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Exploring the Capability Approach Theory in the Context of Smartphone Technology Use and E-Commerce Among Older Adults in Malaysia

Nabsiah Abdul Wahid *
Graduate School of Business,
Universiti Sains Malaysia,11800 Penang, Malaysia
Email: nabsiah@usm.my

** Corresponding Author*

Abstract
Purpose: This study explores the application of the Capability Approach Theory (CAT) to understand the impact of smartphone technology use on e-commerce participation among older adults (OA) in Malaysia.
Design/methodology/approach: The study uses qualitative research methods to identify key factors influencing the adoption and effective use of smartphones for e-commerce activities among Malaysian OA from perspective of CAT; focus group discussion (FGD) is applied for data collection while thematic analysis is used to analyze transcriptions from participants.
Findings: Four themes underlie expanding smartphone technology capabilities of OA that foster their inclusion in the digital marketplace: technological accessibility, digital literacy, supportive social networks, and perceived benefits.
Research implications: CAT is found to be applicable as grounding theory on OA's capability on use of smartphone technology use and e-commerce participation.
Practical implications: OA is a high potential consumer segment capable of using smartphone technology to participate in e-commerce activities; smartphone companies and e-commerce retailers should target OA for their smartphones and online retail products.
Originality/value: The study's originality lies on application of CAT instead of other popular technology related theories such as Technology Acceptance Model (TAM), Technology Readiness (TR), Technology Readiness and Acceptance Model (TRAM) and Diffusion of Innovation (DOI) Theory to explain consumer behavior in adopting innovative technology. In addition, focus on OA as specific neglected consumer segment in Malaysia also serves as novelty.

Keywords: Capability Approach Theory (CAT), Older Adult, Smartphone Technology, E-Commerce, Consumer Behavior, Qualitative

Classification: Research paper

Introduction

Globally, the rapid proliferation of smartphone technology and e-commerce platforms has transformed various aspects of consumers' daily life, offering them with unprecedented opportunities for economic and social engagement. While this is true for many consumers, the

digital divide remains a critical issue for older adult (OA) segment who often face barriers regarding new technology adoption. Currently, Malaysia is facing this problem. With increased number of OAs, the country is not only experiencing aging population, but it becomes essential for stakeholders to explore the consumer's capability in leveraging smartphone technology to facilitate their participation in e-commerce activities ("How capable is the OA in using smartphone technology to participate in e-commerce activities?"). This issue is critical since adoption of technology like smartphone represents the OA an alternative to take care of themselves independently. In addition, past researchers are found dependent upon popular theories like Technology Acceptance Model, Technology Readiness, Technology Readiness and Acceptance Model, Diffusion of Innovation, and United Theory of the Acceptance, Use and Technology to investigate the issue (e.g., Eneizan et al., 2022; Yang et al., 2022; Xu et al., 2021; Wu and Song, 2020, Wang and Sun, 2016) and neglect theories that focuses on individual's development in terms of their functions and capabilities such as the Capability Approach Theory (CAT). In line with its objective, this study deviates from the norm by selecting CAT to help explore the issue of OA's smartphone technology use on e-commerce participation in Malaysia's setting.

Literature Review

This section reviews the literature to provide understanding on older adult segment, relevant theories to technology adoption and use, and justification for selecting CAT over other mainstream theories on the issue investigated by this study.

Older Adults (OA)

Senior, old consumer, silver surfer, mature consumer, and retiree are amongst the terms used to describe OA consumers in the literature. To date, there is no consensus on definition of OA. Although age is the most used attribute when defining OA, researchers differ in view regarding determination of exact OA's age. For instance, while many researchers consider OA is between 55 to 65 years of age, there are others who have widened the bottom and ceiling category of OA's age to vary between 45 to 69 years old (Najdeny et al., 2019; Zniva and Weitzl, 2016) or to simply include those age 50-year-old and above (Lian and Yen, 2014). In Malaysia's case, Ismail and Abdul Wahid's (2023) review on OA found that this group is commonly categorized as those age 50 years old and above as per identified in several reports on this group's behavior (e.g., MCMC, 2018; Statista, 2017, 2016).

