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Enhancing Digital Skills: The Key to Digital Inclusion for the Older People (on Example of Vietnam)

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Abstract. Digital transformation taking place rapidly in all aspects of socioeconomic activities across Vietnam in recent years is affecting the lives of people of all ages. Vietnamese older people, due to the impact of digitization, demographic category and socioeconomic status as well as age-related issues, become vulnerable, facing many challenges in adapting to the digital environment. In the article, the existence of a digital divide within Vietnamese older persons at different levels and the disparities in digital skills that have a dominant influence on Internet usage and benefits have been confirmed; low basic digital skills was considered as a barrier to digital inclusion of older adults in the emerging digital society. The aim of the study is to predict the socio-economic consequences and find practical solutions to improve the literacy and disease skills of people in Vietnam, including the formation of an effective form of digital literacy and digital skills training. The article proposes measures to bridge the sudden gap in human diseases and encourage their adaptation to the emerging digital society.

Keywords: older people, digital transformation of economy, digital device, digital society, digital literacy, digital skills.

Research area: economics.

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Повышение цифровых навыков: ключ к цифровой вовлеченности пожилых людей (на примере Вьетнама)

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Аннотация. Цифровая трансформация, быстро происходящая во всех аспектах социально-экономической деятельности во Вьетнаме в последние годы, влияет на жизнь людей всех возрастов. Пожилые вьетнамцы под влиянием цифровизации, объективных демографических и социально-экономических процессов, а также проблем, связанных с возрастом, становятся уязвимыми, сталкиваясь со многими проблемами при адаптации к цифровой среде. В статье подтверждается наличие цифрового неравенства среди пожилых вьетнамцев на разных уровнях овладения цифровыми навыками, которые оказывают доминирующее влияние на использование преимуществ сети Интернет. В ходе исследования установлено, что низкие базовые цифровые навыки послужили препятствием для интеграции пожилых людей в развивающееся цифровое общество. Цель исследования заключается в прогнозировании социально-экономических последствий и поиске практических решений по повышению цифровой грамотности и навыков пожилых людей Вьетнама, включая становление эффективных форм распространения цифровой грамотности и обучения цифровым навыкам. В статье предложены меры по преодолению цифрового разрыва среди пожилых людей и поощрению их адаптации к формирующемуся цифровому обществу.

Ключевые слова: пожилые люди, цифровая трансформация экономики, цифровое устройство, цифровое общество, цифровая грамотность, цифровые навыки.

Научная специальность: 5.2 – экономика.

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Introduction

Population aging is a global demographic phenomenon of the 21st century. Declining fertility and increasing life expectancy are causing a rapid growth in the number of people aged 60 and over worldwide, from 1 billion in 2020 to 1.4 billion by 2030, and this number will nearly double, reaching 2.1 billion by 2050 (WHO, 2021).

In Vietnam, the population is aging rapidly, and the total population and share of the older persons projected by 2049 with a replacement fertility rate of 2.1 per woman are shown in Fig. 1.

Over the past decades, as digital technologies, digital transformation (DX) and the Internet become more popular in daily life, the shift of traditional services to the online environment is an inevitable trend due to the use of digital technologies and digital platforms as new business models. Therefore, older people with age – related problems such as their health and psycho-physiological status, living habits, etc. often face difficulties in accessing digital technology; they have doubts about using the internet, and as a result are being at risk of digital exclusion in an emerging digital society (Niehaves & Plattfaut, 2014; Carol, 2016; van Boekel, et al., 2017). During COVID-19 pandemic social distancing, many older people have difficulty accessing essential goods and

services as they did not use the Internet (UN-ECE, 2021).

The digital divide is observed all over the world. According to the data of Statista (2023), as of January 2023, there were 5.16 billion Internet users worldwide, which accounted for 64.4 percent of the global population, that is, over a third of the world's population was still excluded from the benefits of DX. A similar situation exists in Southeast Asia, where an estimated 150 million adults, accounting for 31 % of the region's total population, were digitally excluded by key causes such as disability, illiteracy, age, inequality in economic activity between urban and rural areas, poverty (John et al., 2021).

