

DIGITAL TECHNOLOGY IN SENIOR ENTREPRENEURSHIP: A QUALITATIVE STUDY

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Received May 2024; accepted August 2024

Abstract

The global population aged 65 and over is approaching 800 million and is expected to represent 16% of the total population by 2025. Many countries are experiencing demographic shifts towards an older population, resulting in a declining ratio of working-age individuals. The rapid increase in the elderly population raises concerns about healthcare and financial burdens on nations. One potential solution to these challenges is senior entrepreneurship, which allows older adults to participate in the workforce and foster social inclusion. While senior entrepreneurship has the potential to alleviate financial burdens and improve well-being, the specific factors that drive it are still unclear, especially, the adoption of digital technologies. Thus, this study investigates the impacts of digital literacy on senior entrepreneurship, and the potential of digital literacy training in stimulating business interest among seniors. The data were gathered using purposive sampling technique, respondents were selected from a digital literacy training program designed specifically for older adults. Standardised open-ended interviews were conducted with participants both before and after the training. The study reveals that over half of the respondents felt significantly motivated to start a business following the digital literacy program. Financial support from the government or other organisations was identified as a crucial factor influencing their decision, as many seniors expressed concerns about financial stability and the risks associated with starting a business. Additionally, new findings not covered in the literature review include a growing concern about digital technology security. By examining the role of digital literacy in promoting senior entrepreneurship, this study provides actionable insights for stakeholders seeking to enhance senior employment and business opportunities.

Research Paper

Keywords: Senior Entrepreneurship, Digital Literacy, Ageing Society, Qualitative Approach

Reference to this paper should be made as follows: Loo, B.H., Tan, Y.Y., & Hong, M. (2024). Digital Technology in Senior Entrepreneurship: A Qualitative Study. *Journal of Entrepreneurship, Business and Economics*, 12(1), 190–230.

Introduction

The increase in life expectancy and improved health conditions in the 20th century have brought achievements and challenges (Scuteri & Nilsson, 2024). The global population of individuals aged 60 and above has risen from 1 billion to 1.4 billion, impacting various aspects of society such as the economy, retirement, employment, family relationships, and eldercare services (World Health Organisation, 2022). Cognitive decline is one of the most feared consequences of ageing (Chui et al., 2024). The ageing of the population has had a direct impact on economies and put a strain on social security systems. The elderly are forced to rely on the younger generations for resources like time and money when their personal retirement reserves are so low (Ghilarducci, 2021).

According to the United Nations World Social Report 2022, the global population aged 65 and over is nearing 800 million and is projected to constitute 16% of the total population by 2025. Many countries are experiencing demographic shifts towards an older population, with a declining ratio of working-age individuals to the overall population. The United Nations Population Prospects highlights a rising median age globally, as illustrated in Figure 1. This median age serves as an indicator of population ageing—the higher the median age, the more pronounced the ageing trend. These statistics confirm that the global population is ageing and that numerous countries are facing increasing proportions of elderly individuals, which also leads to financial burden of the countries (World Population Prospects, 2022).

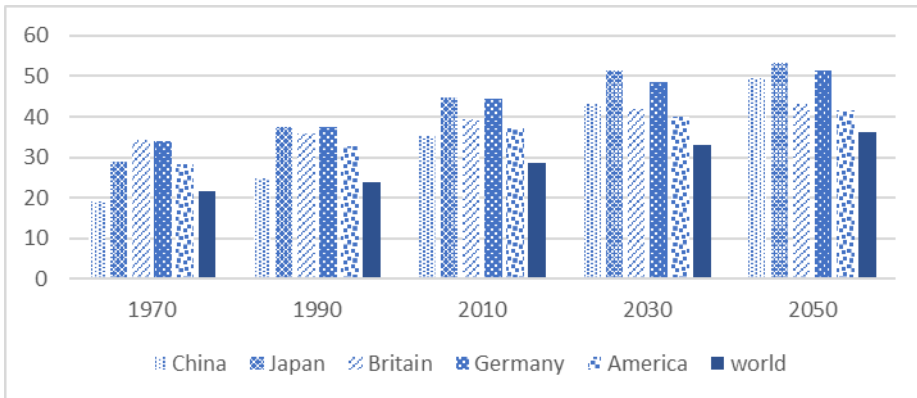


Figure 1. World Population Prospects, 2022 (Source: Author’s own works based on data from United Nations World Population Prospects, 2022)

In Malaysia, the aging population has been officially recognised since 2022. Individuals aged 65 and older are expected to exceed 7.3% of the total population, up from 7.4% in 2021 (Azaur, 2022; Statista, 2022; Department of Statistics Malaysia, 2021). In less than 20 years, the ratio of senior citizens to Malaysians will be three to every 20 individuals. Currently, 5% of the population in Malaysia is already 65 years or older (David, 2022). By 2040, the number of people over 65 is projected to triple from two million to over six million. This has raised concerns about a shrinking workforce and the security of old-age income (C.I.S. Network Sdn Bhd, 2022; Ministry of Finance Malaysia, 2022). Seniors in Malaysia face financial challenges worsened by factors such as the COVID-19 pandemic, inflation, and inadequate retirement savings (Saieed, 2022; The edge market, 2022). To ensure financial security, retirees in Malaysia need to accumulate a minimum of RM900,000 to RM1 million over the next few decades, considering inflation and medical expenses

(Yin A.C., 2022). The lack of work opportunities, inadequate retirement savings, and pension benefits also lead seniors to consider entrepreneurship to generate income (Martin & Omrani, 2019).