The literature also observes the neglect of OA compared to other segments such as younger consumers. However, its importance as potential consumers with stable economy is also noted. As consumers, OA is generally described as not very tech-savvy individuals with limited access on technology and ones that are most likely to have difficulty in learning or when using it (Ismail and Abdul Wahid, 2023). In short, the OA is considered incapable individuals in the digital world (Seifert et al., 2021). In addition, Najdeny et al. (2019) highlights the importance of not perceiving this segment as homogenous consumers or making simple generalization of their marketplace behaviors since many factors, including being parents or grandparents while they are also economically active may be (in)directly determining their consumption behaviors.

Smartphone Technology and E-Commerce of Older Adult in Malaysia

Smartphone technology has revolutionized access to information, communication, and services. In the context of e-commerce, smartphone technology offers consumers a convenient and accessible platform for online shopping, banking, and other commercial activities. However, the adoption and effective use of smartphones for e-commerce among OA are influenced by various factors, including digital literacy, perceived ease of use, social support (Choudrie et al., 2018), technology readiness (Ismail & Abdul Wahid, 2020), brand apps preferences (Jin, 2022), anxiety, self-satisfaction (Guner and Acartuck, 2018), as well as roles they play in life (Najdeny et al, 2019).

In Malaysia's scenario, the country's aging population brings significant implications for the country's social and economic policies. According to Ismail and Abdul Wahid (2022), although internet use of OA in Malaysia increases by 10.8% between 2014 to 2018, they are not a significant group as active online shoppers; for instance, in 2018, 85% of the online shopper is dominated by consumers aged under 35 years old. It is also reported the percentage of overall OA participating in e-commerce is only at 35.6% compared to other age groups in the country in 2018 (MCMC, 2018). OA in Malaysia often face challenges such as lower levels of digital literacy, limited access to technology, and social isolation. Understanding how these factors impact their ability to engage with smartphone technology and e-commerce is crucial for developing inclusive digital strategies (Hassan et al., 2020). Thus, some researchers have called for online marketers to pay attention to this group as a high potential segment to target (e.g., Soh et al., 2020; Ismail & Abdul Wahid, 2022).

Relevant Theories on Technology Use

The literature on technology has observed application of either single or a combination of theories to help researchers explain why the technology is adopted or used by consumers. For instance, Ismail and Wahid (2020) highlight the importance of single use of technology readiness index (TRI) in investigation on OA's readiness to adopt innovative online shopping technology while Jin (2022) applies technology readiness and acceptance model (TRAM) that represents a combined TRI and TAM when examining consumers' preference on using brand-sponsored applications or brand apps for communication purpose. The idea behind such attempts is to find the best theory (through extension or refinement of existing, current theory) to align with the dynamics of consumer behavior in today's marketplace regarding technology acceptance, adoption, and continuance intention. Commonly used theories include TR (or TRI), TRAM, and DOI.

Technology Acceptance Model (TAM)

TAM was developed by Davis (1989) as an extension of Theory of Reasoned Action (TRA). The theory focuses on perceived ease of use (PEOU) and perceived usefulness (PU) as the primary factors influencing technology adoption (Davis, 1989). It has been a popular and reliable theory used by researchers in their attempt to understand the determinants, application, and context of different technologies by consumers (users) including online shopping. Although useful, TAM is criticized for not being able to adequately capture the broader socio-economic and personal impacts of technology use, which are crucial for understanding the well-being of specific segments like OA. Recent researchers like Guner and Acartuck (2018) have thus added new variables such

as social influence, facilitating condition, anxiety, and self-satisfaction to TAM when investigating older adult acceptance of ICT.