In Vietnam, by the end of 2022, there were 72.93 million Internet users, accounting for about 75 % of the total population (Statista, 2022a). The results of a survey conducted by Minh Ngoc, Nguyen (2020) on age distribution of Vietnamese Internet users shows a common trend that the active use of the Internet decreases with age: the proportion of internet users aged 6–54 was 96 % while the percentage of Internet users aged 55 and over comprised only 4 %.

Studying the factors affecting the digital adaptation of Vietnam's older people, Hoa et al (2022) concluded that: (i) there exists a real digital divide among the older adults;

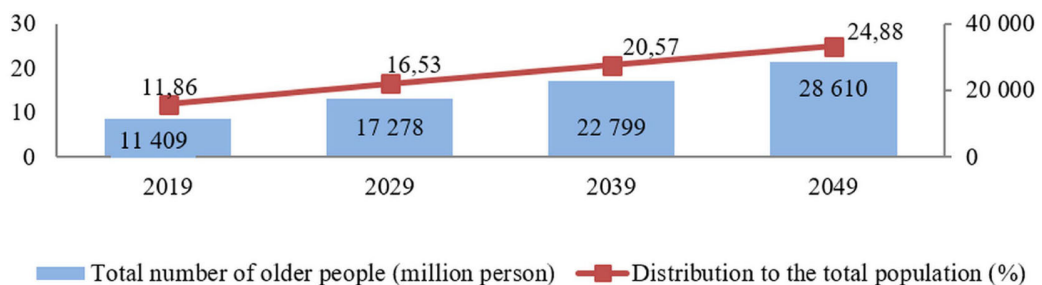


Fig. 1. Projections of older population under the assumption of medium fertilities, 2019–2049 (Source: GSO, 2021)

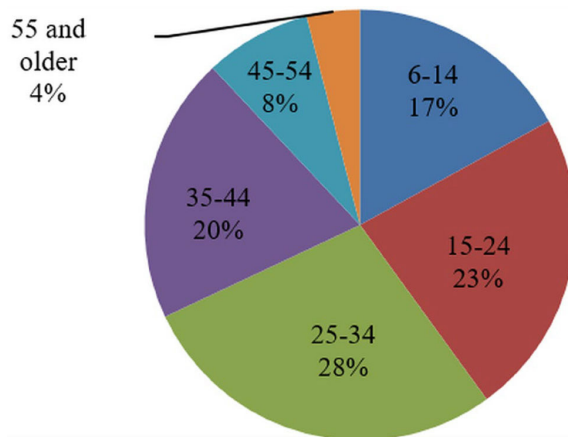


Fig. 2. Age distribution of Internet users in Vietnam as of May 2019 (Minh Ngoc, Nguyen, 2020)

socio-demographic characteristics and age-related issues; (ii) digital inclusion declines with aging; and (iii) the lack of necessary attention from relevant government agencies, organizations, and ICT businesses is also a cause hindering digital inclusion and deepening the digital divide within the elderly in Vietnam.

Literature Review

Previous Studies on Digital Divide and Digital Skills

The concept of “digital divide” was first appeared in the United States in 1995 and originally defined as “the divide between those with access to new technologies and those without”. At that time it was understood as the disparities in access to telephones, personal computers, and the Internet across certain demographic groups in relation to categories of gender, income, education level, race, household type and geography (residence) (NTIA, 1998). Later, digital divide was simply understood as “the gap between people who have access to information/Internet and those who do not” (Hargittai, 2002; Van Dijk, 2006), or unequal access to digital technology, including digital devices and the Internet (Ragnedda, 2013).

Reviewing the studies on the digital divide published between 1995 and 2015, Acharya (2017) found that the majority of researches conducted until 2000 mainly fo-

cused on inequality or gap in access to information and communications technologies (ICTs) in relation to demographic characteristics, such as age, sex, household income, education, place of residence and race (Kim & Kim, 2001; Hargittai, 2002); Internet accessibility was classified as the first level digital divide and has attracted more attention. The second and the third levels of the divide were determined (van Dijk, 2006; Acharya, 2017). The scholars who have acknowledged the existence of a second-level digital divide suggested that the gap in Internet skills and usage patterns continue to widen (van Deursen & van Dijk, 2011, 2019). The dominance was modeled in a “Causal Model of Resources and Appropriation Theory of the Digital Divide” (van Dijk, 2020) and models of factors affecting digital divide (Srinuan, 2012; Song, et al., 2020). Accordingly, digital skills are also affected by these dominant factors which cause inequalities of digital skills, usage and outcomes.