Entrepreneurship has emerged as a potential solution to address the economic challenges faced by seniors, providing opportunities to supplement retirement income, reduce tax burdens, improve well-being, and transfer knowledge and skills (Jang & Ha, 2018; Stypińska, Franke, & Myrczik, 2019; Inukai, 2021; Witham & Pendleton, 2024). Promoting entrepreneurship among the ageing population is crucial for their economic contribution, as seniors possess a unique skill set and experience that can aid them in their business ventures (Isele & Rogoff, 2014). Senior entrepreneurship not only allows active participation in the workforce but also enhances social inclusion (Ratten, 2019). The rise in the senior population has opened new possibilities for leveraging digital technology, which is recognized by both individuals and businesses as having significant potential (Backman et al., 2019; Xiang et al., 2024). Furthermore, providing digital and technological training can help seniors find employment opportunities, as digital skills have become essential in the 21st-century business landscape (Ryerson, 2022; Camara et al., 2021). Successful training programs should consider the lifeworld of seniors, making them appealing and overcoming compatibility challenges to ensure effectiveness (Schirmer et al., 2022).

Literature explores senior entrepreneurship from various perspectives, examining its role in both retaining seniors in the labour force and as a potential source of income (Pilkova, Holienka, & Rehak, 2014; Oteng et al., 2024). Encouraging seniors to consider starting their businesses after retirement is supported by the increasing policy attention towards the aging workforce and

rising dependency ratios in developed economies. These factors promote business start-ups and self-employment as viable alternatives for late-career individuals.

Today, seniors utilise technology, but it cannot be assumed that they do so as frequently or in the same manner as young people. Furthermore, a significant portion of senior citizens lacks any knowledge of how to use modern technology. Even among those who do use technology, their usage patterns differ substantially from their younger counterparts (Vacek & K, 2017; Moghadam & Salamzadeh, 2018). Seniors with stronger social connections display a greater belief in the usefulness of technology and are more likely to use it compared to seniors with weaker ties (Alagood et al., 2024). This may be attributed to the increased opportunities for sharing usage experiences and the support they receive from family and peers. The design of technology that enhances social interaction among elderly adults has garnered increased attention in academia and industry in recent years (Sokoler & Svensson, 2007).

Although numerous studies have explored the relationship between entrepreneurial behavior and personal characteristics of the elderly (Ibrahim & Aissa, 2021; Kurek & Rachwał, 2011; Amorós et al., 2024), and the influence of digital technologies (Cheng et al., 2024), there is a lack of research on senior entrepreneurship with digital technology (Fernández Lopez, Rodeiro Pazos, Zapata Huamani, & Rodriguez Gulias, 2022). Hence, this study aims to investigate to investigate the motivational factors driving senior entrepreneurship and explore the perspectives of senior citizens regarding the activation of digital entrepreneurship interest through a digital literacy program. Using qualitative research methods, the study able to enhance the suc-

cess rates of senior business start-ups, stimulate interest in senior entrepreneurship, and align with government initiatives to reduce senior unemployment. Following the Introduction, Section 2 reviews the relevant literature. Section 3 details the methodology and data. Section 4 presents the results, while Section 5 discusses the implications and provides policy recommendations. Finally, Section 6 offers conclusions.

Literature Review

Entrepreneurship attracts attention from economists, academics, business leaders, and governments (Du & O'Connor, 2018). It involves starting a business and taking on risks for financial gain. Policymakers recognize entrepreneurship to integrate older workers into society for active ageing (Maritz et al., 2015). Senior entrepreneurship, starting a business at age 50 or older (OECD, 2012), is emphasized in policies to extend working lives, reduce public pensions, and welfare payments (Parker & Rougier, 2009). It addresses the demographic effects of an ageing workforce (Stypińska et al., 2019). Older individuals, especially in ageing societies like Japan and parts of Europe, show increasing interest in business (OECD, 2012).

The terms "older" and "entrepreneur" carry different social connotations, making the concept of elder entrepreneurship contested (Tiago et al., 2016). Global Entrepreneurship Report (GEM) categorizes individuals into four age groups: young adults, middle-aged adults, seniors, and older people (Al-Jubari & Mosbah, 2021). Older entrepreneurship promotes social inclusion and savings in public pensions (Engelhardt, 2012; Kulik et al., 2014; Parker & Rougier, 2009).

Ageism can be linked to health issues that affect energy and drive (Pilkova et al., 2014). While older individuals possess knowledge and networks, transitioning to entrepreneurship later in life presents challenges. Common barriers include ageism, business discrimination, lack of financial support and information, administrative complexity, social acceptability, technological and informational skills, resources, regulations, and declining social benefits (Mouraviev & Avramenko, 2020). These obstacles hinder senior entrepreneurs' startup process and demotivate their enthusiasm for business ownership.

Retirement offers seniors an opportunity to start their own business or pursue their dream career, facilitated by modern technology (Engle, 2022). Developing practical digital technology skills is crucial for senior entrepreneurs (Small Business Charter, 2022; Radovic-Markovic et al., 2022). The assumption that older people are technologically outdated is challenged by the propensity of older workers with digital exposure for entrepreneurship (Zhang et al., 2022; Dana & Salamzadeh, 2024). Digital technology encompasses techniques, systems, and equipment that process data electronically, enabling changes in entrepreneurship and organisational strategies (Troise et al., 2022; Rezaei et al., 2023; Salamzadeh et al., 2024). Seniors may resist digital technology due to concerns about social obligations and potential impact on local businesses. Social support is important for senior entrepreneurs as they navigate discomfort and low self-esteem during the startup phase (Isele & Rogoff, 2014).