Diffusion of Innovations (DOI)

DOI theory, developed by Everett Rogers, explains how, why, and at what rate new ideas and technology spread through cultures. The theory identifies five main characteristics of an innovation that influence its adoption, namely, relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003). The main criticism on DOI is that it does not deeply engage with the individual's capabilities or the socio-economic factors affecting their well-being.

Technology Readiness Index (TRI)

TR assesses individuals' propensity to embrace and use new technologies based on psychological traits (Parasuraman, 2000). While useful for segmentation, it lacks a focus on the broader impacts of technology on individual capabilities and social inclusion.

Technology Readiness and Acceptance Model (TRAM)

TRAM is developed through the integration of TAM and TR with intent to achieve a more comprehensive understanding of technology acceptance behavior (Lin et al., 2007). However, it is still primarily focusing on adoption and usage intentions, rather than the holistic impact on well-being and individual capabilities which influence behavior.

Capability Approach Theory (CAT)

CAT which was first developed by Amartya Sen and later expanded by Martha Nussbaum, is grounded in the idea that well-being should be assessed based on individuals' abilities to achieve valuable functionings, rather than solely on economic measures. According to Sen (1999) who develops CAT, capabilities not only represent the real freedoms individuals have to lead the kind of life they value but human capabilities play central role in understanding how they develop in life. Various personal and social factors can influence an individual's ability to convert resources and opportunities into actual achievements. Nussbaum (2000) further elaborates on this framework by identifying specific capabilities essential for human development, such as practical reason, affiliation, and control over one's environment.

Justification for Using CAT Over TAM, DOI, TRAM, and TR

From the brief descriptions of each theory, CAT provides a more holistic and human-centered framework for understanding the impact of smartphone technology on e-commerce participation among OAs. Mainly because it emphasizes on improving individuals' capabilities and well-being, which is crucial for addressing the unique challenges faced by OA segment investigated in this study. Relevantly, CAT considers broader socio-economic, personal, and contextual factors influencing technology use, making it a more suitable framework for this study. This supersedes other theories mentioned here because although each of them has been found to be reliable by past

researchers, they lack focus required when explaining consumer's capability in nourishing their well-beings.

As earlier explained, one of TAM's limitation is on its narrow focus that emphasizes only on PU and PEOU aspects. While the two are primary factors that determine whether consumer will or will not adopt a technology, they may not apply when the investigation requires understanding regarding broader socio-economic and personal contexts that influence OA's technology adoption itself. This is related to its next limitation concerning the lack of socio-economic variables (e.g., financial constraints, social isolation, health issues, education level) and neglect of psychological factors (e.g., barriers of adoption such as fear of technology, lack of confidence) that may impact OA's ability to adopt and use smartphone technology as observed happening with OA segment in the literature. A selection of CAT instead of TAM is based on the argument that CAT provides a more comprehensive framework by considering the broader context of individual capabilities and well-being. CAT emphasizes on enhancing individuals' real freedoms to achieve valuable functionings, making it more suitable for addressing the diverse and complex needs of OAs.

While the strength of DOI lies on its five main innovation attributes that determine the spread of innovations throughout the social systems, DOI unfortunately is mainly concerned with how innovations diffuse at a macro level, thereby neglecting the individual-level factors which are critical for understanding OA's adoption of technology. Another limitation is that DOI does not adequately address individual capabilities, preferences, and socio-economic conditions that influence technology adoption among OA. The emphasis on the five innovation characteristics also overlooks the personal, psychological, and social barriers that OA face. CAT on the other hand, offers a more individualized and human-centered approach, as it focuses on what individuals like OA are able to do and be. This is particularly important as OA's capabilities and functionings are often constrained by various socio-economic and personal factors.