Digital skills are defined as “the ability to efficiently and effectively find information on the Web” (Hargittai, 2002) or users’ ability to use ICTs and online applications to access and manage information to get maximum benefit (UNESCO, 2018). Survey data collected by the International Telecommunication Union (ITU) in developing countries reveals that up to 65 % of respondents’ reasons for not using the Inter-

net are related to education and digital skills (ITU, 2020).

The ITU has divided digital skills into three categories: basic, intermediate and advanced. Basic digital skills cover managing digital devices, safely using the Internet, interacting with others, and accessing government, commercial, and financial services (ITU, 2018, 2020; UK, 2018).

Digital Skills Training for Older People

Age is negatively associated with digital literacy and digital skills of a person; age-related issues have an impact on the digital divide within the old people (van Dijk, 2005; Thomas, 2014; Song, et al., 2021). Internet experience has a positive effect on formatting various online skills and abilities of Internet users (Hargittai, 2002).

Due to socio-demographic characteristics, age-related problems and psychological apprehension and fear, unwilling to absorb something new (Lancaster University, 2018; Arif & Intan, 2022). Thus, encouraging and motivating older people to learn digital literacy requires educational principles and procedures that are most appropriate based on their characteristics and needs in old age (Mughtar & Yanuarsari, 2018). Digital literacy course models such as face-to-face and blended workshops were actively discussed. Face-to-face workshops often cause distraction among older people (Jaggars, 2014). Furthermore, in face-to-face courses the specific needs of elderly learners were not fully satisfied (Jaggars, 2014; Margulieux et al., 2016). In contrast, blended workshops encourage using new ways of learning, building knowledge, and overcoming the limitations of face-to-face workshops, allowing older learners to be more active (Chiu and Churchill, 2016).

In Singapore, by October 2022 more than 190,000 seniors have been trained in basic digital skills in using smartphones to access government services, making electronic payments and video call (SDO, 2022; Dominic, 2022). In China, teaching the elderly to use digital devices has its own nuances. At the end of 2020, 58.7 % out of a total of 264 million older per-

sons could not access the Internet for different reasons (Song, et al., 2021; Cheng, et al. al., 2022).

In Vietnam, researchers and businesses have conducted a series of in-depth studies of older customers' group which accounted for nearly 12 % of the Vietnam's total population (GSO, 2021). Thang & Trang (2022) found that ongoing DX has significant impact on modifying models of the health care system for the elderly in an aging society. Hoang (2022), Ngoc and Hoa (2022), analyzing survey results with 256 older persons in Ho Chi Minh City, the most populous city in Vietnam, showed that more than 81 % of older adults use Internet-connected digital devices and this percentage declines with age.

Reviewing the scholars' views and arguments in previous studies on the digital divide and digital skills and analyzing survey results, the authors assume that:

- There exists a digital divide in all three levels among the Vietnam's older people; low digital skills have a significant impact on Internet usage and outcomes.
- Disseminating digital literacy and enhancing digital skills is the key to digital inclusion for older people in Vietnam.

Research Methodology

Qualitative research and descriptive statistics methods were used to evaluate the collected data to confirm the stated hypotheses about the existence of digital divide or inequality at different levels among older people in Vietnam which is evidenced by the results of a sociological survey conducted by Hanoi University of Science and Technology (HUST) research team in October 2021 with more than 1000 older persons from 41 provinces, 5 centrally-controlled municipalities. Out of 1043 respondents, 637 people aged full 60 and older are considered as the elderly according to Vietnam's Law on Elderly; the remaining 406 are in the 55–59 age groups, who are considered as the pre-aging population and presented for comparison purposes only since 91.13 % of them are Internet users. The number of Internet users and non-Internet users aged 60 years and over by demographic criteria was shown in Table 1.

