania as extremes in terms of daily Internet user numbers establishes the critical points in cultural transformation related to digitalization. Policies regarding digital literacy also have to be reviewed, as this helps in evaluating the overall situation of cultural transformation in Europe. Data on both countries reveal that Norway has a significant number of Internet users whereas Romania is lagging behind regarding this quantitative measurement.

The Northwest European country Norway is ranked in a high position regarding income per capita, and it occupies the top position in the Human Development Index (2020) and World Happiness Report (2020). Norwegian culture had made significant progress thanks to efforts in achieving independence in literature, art and music; for a long period, Norwegian art was mainly dominated by imported works from Germany and the Netherlands. It has been noted that digital technologies in Norway are contributing to the progress of art and music especially taking into account state funding for performance artists (Beshaw 2020).

Norway has recognized the importance of digital literacy in society, introducing digital literacy in education and establishing a system of adult education. This directly reveals the significance Norway attaches to developing inclusion; it is the cornerstone of the country's policy making. Digital competence has been introduced in all levels of education (Sbertoli 2018). Moreover, a special SkillsPlus programme was introduced to provide adults including immigrants the opportunity to acquire the qualifications and basic skills they need to keep up with the demands and changes in a modern inclusive society. The Knowledge Promotion, an educational reform introduced in Norway, led to digital literacy on the national level (Belshaw 2011).

Romania is the 12th largest country in Europa and the 6th most populous country in the EU; it is located at the crossroads of Central and Eastern Europe. In 2020, the country's annual economic growth rate was 3.5% and its GDP per capita in purchasing power parity had more than doubled in the previous ten years (World Bank 2020). Contemporary Romanian culture, including art, music and literature has reached global success, e.g., in 2009, the Romanian-born German writer Herta Müller received a Nobel Prize in literature.

Romania is a leading country in the EU regarding broadband connection speed, however, the level of penetration is considered to be rather low, including daily Internet users (Marica 2017). Relatively slow application of technological achievements in a global context could negatively impact the growing economy of Romania. An inadequate level of digital literacy is weakening the population's prospects of employability, so the country is not making the most of the economic gains linked to the digital economy. A digital literacy is also present between urban and rural areas of the country (Kelly et al. 2017).

Provision of incentives and promotion of digital literacy comprise one of the government activities that can foster digitalization and exploitation of the digital environment. A project for children to learn how to use technology more efficiently and safely is one of the examples carried out by the ministries and government of Romania to accelerate digital literacy and close the digital gap.

Discussion – Observing Digital Culture and Digital Identity

The concept of digital culture reveals that technology and the Internet significantly shape the way people are interacting, behaving, thinking and communicating in an online environment, e.g., social media (d'Arnault 2015). The discourse of digital culture deals with forecasting changes in society, and culture is considered to be subject

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to these changes. Digital technologies have fostered more networked, collaborative and participatory forms of culture. Specific characteristics of digital culture can be described with the number of technical processes involved, the types of emerging cultural forms and the kinds of experiences which digital culture entails (Miller 2011).

In digital technologies, information is represented in numerical code which means that the digital material can be easily modified and compressed. Hyper textuality is considered to be an integral aspect of cultural form development regarding digital culture. Landow (1994) defines four levels of hyper fiction narratives: discourse as discoursed, discourse as stored, story as discoursed and stories as stored. These levels reveal the intricate nature of hyper-textuality in the context of semiotics, and the text-based environment of the digital world enables the application of these theories in digital practice.

Definition of cultural forms can be associated with encoding and decoding of information (Jones and Holmes 2011). The digital environment also changes the established cultural narrative, i.e. products are never complete, reading paths are hyperlinked and networked, relationships between creators and the audience are often anti-hierarchical and products are outcomes of collaboration (Miller 2011). Links between objects, space and time, which are influenced by digital technologies, allow the creation of a new product or group of products with different historical and spatial content.

The process of automation influenced the formation of digital culture and sophisticated algorithms form the basis of almost all social media platforms for gathering information on user's interests, habits of use and other factors. The same can also be related to streaming services, which are now used on a daily basis. Online streaming services can significantly impact the way products of culture, e.g., music and movies, are consumed, by subtly affecting existing habits and introducing new content previously unknown to the user. Systems of algorithms and their subtle control of how content is consumed by users foster enculturation, which leads to a more culturally plural society.

Finally, virtual reality or computer generated "reality", which uses images and sounds, has a great potential for transformation and development of cultural forms. Virtual, augmented and mixed reality and other applications mentioned above have increased activity regarding cultural forms, especially in the time of the pandemic. Digitally based education in all areas including arts and culture, has confirmed the motivation of policy-makers and other stakeholders to bridge the digital gap.

Digital identity comprises information on an entity used by computer to represent an external agent, which may be a person, organization, application or device. Digital identity is considered to be an integral part of online presence, and the abovementioned algorithms can also be attributed to digital identity. Therefore, digital identity is related to individuals being in the digital environment, and the most notable example is a social media profile. Social media have taken the idea of digital identity to a new level, and individuals use social media platforms as tools for personal and creative expression.

Digitalization is changing the modes of communication and thus motivates individuals to form online social groups and participate in online discussions. This process is a beneficial factor for enculturation given the borderless nature of the online world. Online communication also facilitates the integration of individuals with ideals and codes of behaviour they feel a belonging to (Coteli, 2019). Digital identities can inspire individuals to participate and drive the narrative of local and global processes, e.g. media coverage of a global event or a post on Facebook. Therefore, the digital environment increases social discourse and interaction, which can be considered an important part of a functional democracy.

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Individuals share information with other users over the Internet, and feedback comments they receive can affect various aspects of communication between people. Industrialization and technological improvements have made an impact on culture and to a great extent changed people's lifestyle by allowing them to transform their identities online and present them in a different way. There is also the opinion that digital culture is leading real-life culture with regard to interaction and shaping individuals' identities according to who is online (Coteli 2019).

Conclusions and Recommendations

Digital literacy is crucial for individuals in terms of increasing their employability. The digital divide, which is the core issue of digitalization, can be perceived through the theory of social stratification. Individuals on the negative stratum of the divide may be excluded from the process of creating and participating in emerging cultural forms, which in turn may not only cause a gap between digital skills but also introduce societal issues. In order to bridge the digital divide, the European Union has funded a number of incentives, which aim to increase the digital literacy of all social groups.

Technological achievements promote the transformation of traditional cultural forms. Culture has experienced a gradual transformation from implementing digital solutions in completely new art works to introducing classical elements in the virtual environment. Technology also implies the opportunity to access culture without being present physically in a specific location.

Digital identity is changing the way members of society interact with each other. It provides individuals the opportunity to present themselves in a more customised way. Therefore, digital identity does not always correspond to real-life identity, as has been observed on social media platforms where the modality of deviations from the former to the latter is dynamic.

The existence of a well-developed Internet infrastructure should be directly linked to the intensity of Internet usage. However, in the case of Romania, which has one of the fastest broadband connections in the EU, the penetration level is relatively low. In contrast, online users in Norway exhibit high Internet exploitation, which corresponds to material access and the skills to use technology. Analysis of digitalization in Romania also highlights that there is insufficient material access for potential users to start using technological achievements. Therefore, provision of incentives in business areas and adoption of digital solutions are important factors for raising employees' motivation, which will lead to an increase in their digital literacy.

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