Similar to other technology relevant theories, The TR or TRI was developed by Parasuraman (2000), with intent to measure individuals' readiness to embrace new technologies based on four dimensions: optimism, innovativeness, discomfort, and insecurity. TR dimensions which are based on narrow personality traits only become the weakness of the theory's application since the dimensions measured do not fully capture the external and contextual factors influencing OAs' technology adoption without inclusion of socio-economic motivations and/or barriers (e.g., affordability, access to technology), which are crucial for OA. Scoping on technology readiness without considering the actual capabilities and outcomes of technology use to the OA serves another limitation of TR. In contrast, CAT encompasses a broader range of factors, including socio-economic conditions and individual capabilities, providing a more holistic understanding of OA's technology use. It considers both the internal and external factors that impact their ability to engage with technology.

As for TRAM, its obvious limitation lies in its complex nature when it combines both TRI and TAM in one model in the hope to provide a more comprehensive understanding of technology acceptance by integrating readiness and acceptance dimensions. However, TRAM still misses out on key socio-economic and contextual factors that are relevant to segments like OA. TRAM's primary focus on adoption and usage intentions, rather than the broader impact on individuals' capabilities and well-being serves as its other limitation. In addition, like other technology related

theories, TRAM does not fully address the external barriers and support systems that are crucial for OA's successful technology adoption. This is the reason for why application of CAT is more suitable since it goes beyond adoption and usage intentions when it emphasizes on enhancing the real freedoms and capabilities of OA individuals. It considers a wider range of factors that influence OA's ability to effectively use smartphone technology for e-commerce, making it a more suitable framework for this study.

Overall, the selection of CAT over other theories is thought to be justified since CAT in its form provides researchers with a comprehensive framework for evaluating individual well-being and social arrangements. Mainly, CAT emphasizes the importance of enabling individuals to achieve valuable functioning – the various things a person may value doing or being which is perfect when the study's interest is set on investigating older adult's capability and behavior of smartphone technology. In short, by applying this theoretical lens, we can better understand the potential of smartphone technology in expanding the capabilities of OA in Malaysia, thereby promoting their inclusion in the digital economy (through e-commerce participation).

Method

This study employs a qualitative research design in line with its aim to explore the experiences and perceptions of individuals (the OA's capability smartphone technology use and e-commerce participation) instead of establishing cause-and-effect relationships, making predictions, or for other reasons. Exploratory study allows data to be collected through various forms, e.g., semi-structured interviews, focus groups and surveys. In this study, data were collected from a purposively sampled of OA aged 50 and above (as per Ismail and Abdul Wahid's (2024) OA definition) with ownership to a smartphone and is involved in e-commerce to ensure relevance to the study's objectives regardless of gender. According to Campbell et al. (2020), purposive sampling provides researchers with credibility, transferability, dependability, and confirmability factors that are pertinent to ensuring that data collected and analyzed in line with their study's objectives are rigorous and trustworthy.

Approximately 229 older adults in Malaysia took part in the study (22 participated in semi structured interviews ranging 30-50 minutes each, 20 in two focus group discussions (FGD) ranging 60-85 minutes each, while 187 more responded to an exploratory survey that takes around 15-20 minutes to answer). All respondents were also informed of their voluntary participation rights and thus, they can opt to terminate their participation at any point of time with no question asked.

Data collection process of this study took more than seven (7) months to complete before they were analyzed thematically and empirically. The purpose of thematic analysis is to identify key themes and patterns in the data of interviews and FGD transcriptions, in line with the objective of providing insights into factors that influence smartphone use and e-commerce engagement of OA in Malaysia. Use of FGD and thematic analysis are well acknowledged methods for data collection and interpretation. Braun and Clarke's (2021) guides on use of FGD and conduct of thematic analysis (e.g., coding, theme development, and presenting qualitative data) were strictly followed.

Findings

This study reports only results of analyses made on the two FGDs. The emerging themes will be identified and described.