Digital literacy encompasses the ability to find, evaluate, and communicate information using various digital platforms (Lim & Teoh, 2021). It includes skills in writing, typing, and producing content in different formats

such as text, images, audio, and designs. In a culture where digital technologies like the internet, social media, and mobile devices are prevalent, digital literacy enables effective communication and information retrieval (Nicholson, 2017). It goes beyond device operation and requires staying updated on technological advancements and understanding online risks (Wang & Wu, 2020; Scottjwong, 2021; Shokri et al., 2023). Improved digital literacy is crucial for creating an inclusive and age- friendly technology environment (ITU, The Star, 2022).

Digital technology today has shifted from being an industry-focused tool to providing a more meaningful and personalized experience. This shift has significantly increased the demand for digital technology among senior citizens. While some seniors may already be involved with digital technology, either directly or indirectly, most of them lack the knowledge and skills needed to use it compared to younger generations (Vacek & K, 2017; Maleki Somaehlu et al., 2023; Saeedikiya et al., 2024). It is important to note that seniors, especially those who are older, less wealthy, or less educated, are a heterogeneous group with varying levels of dynamism and technological knowledge (Silvius et al., 2020).

Despite the growing prevalence of digital multimedia devices in people's lives, including older adults, many seniors still maintain a distance from digital technology, especially when compared to the general population (Anderson & Perrin, 2017). As a result, there is a pressing need for relevant training programs tailored to this age group (Blažič & Blažič, 2019; Hosseini et al., 2022; Yakubu et al., 2022; Ebrahimi et al., 2022). The has recognised this need and are developing initiatives to address it, understanding the im-

portance of seniors' mastery of digital technology for future social and economic development. With the ongoing technological revolution, senior citizens now have unprecedented opportunities to become technologically literate and to educate others about the transformative potential of social media and digital technology (Ranasinghe et al., 2024).

There have been numerous valuable studies on senior entrepreneurship or digital entrepreneurship, all of which provide evidence in both research areas. However, very few studies offer a comprehensive understanding of the relationship between potential training in digital technology and seniors' decision to start a business. The professional conduct and procedures in these studies often differ from the conclusions or are not addressed in the research (Miles, 2017). To address these research questions, a conceptual framework has been developed based on the literature review on past studies. Table 1 lists the most important literature for the study. Through the literature review, important determinants and research gaps are categorised into several main domains as illustrated in Figure 1.

Figure 1. Literature review

Authors	Year	Title	Country of study	Focus of study/Determinants
Ibrahim Al-Jubari, Aissa Mosbah	2021	Senior entrepreneurship in Malaysia: motivations and barriers	Malaysia	Intrinsic motivation Extrinsic motivation Personal barriers Organisational support and barriers Well-being and perceived stress
Beatriz Olalla-Caballero	2020	ICTs and knowledge management synergies to impulse senior entrepreneurship	Spain	Information and communication technologies Knowledge management
Justyna Stypińska, Annette Franke and Janina Myrczyk	2019	Senior entrepreneurship: the unrevealed driver for social innovation	Germany	Social and economic impact Sustainability Tolerance Implementation
Alex Maritz	2015	Senior entrepreneurship in Australia: An exploratory approach	Australia	Maladaptive Perceived Scarcity and perishability In-store hoarding behaviour Hedonic
Catarina Seco Matos	2018	Senior entrepreneurship: A selective review and a research agenda	Portugal	Determinants Theoretical approaches Entry
Marcelo Leporati, Alfonso Jesús Torres Marin, Sergio Roses	2021	Senior entrepreneurship in Chile: necessity or opportunity? A GEM perspective	Chile	Education Social capital development Gender Prior experience Necessity Opportunity
Adnane Maâlaoui & Myriam Razgallah	2019	Introduction: senior entrepreneurship: from the shadows to the light	France	Motivation Antecedents of entrepreneurial intention
Anna Pilková, Ján Reháč	2017	Regional aspects of inclusive entrepreneurship of seniors in Europe	Europe	Regional aspects
Erhan Aydin, Gözde İnal Cavlan, Cynthia Forson & Mustafa Ozbilgin	2019	Senior entrepreneurship, gender diversity and Intersectionality	Turkey	Gender differences Intersectionality
Laura BLID	2018	Senior entrepreneurship – key facts at regional level in Romania	Romania	Fields of activity raising interest Size of companies Yearly turnover

Figure 2 illustrates the factors that may influence senior entrepreneurship. The purpose of this framework is to support the development of theories

and facilitate the visual understanding of exploratory research results (Waller, 2022). Based on the literature review, it is important to examine the relationship between senior entrepreneurship and factors such as age, social obligation, gender, education level, finance, and digital technology.



Figure 2. Conceptual Framework (Source: Authors own’s work)

Method and Data

This exploratory study utilises a qualitative methodology to gain a deeper understanding of the motivational factors and the role of digital literacy training programs in fostering entrepreneurial interest among senior citizens. Qualitative approaches are well-suited for interpreting research phenomena, and in this case, they offer advantages such as open-ended responses and facilitating meaningful communication with participants, which may not be achievable through quantitative research alone.

The unit of analysis in this study is individual seniors who have participated in the digital literacy training program, aged 50 – 65, regardless of gender, being a retiree, having a retirement of five years and above, urban location, past-working experience, and volunteering to participate in the interview. According to Guest, Bunce, and Johnson (2006), six interviewees are

sufficient for fulfilling the research goal and creating meaningful topics. Focusing on individual seniors allows the researcher to investigate their unique experiences, challenges, and motivational factors related to developing digital literacy for senior entrepreneurship. This approach enables the identification of common themes, patterns, and variations among participants, shedding light on the effectiveness of the program for different individuals. There were six interviewees participated in the interview.