Table 1. Survey sample analysis by gender, place of residence, and education level of the Internet users' and non-Internet users' respondents (person)

Age groups	Total	Place of residence				Education level					
		Urban areas		Rural and remote areas		Primary and lower second. education		High school education		Higher education	
		Male	female	Male	female	Male	female	Male	female	Male	female
Internet users											
60–64	246	166		80		76		125		45	
	246	66	100	37	43	31	45	55	70	17	28
65–69	109	70		39		32		51		26	
	109	41	29	27	12	20	12	30	21	18	8
70–79	122	60		62		69		42		11	
	122	26	34	35	27	32	37	23	19	6	5
80+	25	13		12		17		4		4	
	25	6	7	10	2	12	5	-	4	4	-
Total	502	139	170	109	84	95	99	108	114	45	41
	502	502				502					
Non-Internet users											
60–64	27	7		20		13		11		3	
	27	3	4	9	11	6	7	4	7	2	1
65–69	22	5		17		17		5		0	
	22	2	3	5	12	4	13	3	2	0	0
70–79	58	19		39		41		16		1	
	58	11	8	9	30	28	13	6	10	1	0
80+	28	10		18		20		8		0	
	28	8	2	6	12	10	10	4	4	0	0
Total	135	24	17	29	65	48	43	17	23	3	1
	135	135				135					

Source: HUST Research Team

Results

The Existence of the Digital Divide within the Older People in Vietnam

Out of 1043 collected samples, the HUST research team selected 637 sample respondents who were full 60 years old and above for analysis by demographic criteria.

Comparing the number of the Internet users with the total number of respondents, the Internet penetration rate accounts for 78.81 %; the differences in the first – level digital divide (Internet assess) among the respondents are calculated as follows:

- By gender, there is a slight difference in Internet usage rates between men and women of all ages (49.40 % vs. 50.6 %).
- Regarding the place of residence and income, among the respondents using the Internet, 61.55 % live in the cities and the remaining 38.45 % live in rural areas, while 41 respondents (30.37 %) live in urban areas (GSO, 2022; MOLISA, 2019).
- Differences in educational attainment of the older persons also were found: out of a total of 285 respondents who graduated from primary and lower secondary schools, the number of Internet users is 194, accounting

for 68.07 %, while this proportion among those who have higher education was 96.0 % (96/100).

- Internet access of respondents decreased with age: the Internet penetration rate was 90.11 % in the age group 60–64 (246/273); it decreased to 67.78 % in the 70–79 age groups (122/180) and dropped to 47.17 % (25/53) in the age of 80 and over.

The data presented above contributes to the assertion that there is a digital divide between older persons who have internet access and those who have not; this first – level divide is affected by demographic and socio-economic factors.

Relationship between Digital Skills and Internet Usage and Outcomes

All 502 internet users responded that they have different purposes of using the Internet. Many of them have two or more purposes when going online. The activeness in using the Internet and digital skill level of the older internet users is reflected to some extent in their efforts to use ICT in their daily life (Table 2).

The comparative analysis of the data presented in Table 2 reveals the followings: (a) activeness in Internet use decreases with age; (b) easy-to-use apps and utilities were popular; (c) percentage of people using online applications and utilities that require higher skills such as e-government public services, online banking, e-commerce was still low (Fig. 3).

The data presented in Table 3 on using digital government services which required in-

termediate skills also show digital skill gap by age, gender, and residence: the number of people using this type of services decreases with age; the number of users in cities is higher than those in rural areas; in both urban and rural areas, the number of female users is more than those of male users.

Differences in the demographic characteristics and socio-economic status of the Vietnam’s older people cause disparities in their digital skills. Even among people who use various types of online services, low essential digital skills often leads to operational risks, affecting usage and outcomes.

Digital Literacy Dissemination and Digital Skills Development for Older Persons

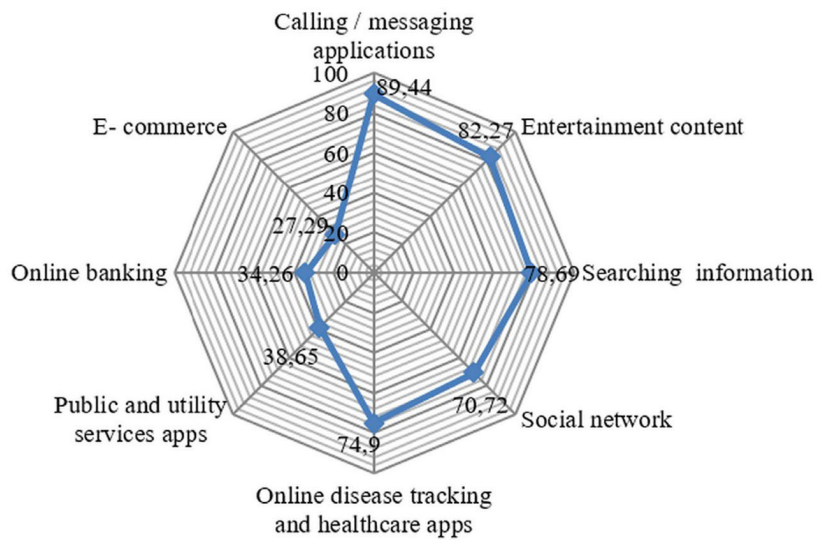
Answering the question “how do you acquire digital literacy and skills?”, more than half of the respondents said they gained them from friends and relatives (Figure 4).