Profile of respondents

Table 1: Focus Group 1 (FGD1) Participants' Profile

Participants	Gender	Age	Background
FG1-P1	Male	58	Not married, fashion entrepreneur (offline, online)
FG1-P2	Male	55	Married (3 children), government officer
FG1-P3	Male	53	Divorced (2 children), freelance graphic designer
FG1-P4	Male	52	Not married, university student, part-time handcrafter
FG1-P5	Male	59	Married (4 children), online bakery
FG1-P6	Male	60	Widow (1 son), retiree, small organic farm producer
FG1-P7	Female	54	Married (5 children), beauty products business
FG1-P8	Female	52	Not married, professional tutor (online tutoring services)
FG1-P9	Female	53	Married (3 children), handmade jewelry business
FG1-P10	Female	62	Married (2 children), home sewing hobby turned business

Table 2: Focus Group 2 (FGD2) Participants' Profile

Participants	Gender	Age	Background
FG2-P1	Male	63	Married (3 children), retiree, palm oil planter
FG2-P2	Male	54	Married (4 children), family business (bakery)
FG2-P3	Female	65	Married (5 children), retiree, grandmother
FG2-P4	Male	52	Not married, home-based clothing (bundle) business
FG2-P5	Female	50	Married (2 children), retiree cum small café owner
FG2-P6	Female	50	Widow (3 grown children), beauty and wellness product line
FG2-P7	Female	63	Married (1 child), 35 years' experience as special event manager, also offering freelance graphic design services
FG2-P8	Female	53	Divorced (2 children), schoolteacher/special one-to-one tutor for slow learner students
FG2-P9	Female	52	Not married, influencer, content creator
FG2-P10	Female	54	Married (3 children), schoolteacher, also owner of home-based bakery within her housing area

Based on respondent profiles (Tables 1 and 2), the number of females (11 persons) is slightly more than males (9 persons). The background of FGD participants is quite diverse. The OA age varies from 50 to 65 years old, and they come from different states of Malaysia including Penang. It is observed that some of the participants are 'active' retirees whereby they continue to work in the area that they know best or love, while others seem to have operating businesses (e.g., offline, online) of their own.

Emerging Themes

The study found few themes emerging from FGDs. Interestingly, the themes on capability found element traces of TR, TAM, TRAM and DOI attributes appear in participants' responses in using smartphones on e-commerce activities. These are described in the following sub-sections.

Theme 1: Capability through Technological Accessibility and Affordability

Participants highlighted the importance of affordable and accessible smartphone devices in facilitating their engagement with e-commerce. Some older adults expressed concerns about the cost of smartphones and internet services, indicating that financial barriers significantly impact their ability to participate in the digital economy. For example, one participant (FG2-P3) who is a retiree and a grandmother mentioned, "I would love to shop online, I often see other people do it, but the price of smartphones and the monthly internet fee is too high for me. … (mainly) I have my family to take care of (using my pensions). I just need a phone (an affordable one that allows me) to contact my family and *surau* friends. Sometimes, they (referring to her social circle f family and friends) would help make the orders (of products) for me (using their smartphones)."

Many other respondents particularly those who are active online entrepreneurs however, responded differently as they highlighted the importance of investing in good smartphone which is a crucial tool for their business to grow. For instance, one beauty entrepreneur (FG2-P6) stated, "I am in a beauty and wellness product line. Without saying, I must have access to good smartphone. … good brands around … my clients depend very much on me (to be responsive) … they are sensitive … even a slight skin tone change would make them nervous … I have changed (and upgraded) my (smart)phones several times (to cater for my clients' needs) … no regrets … it is all for business. Without it, my business would collapse".

Another example is an excerpt by a content creator and an influencer with quite a number of followers of her own (FG2-P9): "(laughing) … I must have my smartphone with me (to create content), my followers count on me to update what I do, where I go, when I sleep, eat, travel, … even with whom I am with. … I need 5Gs technology, … I can afford to buy (smartphones that I want and need), it is my life, … cannot be without it."

