Digital inequalities and social exclusion for senior citizens in Romania – digitalization challenges

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***Abstract**: Romania is becoming a rapidly ageing society. Supporting seniors thus becomes a significant challenge, and promoting digital technologies is an effective way of handling the matter. Decreased digitization for seniors needs to be interpreted as part of multiple digital inequities. Besides the already obvious generation gap (age being one of the driving factors for digitization), there are also other significantly impacting factors, i.e., poor education and / or income levels, somewhat characteristic to the state of seniors and also strongly correlated to their lesser adoption of newly emerging technologies. The present paper investigates the current usage of Internet amongst senior Romanians and the main underlying factors involved in lesser usage of digital technologies. The study investigates the underlying causes and factors explaining the decreased digitization of services in seniors aged 65 years or more, using data available and known from Romanian societal studies.* An overall *n=582 subjects aged ≥65 years were randomly selected in the Bucharest-Ilfov counties and answered questionnaires between May 1st – July 31st of 2022. The questionnaires were collected for the purposes of descriptive statistics and for analyzing factors involved. Amongst the respondents, n=258 (44.3%) did use the Internet and filled in all questionnaire items. About half (53.9%) stated they spend online less than 2 hours daily and more than two thirds (75.2%) went online 5-7 days a week. Online chatting was their main preferred activity (74.2%), followed by social media activities (68.2%), reading online news (45%) and searching information online (39.5%). We concluded more measures are required to reduce barriers to internet proficiency and to promote digital technologies. Public authorities, digital equipment manufacturers and seniors' families and carers should join forces to create the premises for seniors to take better advantage of online technologies.*

Introduction

The early digitization studies are focused on digital television (Norris, 2000), a concept still actual nowadays (Arroyo-Menéndez, Gutiérrez-Láiz and Criado-Quesada 2022, 953). For the purposes of this paper, the digital inequity is defined as „ the disparity between those with access to internet technology and those without" (Van Dijk, 2020, pp 1). The economical interpretation focuses on explaining mainly the digital inequity related to existing infrastructures and access devices, therefore suggesting the digitization can be explained by (and correlated to) the territorial development status (Ragnedda, 2017).

As internet usage became widespread, access inequities decreased, however inequities in user's access quality and methods inequities persist (Calderón-Gómez, 2019). Ever since the first decade of 21st century, the focus shifts to a second level of digital gaps, going further than access inequities, since it became of the utmost importance to also examine digital competencies and types of usage. This perspective shift was associated with a lesser focus

on geographical differences and more focus on other relevant variables in social constructs like age, gender, study levels and family income.

Dimaggio (2001) criticized geopolitical perspectives, still dominant by that time. He claimed that expanded internet coverage within the population as well as expanding internet services and infrastructures did not guarantee any reductions in digital inequities, by proving that there were territories providing universal internet access that still present with important inequities. This shifted the academic focus from whether internet access if available or not, to usage pattern discrepancies and digital literacy. In the new focus, the explanatory focus of social variables is increased as compared to geographical variables, thus outlining the major impact of variables like gender, education, age etc.

What is outstanding is that, even though the geographical and spatial inequities with regard to Internet access decreased as the Internet expanded, they are still actual, however surpassed by social variables. This is due to having a shift of interest from geographical to social issues, as well as to assigning a lesser, secondary role to causal analyses on digital usage for geographical variables when compared to social variables.

Whenever, in spite of the emerging importance of such inequities, the causal studies are indicative of a lesser explanatory capacity of social-spatial variables as compared to other social variables, this may be due to blaming social structure inequities not only on digital inequities but also to particular, special inequities, like for instance populational segregation, thus further contributing to the digital exclusion of senior adults.

According to Bloomberg (2018), "digitization" is often used to cover for two interlinked but distinct notions: "digitization" and "digital transformation". Digitization refers to the process of switching from analog to digital technologies. Gartner (Bloomberg, 2018) shows that digitization consists of using the digital technologies for changing a business model and for providing new revenues and new opportunities for generating revenue. Digitization is thus a wider, quantifiably-challenging concept.

Digitalization and senior adults

It is commonly accepted that senior adults are low-level digitized, and that age is one of the most discriminative variables in terms of accessing the Internet and information technologies (Noichl & Schroeder, 2020; Alexopoulou et al, 2022; Vulpe & Crăciun, 2020). However, there are not so many studies focused on this age group, especially in Romania. Studies claim that the low-grade digitization in this group is due to age (Huxhold et al, 2020; Mubarak & Suomi, 2022). Starting from these claims, this paper attempts to identify whether other, age-unrelated variables are relevant (and to further quantify them). Reviewing the literature confirms that elders tend to have lesser education levels (Shin et al 2021; Chen et al 2020), lesser incomes (Huxhold et al, 2020; Ivan & Cutler 2021) and tend to live mostly in rural areas (Golomski et al, 2021) than their younger-aged counterparts. Important social inequities reside in such variables. We therefore attempt in this paper to better understand the decreased digitization level of elder adults. Table no. 1 captions the variables cited in the literature reviewed leading to poorer digitization levels in elder adults.