It is remarkable that 205 respondents, accounting for 40.84 % of Internet users in all ages in both rural and urban areas said that their children and grandchildren have given them digital devices and taught how to use (Table 4); some of respondents living in the countryside recounted that “...our children went to the city to earn money, leaving their children to us to look after. They gave us smartphone to talk to us and their children every day by video call...”.

Since most of Vietnamese older people are still working as self-employed workers and face

Table 2. Purpose of using Internet-connected devices (number of responses, many respondents have two or more purpose) (HUST research team)

Age group	+	60–64	65–69	70–79	80+
Calling / messaging applications	449	226	99	106	18
Entertainment content	413	217	82	99	15
Searching information	395	206	83	88	18
Social network	355	196	85	64	10
Online disease tracking and healthcare apps	376	197	74	90	15
Public and communal services apps	194	113	43	35	3
Online banking	172	112	27	31	2
E-commerce	137	86	30	21	0



N=502

Fig. 3. Percentage of elderly people using popular online applications (HUST research team)

Table 3. Number of respondents using online e-government services by age group, gender and place of residence (out of 502 Internet users) (HUST research team)

Age group	Total	Urban areas		Rural areas	
		Male	Female	Male	Female
60–64	113	33	41	17	22
65–69	43	13	19	4	7
70–79	35	12	15	5	3
80+	3	2	1	-	-
+	194	60	76	26	32

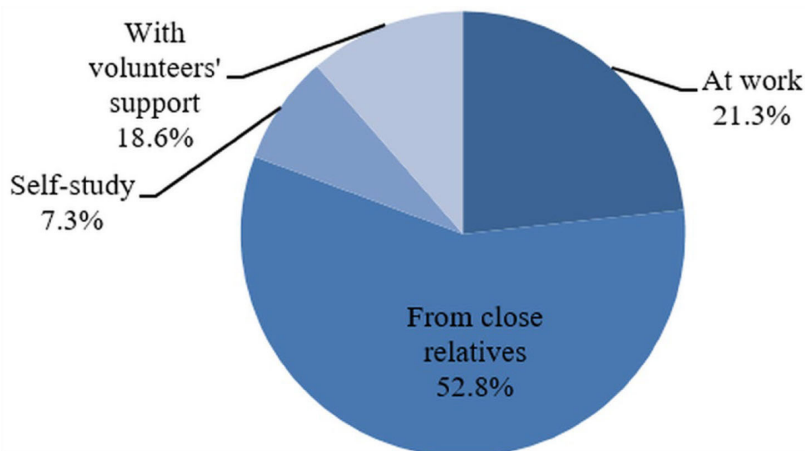


Fig. 4. The rates of respondents acquired digital skills by types of learning (HUST research team)

Table 4. Number of people who have received smartphones from others or bought them themselves by place of residence

	Total	Urban areas			Rural and mountain areas		
		+	I got it as a gift	I bought it myself	+	I got in as a gift	I bought it myself
60–64	246	166	53	113	78	38	40
65–69	109	70	27	43	41	20	21
70–79	122	60	27	23	62	18	44
80+	25	13	12	1	12	10	2
+	502	309	119	190	193	86	107

Source: HUST research team

age-related problems, including a poor concentration and memory loss, they prefer the one-on-one learning method, using smartphones or tablets with instructors' help (MIC, 2022). Thus, the one-on-one learning and one-to-one teaching method proves its suitability for older people in Vietnamese context.