Theme 2: Capability through Digital Literacy and Training, Social Media and e-Commerce Business Growth

Digital literacy emerged as a critical factor influencing the effective use of smartphone technology for e-commerce and its growth. The study found participants with higher levels of digital literacy reported greater confidence and competence in navigating online social media platforms. Their sharing on smartphone's use for their everyday business operations indicate the existence of perceived use and ease of use (as identified in TAM) as crucial components of technology acceptance. For instance, a bakery participant (FG1-P5) revealed: "I use Instagram and Facebook (to market my bakery products). Now I even add Tiktok. These platforms have been game-changers for my business, allowing me to reach a wider audience and engage with my customers directly."

Another retiree cum café owner (FG2-P5) highlighted the importance of social media to build her business existence and branding: "Social media is crucial for my (café) business too. … menu needs to be irresistible, that's key to attracting consumers … I use apps like Canva to create marketing materials for my cafe. It's easy to use and helps me maintain a professional look for my (café) brand. … many more apps around … I personally monitor potential customers interested to visit my café … responded using FB, WhatsApp (using smartphones)."

Conversely, those with limited digital skills expressed frustration and apprehension, underscoring the need for targeted training programs to enhance digital literacy among older adults. As one retiree (FG2-P1) stated: "I find it very difficult to understand how to use these apps. Sometimes I have to ask my children when they are not busy or my grandchildren for help (with the apps on the smartphones and e-commerce)."

The responses from the excerpts underline the need for targeted training programs to enhance digital literacy among older adults with no sense of business mindedness since they (only minority) are struggling to use the smartphone technology and e-commerce. On the other hand, the study found no such need arises for those OA who are in e-commerce; they seem to be very much at ease with digital literacy, they are confident with that they know, they know how to find correct and relevant information to help their business to continue growing; these lead them to have the ability and capability to apply the technology (apps) accordingly (even upgrading for some) as needed.

Theme 3: Capability through Social Support and Networks

Support from family members, friends, and community organizations played a pivotal role in enabling older adults to adopt and use smartphone technology for e-commerce. Participants emphasized the value of social networks in providing assistance, encouragement, and practical guidance, highlighting the significance of social capital in bridging the digital divide.

One home based sewing hobby turned business respondent (FG1-P10) shared her experience: "My daughter taught me how to use my smartphone to order groceries online during Covid 19. Without her help, I wouldn't have tried it at all." She continues, "Knowing how to order groceries online gives me confidence and head start for more exploration and adventures, … I tried next to order things that I like or those things that I think my husband or children like from other platforms. It was a nice feeling … I no longer feel afraid to explore … Now I even tell other people about my home sewing hobby through WhatsApp group, and I got customers who liked what I show them of my sewing outcomes (face brightens, looks proud) … Never thought I would come this far …"

This excerpt highlights the significance of social capital in bridging the digital divide of OA (the mother, with no knowledge on smartphone technology, but ended up turning her sewing hobby into a home-based business as she earns capability to use the technology for e-commerce activities over time) and the younger generations (the daughter that taught her how to use the smartphone in the first place).

Theme 4: Capability through Perceived Benefits and Motivations of Smartphone Use

The perceived benefits of smartphone use for e-commerce, such as convenience, cost savings, and access to a wider range of products and services, were key motivators for older adults. Many FGD participants expressed a desire to remain independent and self-sufficient, viewing e-commerce as a means to achieve these goals even for those in business line. A revelation by fashion entrepreneur respondent (FG1-P1) on this is a good example found in this study: "Shopping online (for materials) saves me a lot of time and effort. I don't have to travel far to buy what I need. … most time, I can get what I want at a cheaper price. The idea is to surf (the right and relevant platforms), … to be in the 'right' online community to get info (information), … Of course, I don't deny that sometimes I still need to travel to get the materials I specifically want for my fashion line but to tell you the truth, everything has been made simple today." Interestingly, perceived benefits and motivation's theme seem to be in line with some of Rogers's (2003) DOI characters of innovation. The perceived benefits of smartphone use for e-commerce, such as convenience, cost savings, and access to a wider range of products and services, that served as key motivators for older adults are quite equivalent to Roger's suggested relative advantage, compatibility (e.g., smartphone suits my lifestyle) and complexity (e.g., the technology is not complicated to use) characters.