The data/information collection process in this study encompassed several steps to effectively address the research questions. These steps included research design, sampling, data collection methods, interviews, observations, focus groups, data recordings, and data analysis. To gather the necessary data, interview sessions were conducted both before and after the program. The digital literacy training program for senior citizens was held at a public higher education institution. Its content was technical-related, such as cybersecurity, which involves the related enforcement department, internet banking, online bill payment, government applications, e-wallets, e-payment learning, etc. Participants were also trained in operating simple digital equipment to produce goods (Interview questions would be provided upon request). The program was conducted for four days per week, a total of eight days over a span of 2 weeks. Respondents were selected through purposive sampling method. Researchers approached potential participants in the workshop, and sought their consent to be interviewed. Only those who has retired and agreed to participate were included in the sample.

Qualitative analysis techniques, such as theme analysis or content analysis, were utilised to explore the deep meanings and insights hidden within the transcribed interviews. The researcher transcribed the interview

content, capturing it in written form for analysis. Transcription involves listening to the audio or reviewing video recordings of the interviews to accurately document the spoken words in text. This transcription process facilitates effective analysis and interpretation of the interview data. To ensure the accuracy of the transcriptions, the audio recordings were listened to repeatedly and compared to the written text. This thorough review aimed to capture all the words, phrases, and nuanced pronunciations accurately. The data obtained from the interviews were then coded, categorized, and analysed to identify recurring themes or patterns. By refining and shortening the original text, the revised version provides a concise overview of the transcription process and its significance in facilitating the analysis and interpretation of the interview data. During the program, the in-field observation method was also used to remark participants' behaviour in acceptance of digital technology. It exemplifies a qualitative research technique that combined fieldwork and participant observation. Observation allows the researcher to understand the behaviour and responses of participants using digital technology; in addition, it prepares the researcher for effective communication with participants during the in-depth interview.

Results

Participants

Out of 6 respondents, 3 were women while 3 others were men, all the respondents were employed employees and all of them are 5 years or above from retirement. Approaching women respondents was easier as they are willing to be interviewed on short notice compared to men respondents. With 6

responses, the researcher found that the data collected is saturated. This indicates that the researcher notices a consistent pattern in the answers of the interviewees. Additional data gathering will not inevitably result in a fresh understanding of the problem. These people participated in the fieldwork interviews, and their viewpoints were gleaned and explained appropriately. The data collection – interview duration between 25 - 30 mins for both pre-program meetings and post-program interviews from Jan 2023 until Mar 2023. The data saturation is expected to be reached after 6 respondents.

Table 2. Demographic of Interviewees

	Gender	Retire years	Sector	Education	Profession
Jeffrey	Male	6	Private	Bachelor	Officer
Josephine	Female	22	Private	Secondary	NGO
Julia	Female	5	Private	Master	HR Director
Jenny	Female	15	Government	Bachelor	Treasurer
Jonathan	Male	12	Government	Diploma	Assistant Officer
Jason	Male	7	Government	Diploma	Senior Officer

Note: The names mentioned in the text are fictional and were created by the researcher for the purpose of this study (Source: Authors own’s work)

Respondent 01 - Jeffrey1

Jeffrey, a retired man from the private sector, has been retired for six years under the Employee Provident Fund (EPF). He considers the convenience of e-wallets to be the most important requirement for starting a business. According to him, e-wallets have already become a part of his daily life, even during meals. Jeffrey acknowledges that he gained new knowledge through a digital literacy training program. He believes that this program has increased his potential income if he engages in business activities. With the skills he

gained from the program, such as using Canva to create customized advertisements and utilising social media platforms like WhatsApp, he can now design free advertising posters and greeting cards. In terms of technological proficiency, Jeffrey rates himself as average before the program but acknowledges the need for continuous learning. After completing the program, he considers himself above average, especially in using social media. While he recognizes that it is possible to advertise without digital technology, he sees the advantages of social media platforms, which are cost-effective compared to traditional advertising methods. After attending the program, Jeffrey firmly believes that digital technology is an essential tool for starting a business. He emphasizes the ability to reach a large audience simultaneously through social media, enabling efficient promotion, customer communication, and sending advertisements or promotions like sending postcards to customers. By refining the original text, the revised version provides a clearer and more concise account of Jeffrey's perspective on digital literacy and its impact on his entrepreneurial aspirations.

Respondent 02 - Josephine

Josephine, a retired woman with a work gap of 22 years, previously worked in the private sector. Her main concern is her health, rather than income. She joined the program to learn more about technology and protect herself from scams. Josephine acknowledges her limited knowledge of digital technology and recognizes the need to incorporate it into her daily life. For example, she is unfamiliar with the Grab mobile application, so she relies on calling the Grab car service for assistance. Josephine feels that her age poses a challenge, as digital literacy training opportunities are not easily accessible

for people her age, especially when it comes to online banking. As a result, she prefers to conduct physical transactions out of fear. After completing the digital technology literacy program, Josephine still lacks confidence in using digital banking services, except for e-wallets like Touch 'n Go e-wallet. She attributes this lack of confidence to insufficient practice. However, she has become more engaged in using mobile applications for other daily purposes, such as managing medication and utilising social media. The program has made her more aware of the potential of digital technology. Additionally, she recognizes the significance of digital technology for starting a business, particularly in relation to cashless payments and other essential functionalities. Josephine strongly believes that the program has provided her with the necessary skills for entrepreneurship. However, her main concern regarding entrepreneurship is the risk of falling victim to scams, which currently prevents her from seriously considering starting a business. The revised version provides a clearer and more concise description of Josephine's experiences and perspectives regarding digital technology literacy and entrepreneurship.