Discussion

Principal Findings

The Internet penetration rate of 78.81 % within Vietnamese older people found in survey is considered to be high compared to that in other developing countries. For example, this rate was 43.2 % in China as of December 2021 (CNNIC, 2022) and 52.5 % in Thailand in 2022 (Statista, 2022b). It could be demonstrated by the proportion of 35 % of the Vietnamese elderly who had still to earn a living (GSO, 2021). Moreover, the policy of universalizing smartphones and developing ICT infrastructure in remote rural areas realized by government authorities and ICT corporations under the Government's Digital Transformation Incentive Framework in the period 2020–2022 has been being implemented in the country for priority population groups.

A cross-sectional analysis of data on both Internet users and non-Internet users summarized in Table 1 reveals differences in Internet access known as the first-level digital divide that is dominated by demographic characteristics and differences in socioeconomic and health status of older people. It is underpinned by the differences found in the internet penetration rates by age group, sex, region of residence

and education level. This is also similar with arguments and assertions in previous studies conducted by Hargittai (2002), van Dijk (2006), Acharya (2017).

The argument that digital skills have a significant impact on Internet usage and outcomes is also evidenced by the low share of older people using online services and utilities that require more comprehensive digital literacy and skills, such as e-government public services and online utilities (38.65 %), online banking (34.26 %) and e-commerce (27.29 %). In contrast, the share of respondents using applications that do not require basic skills is higher, such as multimedia calling and messaging (89.44 %), entertainment content (82.27 %), social network (70.72 %), etc. These findings are completely consistent with digital divide theory and relevant arguments asserted by van Dijk (2003, 2005), Hargittai (2002), UNESCO (2018) that disparities in digital knowledge and skills cause differences in Internet usage and benefits (outcomes).

In some Asian countries, depending on the country's level of socio-economic development, demographics and geography, traditional culture and customs, etc. different forms of digital knowledge dissemination are recommended, and one-to-one teaching and/or one-on-one digital skills learning models is prioritized and widespread (Cheng, et al., 2022). This is in turn confirmed by the percentage of 52.8 % of respondents learning digital skills with the close relatives' help and through the activities of the CDTG network of 45,895 working groups across Vietnam.

Policy implications

Policy implications and specific measures aimed at bridging the digital divide within older people and encouraging them to adapt to the emerging digital society are focused on: (1) solving problems related to health care and education level of the population; (2) changing attitudes towards the older population on the part of government agencies, civil society and business organizations; (3) ICT companies should have to solve problems related to improving infrastructure to ensure broadband coverage in remote areas and adopting policies to support the elderly to have digital devices at preferential prices and reduce service charges (4) online service providers should have to pay attention on designing website and online applications with a friendly and easy-to-use interface.

Bridging the second level digital divide is important as it determines the quality of Internet use and benefits. Studying the theoretical issue and relevant policies on closing the digital divide carried out abroad and the actual status of the digital divide at all three levels among Vietnamese older people, the authors have found and the digital skills gap in the elderly as well as the lack in collecting data on the digital divide among the population that need to be closed.

Strengths and Limitation of the Study

Overall, in this study the assertions discussed in previous studies that the digital divide cannot be completely eliminated as existing social inequality reinforces digital inequality and vice versa have been proven; disparity in digital skills, usage and outcomes persistently remain in any country, including Vietnam,

even if the problem of Internet access is resolved globally. In the near future, specialized studies on the digital divide at different levels among Vietnamese older people in specific socio-economic fields are still needed as there are still disparities in their Internet use skills and outcomes, and enhancing digital skills remains the key to the sustainable adaptation of the older people to the developing digital environment.

Conclusion

Vietnam's population is aging rapidly in the context of the DX taking place in all sectors of life. With the rapid increase in number, older people must be considered as potential customers of the digital technology market. However, the majority of the Vietnamese older adults do not have basic digital skills to proficiently use online services and utilities while more and more services are moving online in the digital society. In the article, the existence of the digital divide at all three levels among the Vietnamese older persons and the impact of digital literacy and skills on Internet usage and outcomes are confirmed by the results of the survey conducted by HUST research team; one-to-one teaching and learning models are introduced as an effective solution to universalize basic digital skills for the elderly. The policy implications summarized from similar studies conducted by Vietnamese researchers and proposed by the authors may be useful to government agencies at all levels, online and ICT-based service providers, taking into account closing gaps in statistical data collection and the lack of specific studies on the digital divide among Vietnamese older adults.

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