Table 1. Variables Cited in Reviewed Literature

	General Considerations	Inequities	Reviewed Literature
Age	This is the first variable to consider since there were significant gaps noted between elder and younger age groups. The age variable is correlated with other variables, like education or income levels, which may explain the differences between the age groups as long as their interim effects are not excluded.	There are two reasons why age may impact and induce poorer digitization: the cohort effect and the lifecycle effect. - can be explained by different socializing and learning patterns in various age groups. - also refers to physical limitations and to the adaptation of age-related lifestyles.	Chua, S.L.; Chen, D.-T.; Wong, A.F., 1999; Bouza, F., 2003; Van Dijk, J., 2006; Reisenwitz, T., 2007; Dean, D.H., 2008; Van Deursen, 2010; Van Deursen, 2010; Torres-Albero, 2017; Calderón-Gómez, D. U, 2019; Huxhold et al 2020; Mubarak & Suomi 2022.
Education	Explanatory power	Age-specific	Bouza, F. 2003; Navarro Beltrá, M., 2009; Fernández-Ardèvol & Ivan, 2015; Calderón-Gómez, D., 2019; Chen et al, 2020; Robles, J.M. 2021; Shin et al, 2021;
Income sources	It is one of the determining variables, besides age and education	Major	Giner-Pérez, J.M., 2008; Charness & Boot, 2009; Cresci et al, 2010; Lelkes, 2013; Neves & Amaro, 2012; König et al, 2018; Huxhold et al, 2020;
Gender	Educational inequities worldwide, in various countries	Even though differences significantly diminished recently, they still exist in terms of usage and literacy.	Castaño, C., 2008; Helsper, 2010; Van Deursen et al, 2015; Yang, J. & P. Du, 2021.
Geo-spatial variables	There are multiple bibliographical references to territorial or geo-spatial inequities	The size of the city, demographic density and territorial division per provinces.	Hindman, D.B., 2000; Giner-Pérez, J.M., 2006; Clark, Benjamin et al, 2013; Arroyo-Menéndez et al, 2022

Source: drafted by the author, based on the literature reviewed

Physical restrictions, educational levels, mass-media related age stigma and the lack of continuous social support are the main causes of digital inequities. Hence there is a negative correlation between internet usage and age, as elder Internet users' percentage is lesser than in their younger counterparts. Elder adults feel like advancing in age prevents them from adopting and using new technologies. Geriatric research suggests that the

cognitive decline in brain aging mainly includes sensory and perception levels, the decreased visual acuity, narrowed field of vision, poorer adaptation to strong light, hearing impairment, decreased sensory perception, lesser flexibility of fingers and joints (leading to poorer skills in typing and using the mouse). Such physical barriers posed by ageing do hold a significant impact on internet usage by elder adults (Floria Kohlbach & Cornelius Hestadt 2016). Meanwhile, elder adults are also more susceptible to being influenced by ideas, habits and educational levels and tend to resort to traditional methods.

Education levels are also an important factor for digital inequities amongst seniors. Traditional literacy abilities decrease as age progresses. Reading and writing skills may also contribute to the digital inequities, since elder internet users with higher education are more engaged in cognitive improvement activities like reading news and briefs and therefore the ability to access and use internet mediums ranges, depending on education statuses.

Mass-media occasionally misrepresents the image of senior adults, presenting them in negative-connotation situations, which leads to stereotyping and exclusions. Anxiety and mass-media discrimination as regards elders' participation in media culture reflects differences and contradictions between choices of media in various groups and also reflects conflicts of shared values between various groups. Side-news reports about events dedicated to "elders" may easily become focal points for public opinion and thus a mass-communicated negative misrepresentation of elder adults may lead to senior adults' stigma.

More aspects however need to be subject to debate. Senior adults are often overloaded by rapid progression of digitization (Berg 2020). A quantitative study in 2019 revealed that the main reasons behind elder adults' not using digital technologies (according to Wilhelm et al, 2019) were: fear of online frauds (47%), lack of functional knowledge (46%), lack of support (41%) as well as difficult operation (36%). There is therefore a need for particularized training and support for diminishing such barriers (Sczogiel et al, 2020).

Elder adults are also partially prevented from using the internet due to security fears or due to a low self-assessed internet literacy. Berg noted in the study that 41% of respondents aged 65 years or more claim they were not familiar with the internet (Berg 2020). Hence another factor which may limit internet usage in elder adults may be age-induced cognitive impairment.

Digital inequity for elder adults may be more than a mere consequence of age, but may as well be a result of age group inequities in terms of gender, education and income. Such effect may be regarded as a double peril since an individual's chance to gain access to the internet may be impacted not just by ageing but also by other sociodemographic variables, at the same time. Therefore, considering the demographic changes leading to an accelerated increase of ageing population, identifying which lead factors do specifically limit seniors' digitization becomes crucially important. Such information may assist in developing policies and targeted interventions as countermeasures to expansive social inequities with regard to internet access and usage.

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