Respondent 03 - Julia

Julia, a retired female respondent, has been out of the workforce for five years. She previously served as a human resource director in an NGO. Julia decided to participate in the program out of curiosity and eagerness to learn about digital technology and enhance her existing knowledge. While she had prior experience using WhatsApp and computers, she was unaware that WhatsApp could be used on a computer. In the past, she would transfer documents to a computer using a thumb drive for printing, but now she has learned how to directly print from WhatsApp. Julia clarified that her focus is

on the learning process, particularly in areas such as English language proficiency. She is financially stable and comfortable with her retirement savings from the Employee Provident Fund (EPF) in Malaysia, so income is not her primary concern. When it comes to entrepreneurship, Julia believes in the importance of having the necessary equipment to effectively utilise digital technology. Through the digital literacy program, Julia discovered new applications that she was previously unaware of. For example, she can now perform online transactions by scanning QR codes with her own phone, and she feels confident in the safety of this method as she can verify the authenticity of the QR code. Before participating in the program, she rated her knowledge of digital technology at 60-70% out of 100%, but after completing the program, she rates herself as A+. This increased confidence is evident in her ability to discern scams from legitimate transactions and make informed decisions when conducting online transactions. The revised version provides a clearer and more concise depiction of Julia's experiences and perspectives regarding digital technology literacy and entrepreneurship.

Respondent 04 - Jenny

Jenny, a retired government servant, has been out of work since 2007. Her main motivation for participating in the training program was to learn about digital technology and mobile applications to protect herself from scams. She believes the program will increase her confidence as she had little knowledge about online purchasing before. Jenny recognizes the long-term benefits of digital literacy training due to the increasing digitization of various aspects of life. Income is not her main concern as she believes retirees should be self-sufficient without materialistic pursuits. Although she has no plans to

start a business, she agrees that digital technology is essential for entrepreneurs, especially in terms of advertising and online sales. In the current era, businesses cannot thrive without an online presence and the ability to reach a wider audience. Jenny's confidence has grown after attending the program, primarily due to her increased proficiency in using her phone for tasks such as e-wallet transactions and online banking. While she is not actively pursuing business opportunities, she recognizes the potential of digital technology for seniors and retirees to improve their income by managing advertisements and online businesses independently. Jenny's self-assessment of her digital technology knowledge improved from 5-6 out of 10 before the program to 8-9 after. Beyond income generation, she believes that learning digital technology has boosted her self-esteem and allowed her to keep up with the younger generation. The revised version provides a more concise and clearer depiction of Jenny's experiences and perspectives regarding digital technology literacy and its impact on self-esteem and relevance to different generations.

Respondent 05 - Jonathan

Jonathan, a retired government servant, participated in a digital literacy training program to expand his knowledge and adapt to the digital world. He already had some familiarity with certain mobile applications but found the program interesting and gained additional knowledge. Jonathan believes that retirees should stay updated with digital technology to pass the time and keep pace with the ever-evolving technological landscape. He rated himself as average in terms of technology before the program but experienced a 30% improvement in his self-assessment afterward. Jonathan highlighted the safety of certain software, such as e-wallets and online transactions, and now

frequently uses online payment platforms and e-wallets for business transactions. He also acquired skills in creating advertisements and improved his photography abilities. Overall, the revised version provides a more concise and clearer depiction of Jonathan's experiences and perspectives regarding digital technology literacy, retirement, and the benefits he derived from the program.

Respondent 06 - Jason

Jason, a retired male government servant, worked at a public university for seven years. After seeing his peers' proficiency in digital technology, he decided to participate in a program to enhance his knowledge. He recognizes that digital technology is essential for starting a business today. As the sole provider for his family, income is a primary concern for Jason. He extensively uses digital technology, especially social media, for communication within his organisation. Therefore, he believes that the digital literacy training program is crucial for his personal and professional needs. Jason understands the importance of mastering digital technology skills due to their daily usage and constant evolution. He believes that digital literacy can improve his income by enabling him to engage in online transactions, trading, communication, and advertising. After completing the program, he agrees that digital technology is a mandatory requirement for starting a business, as most people rely on technology for information dissemination. Jason concludes that the digital literacy training has motivated him to pursue entrepreneurship, utilizing the skills he acquired to generate additional income. He also emphasizes the importance of securing financial support from the government or other organisations due to the financial risks he faces as the sole breadwinner.

Among various digital skills, Jason considers social media proficiency essential for sharing information, documents, photos, videos, and more. His frequent use of technology for communication underscores its significant role in his life. The revised version provides a more concise and focused portrayal of Jason's experiences and perspectives on digital technology literacy, income generation, and the importance of digital literacy training in entrepreneurship.

Findings

Finding from Observation

In this study, the researcher employed in-field observation to gather data. The researcher fully immersed in the group of participants under study and meticulously observed and recorded their reactions, experiences, behaviours, and interactions. Notably, it was observed that participants who attended the digital literacy program with a clear purpose actively engaged in the learning process by asking pertinent questions. One participant shared their personal experience, stating that they used to store their data on compact discs (CDs) and thumb drives. However, after completing the digital technology literacy program, they were able to save their data on a mobile phone and access various applications all from a single device. The participant remarked, "During my study period, owning a thumb drive was considered a luxury, especially if it had large storage capacity. Now, everyone can conveniently save data on a smartphone or even utilise cloud computing services for free."

The study findings confirm the significance of digital literacy training programs and dedicated support systems tailored explicitly for senior entrepreneurship. These programs provided seniors with guidance, opportunities for knowledge exchange, and access to valuable resources. However, the

findings also stressed the need for senior entrepreneurs to have increased access to specialized training programs that specifically address technology gaps and enhance digital literacy.

Finding from Interview

The findings outcome towards the interviews is depicted in Figure 2, showing the precise findings and insights acquired from the participant interviews. The distinctive viewpoints, experiences, and emergent themes that surfaced during the interview process are shown using Figure 2. Together, Figure 2 and Figure 3 offer a comprehensive depiction of the research, relating the conceptual framework to the empirical findings and fostering a deeper comprehension of the study. The yellow boxes indicate new found variables in findings outcomes which were not indicated in the literature review.

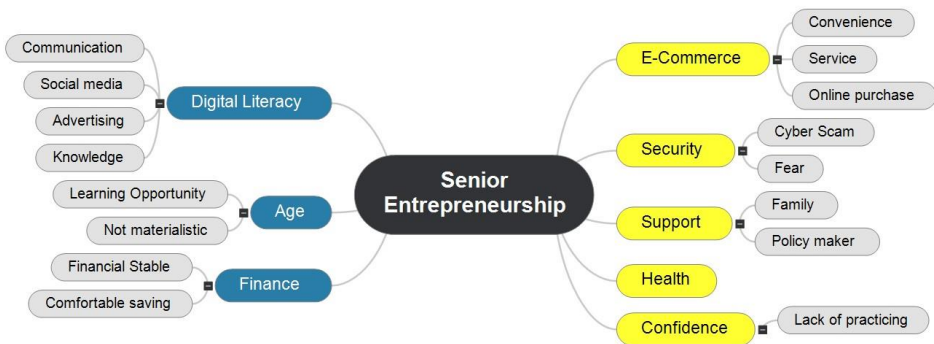


Figure 3. Findings Outcome (Source: Authors own’s work)

Finance

It was discovered that the senior participants were financially secure and did not need to acquire additional money from entrepreneurship. The results of this study showed a contrast from the literature review, which frequently concentrated on the financial difficulties senior citizens confront and the need for additional money (Al-Jubari & Mosbah, 2021). The senior participants discussed their insights on their financial condition and experiences during the interviews. They emphasised several aspects of their stability, including prudent money management, children's income, and access to sizeable pensions or retirement assets. The fact that some participants had already paid off significant loans reduced their monthly expenses and allowed them to comfortably live within their means, they added. Due to these exceptional circumstances, they were often financially secure, making the need for assistance unnecessary.

The interviews provided insight into the causes of their lack of entrepreneurship interest. Some participants stated a wish to take advantage of their retirement years free from the extra obligations and dangers that come with starting a business. They enjoyed their current way of life and felt secure in their financial situation, choosing to pursue hobbies, spend time with family, or indulge in leisure pursuits rather than starting their own business. These results emphasise the significance of appreciating the variety of preferences and ambitions among senior citizens. Although entrepreneurship is frequently promoted as a way for seniors to generate money, this study found that not all financially secure seniors feel pressured to engage in entrepreneurship. They may be influenced by several things, such as lifestyle choices, personal preferences, goals, and a sense of financial security.

Digital Literacy

Interviews with respondents revealed an intriguing finding: exposure to and acquisition of digital literacy skills stimulated respondents' interest in entrepreneurship. This research offers a distinctive viewpoint on the obstacles and difficulties senior citizens encounter while embracing digital technologies and taking part in entrepreneurial endeavours. During the interviews, it became clear that the senior participants' interest in entrepreneurship increased as they learnt about and felt more at ease with digital literacy. This finding aligns with Olalla-Caballero (2020), which discusses ICTs and knowledge management synergies to boost senior entrepreneurship. The potential prospects and possibilities that digital platforms and technologies presented for establishing and operating enterprises were met with enthusiasm. They recognised the potential for accessing a larger consumer base and growing their business prospects as they developed comfort in navigating online marketplaces, social media platforms, and e-commerce websites thanks to their increased digital literacy.

Age

Half of the respondents thought that their age was not suitable to be entrepreneurs. It emphasises the barrier to starting as a senior entrepreneur and the advantages it might have in terms of generating revenue, fostering personal fulfilment, and maintaining an active lifestyle. Like Engelhardt (2012), the retired senior participants consistently stated the opinion that being an entrepreneur was out of the question due to their advanced age. They expressed worries about the stamina, energy, and physical requirements needed to start and operate a firm. Many participants believed that their age

might be a barrier to their ability to compete with younger entrepreneurs or keep up with the fast-paced nature of entrepreneurial endeavours.

The personal perceptions and self-limiting attitudes expressed by the retired senior participants were consistent with the research review. The interviews provided insight into the factors that led them to think that they were too old to start their own business. The possible financial dangers of beginning a business later in life were raised by participants since they lacked the luxury of time to recover from probable setbacks. Additionally, they expressed a desire for stability and a wish to enjoy their retirement years free from the additional demands and obligations of running a business.

Security

In addition, there are some new findings that are not previously addressed in the literature review. One of the new findings is the concern towards the security of digital technology. When it comes to establishing a business venture using digital technology. This discovery clarifies a particular issue that has not received much attention in the literature review. The potential risks connected to online transactions, data breaches, identity theft, and cyber scams caused participants to sense anxiety and disquiet. They attributed their dread and sense of vulnerability to their inadequate acquaintance with digital platforms and technologies. According to the interviews, the seniors' worries were caused by a lack of confidence in their capacity to practice around and protect themselves in the online business environment. They raised concerns about potential effects on their personal lives, financial loss, and reputational harm. This discovery emphasises the significance of addressing these security

concerns and offering specific support, information, and tools to improve seniors' digital literacy and self-assurance in using technology for entrepreneurial endeavours, which has not been getting much attention in literature. It also emphasises the necessity of creating strong security measures, encouraging trust in online platforms, and educating senior entrepreneurs about cybersecurity best practices.

Confidence

Senior citizens lack confidence in their ability to launch a business using digital technologies. This discovery offers important new information about a particular problem that has not received much attention in the literature up to this point. According to the interviews, several seniors voiced reluctance and self-doubt about utilising internet platforms and technology for entrepreneurial reasons. They gave reasons for this, including a lack of digital technological exposure throughout their working years, a perceived generational divide, and a concern about falling behind in the quickly evolving digital ecosystem. The participants voiced worries about their capacity to pick up essential digital skills, follow technological developments, and successfully participate in the online economy. Their unwillingness to see digital entrepreneurship as a realistic alternative was hampered by this lack of confidence.

Education Level

Throughout the interviews, it was discovered that senior citizens were not considerably impacted by their education level. This result is in contrast with past studies (Kim and Heo, 2021; Leporati et al., 2021). The qualitative

findings highlight the significance of other factors, such as financial stability, cyber security, and digital literacy in moulding seniors' well-being, even while schooling unquestionably imparts useful information and skills. Therefore, education did not significantly affect the outcomes seen in the elderly participants.

Discussion

Table 3 presents a comparison of the interview findings and highlights the areas of concern among the respondents. Out of the six participants, five of them agreed that achieving financial stability and having sufficient savings enables retirees to prioritize other aspects such as health and education over generating income. The stability of their pension and employment provident fund (EPF) savings ensures that their daily expenses are adequately covered, allowing them to maintain a comfortable lifestyle during retirement. Retirees who have diligently saved throughout their working years can enjoy financial security in their retirement, reducing the need to actively pursue entrepreneurship or seek additional income. Figure 3 provides an overview of the findings throughout the interview session, while Table 3 focuses on the common concerns shared by the participants.

Table 3. Comparison table of motivational factors in interviews

	Financial stable	Age	Security	Confidence	Online Transaction	Motivation
Jeffrey	/			/	/	/
Josephine	/	/	/	/	/	
Julia	/		/	/	/	/
Jenny	/	/	/	/	/	/
Jonathan	/	/		/	/	
Jason				/	/	/

Source: Authors own’s work.

Furthermore, three out of the six participants expressed concerns regarding scamming issues, which served as a barrier for them to venture into business establishment in the digital age. With everything now being conducted online, these participants lacked the confidence to engage in online business activities due to the prevalence of scams. Seniors are often targeted by scammers due to their limited familiarity with digital technology. This challenge in navigating the digital landscape safely instils fear and apprehension, thereby affecting their willingness to pursue business opportunities.

Additionally, age emerged as a minor concern among the respondents. Half of the participants believed that their age, following retirement, diminished their interest in starting a business or generating income. This assumption led to a lack of confidence in their own capabilities to initiate and operate successful businesses. They may perceive their knowledge and skills as undervalued solely based on their age, thereby undermining their motivation to pursue entrepreneurial endeavours (Parker, S. C. & Rougier, J. C.; 2009).

Moreover, following their participation in the digital technology literacy program, all the respondents unanimously acknowledged a notable improvement in their confidence levels. In fact, they rated themselves as above average in terms of their digital literacy skills. The program proved instrumental in enhancing their knowledge of various aspects of digital technology.

Interestingly, all respondents expressed agreement on the program's indirect impact on their income, despite not necessarily generating additional income directly. They highlighted that the program significantly reduced their digital technology-related expenses. They now possess the skills to create advertising content using suitable applications, and they can effectively utilise communication tools to facilitate the exchange of information. These newfound abilities have not only improved their efficiency but have also contributed to cost savings in their digital endeavours.

Furthermore, the respondents unanimously agreed that the digital literacy training program has empowered them to engage in online transactions through platforms like e-wallets and online banking. This newfound ability has not only saved them valuable time previously spent on cash withdrawals and traditional payment methods but has also streamlined their financial transactions. Through the digital literacy program, they have acquired valuable experience and knowledge in navigating mobile applications, online platforms, and e-wallets, which has significantly boosted their confidence in conducting online payments.

Moreover, the program's emphasis on password management and the significance of identifying secure platforms has greatly contributed to the respondents' sense of security when conducting online transactions. Equipped with this knowledge, they now feel more confident and assured in their ability

to protect their digital information, further enhancing their overall digital literacy.

In addition to these benefits, four out of six respondents expressed that the digital literacy program indirectly sparked their desire to explore entrepreneurship opportunities. They mentioned the availability of financial support from the government or other organisations as a motivating factor. The respondents recognized their current financial stability and minimal fear of financial loss as factors that could potentially motivate them to establish a business. They acknowledged that digital technology has revolutionized various aspects of business activities, including communication and advertising. With everything becoming increasingly digitalised, the digital literacy program has enabled them to actively participate in this digital environment, opening new possibilities for entrepreneurial endeavours.

The primary research objective of this study was to investigate the motivational factors driving senior entrepreneurship. Through in-field observation and pre- and post-program interviews, it became evident that the respondents placed considerable importance on the functional applications that could simplify their daily tasks, as well as the safety of digital technology for users. The inferential analysis results indicated unanimous agreement among the respondents that the digital literacy program played a significant role in cultivating their interest and confidence in establishing a business.

The secondary objective of the study was to explore the perspectives of senior citizens regarding the activation of digital entrepreneurship interest through a digital literacy program. The participants indicated that their interest did experience a partial increase during the program, as they believed they possessed the necessary skills and knowledge to initiate a business. However,

the idea of starting a business was not fully appealing to the participants, as they had not seriously considered it as a potential endeavour. In summary, while the digital literacy program successfully enhanced the participants' interest and confidence in entrepreneurship, the level of attractiveness and intention to pursue business ventures varied among the respondents, with some not fully considering it as a viable option.

Implications and Recommendations

Upon comparing the pre- and post-digital literacy training programs, a significant finding emerged, as all respondents unanimously agreed that the program effectively assisted senior citizens and indirectly increased their interest in digital technology for senior entrepreneurship. Considering these findings, it is recommended that relevant agencies and stakeholders consider organising similar programs specifically tailored for senior citizens, particularly those facing financial challenges. The respondents highlighted that their families either lacked the time or willingness to teach them digital technology, whereas this program provided them with valuable opportunities to engage with and navigate the digital era. For instance, the learning program enabled seniors to acquire skills in using social media applications, which typically require patient assistance from their children or younger generations.

Despite their limited knowledge and skills, seniors demonstrate a strong desire to embrace digital technology. To address this need, it is recommended that the government take the initiative to establish and develop digital training programs or centres specifically catered to senior citizens. These programs will play a crucial role in equipping seniors with the necessary skills

and confidence to effectively utilise digital tools and platforms for various purposes, including entrepreneurship.

Collaboration between the government, academic institutions, neighbourhood associations, and technologists can facilitate the creation and implementation of comprehensive digital literacy training programs that are tailored to the specific requirements and interests of senior citizens. These programs should cover essential digital skills such as computer and internet usage, online safety, and proficiency in relevant platforms and software relevant to entrepreneurship. By providing accessible and targeted digital training initiatives, the government can empower senior citizens to fully participate in the digital age and leverage digital technology to explore entrepreneurial opportunities.

In addition, it is recommended that relevant organisations, such as the Social Welfare Department or other government agencies, take the initiative such as in term of finance and training to organise regular programs aimed at assisting seniors in gaining confidence in using digital technologies. These programs can include weekly lectures, seminars, or consultation sessions specifically designed to address the concerns and challenges seniors face with digital technology.

The seminars should cover a wide range of topics, including fundamental digital literacy, online safety, and security, utilising digital tools for entrepreneurship, and navigating social media platforms. The Social Welfare Department can play a vital role in helping seniors overcome their digital confidence barriers. These programs can also provide networking opportunities, foster community building, and create a supportive environment for el-

derly individuals. In addition, practically it is essential to establish an environment that encourages and enables senior entrepreneurship. This can be accomplished by putting in policies that simplify regulations, offer financial incentives, and create senior entrepreneurial digital literacy programmes and mentorship networks. These programmes will address the difficulties experienced by potential senior entrepreneurs and promote a more diverse entrepreneurial ecosystem. Theoretical implications show how age-related biases in entrepreneurship research and practice need to be challenged. We can increase our understanding of entrepreneurship and encourage a more thorough and inclusive approach by recognising and appreciating the varied skills, experiences, and viewpoints of senior entrepreneurs.

By addressing these issues and providing comprehensive support, policymakers, organisations, and business owners can create a more secure and inclusive environment that encourages elderly individuals to embrace digital technology for entrepreneurship. This, in turn, will unlock their potential for creativity and contribute to economic development (Ordeñana et al., 2024).

Conclusion

In conclusion, this study effectively investigated the motivational factors influencing senior entrepreneurship and provided valuable insights into the perspectives of senior citizens regarding the role of digital literacy programs in sparking their interest in starting businesses. The findings highlighted key factors such as finance, digital literacy, ageism, security, and confidence that significantly influence seniors' inclination towards utilising digital technology for entrepreneurial endeavours.

To optimise the impact of digital literacy programs on senior entrepreneurship, several recommendations and considerations have been put forth. These recommendations include addressing financial concerns, enhancing digital literacy skills, combating ageism by recognizing and valuing the expertise and experience of seniors, ensuring security in digital transactions, and fostering confidence among seniors in utilising technology for business purposes. By implementing these recommendations, policymakers, organisations, and stakeholders can create an environment that empowers and supports senior entrepreneurs, harnessing their potential and contributing to their success in the digital era.

The study has several limitations. First, it exclusively interviews elderly individuals in Malaysia, which represents only a small segment of the global aging population. Future research should expand the scope to include a more diverse range of participants from various social statuses and geographical locations, such as China and Japan. Secondly, the study finds that individuals with prior self-employment experience before retirement offer valuable insights into their perspectives on digital literacy for entrepreneurship. Therefore, future research could focus on this group to better inform the development of effective strategies and programs that address the needs and aspirations of seniors in the digital era. Thirdly, the study employs qualitative methods to explore the relationship between elderly entrepreneurship and digital technologies. Future research could benefit from utilising quantitative methods, such as surveys, to gather more extensive data and improve the representativeness of the findings. By continuously exploring and studying this area, researchers and policymakers can contribute to the advancement of

knowledge and the creation of supportive environments for senior entrepreneurs, ultimately fostering their success and well-being in the digital age.

Acknowledgement

We would like to express our gratitude to WEBE Digital Sdn Bhd for supporting the research and publication. Grant name: WEBE 2022-2024.

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