Discussion

From the qualitative findings based on thematic analysis, the relevance of the Capability Approach Theory is significantly identified in the case of exploring the impact of smartphone technology on the lives of older adults in Malaysia. They indicate, as per posited by CAT, that smartphone technology use has enabled the OA to achieve valuable functioning (through day to day and/or business activities) and states of being that they have reason to value (to become digitally literate individuals, managing their lives and businesses using the smartphone technology). Overall, OA participants agreed that having and using smartphone helps them to expand on their capabilities with technology (they gained digital literacy over time). Simultaneously, the technology enhances on their well-being (personal development) and social inclusion (communicating with other people like their family members, friends, and customers) which allows them to participate actively in the digital economy (e-commerce). For some, the experiences were quite scary to try at first but which it becomes easier by the day after they get the hang of it (the know-how). For business owners, the smartphone technology serves as a critical business tool; adoption helps them continue operating their businesses effectively and successfully. The apps in the smartphone technology are helpful in ensuring that they can respond and engage with their customers in a timely fashion (so that they are seen as reliable, responsive, empathetic, even friendly) as per their customer's expectation. Some of these findings are supported and in line with past reported findings (e.g., MCMC, 2018; Statista, 2017, 2018; Soh et al., 2020). This study's discussion will elaborate on the implications of these findings, highlighting the key dimensions of CAT and their application in this context.

Enhancing OA capabilities through smartphone technology

For OA in Malaysia, smartphone technology can significantly enhance their capabilities in various ways. The first capability is in creating access to a vast array of information and services including news, health information, and educational resources. This access empowers them to make

informed decisions and stay connected with the world. Access to e-commerce platforms enable OA to conveniently access goods and services, such as groceries, medications, and financial services, improving their quality of life and independence.

Secondly, acting as a communication tool, smartphone technology allows social inclusion and connectivity. For instance, it facilitates OA communication through various channels such as voice calls, video calls, and social media. This connectivity helps reduce social isolation and loneliness, which are common issues among older adults. Through various digital platforms, it also allows OA to participate in online communities and social groups, fostering a sense of belonging and engagement among them.

Thirdly, as economic enabler, it allows OA to gain financial independence and economic participation. E-commerce for instance enables OA to shop online, providing them with more choices and potentially better prices which help to lead towards cost savings and improved financial management. In addition, OA can use smartphones to engage in income-generating activities such as freelancing, selling goods online, or participating in the gig economy, thus enhancing their financial independence.

Fourthly, smartphone technology can trigger OA's health and well-being. Smartphones are to date equipped with health apps and wearable devices which allow OA to monitor their health parameters, such as blood pressure and glucose levels, contributing to better health management and independence. For those with digital literacy capacity, they can gain access to telemedicine services through smartphones – meaning OA can get timely medical consultations and reduce the need for physical visits to healthcare facilities which is crucial for those with mobility issues.

Expanding OA capabilities through social support and empowerment

The capability approach also emphasizes the role of social and environmental factors in expanding individual capabilities. In the case of OA using smartphone technology for e-commerce, several supportive measures can enhance their capabilities. One example is through digital literacy programs. Offering digital literacy programs specifically designed for OA (tailored training) can enhance their confidence and skills in using smartphone technology. These programs should be accessible, practical, and aligned with the learning styles of OA. In addition, providing ongoing support and refresher courses can help OA to stay updated with technological advancements and maintain their digital skills throughout.

Other measures found in this study relevant to expanding OA capability is on providing OA with affordable access to technology. The government can help by implementing policies that provide OA with affordable access to smartphones and internet services (e.g., through subsidies and discounts) so that financial barriers are removed to ensure OA benefitted from digital technologies surrounding them. Developing smartphones and e-commerce platforms that are user-friendly and cater to the needs of OA, such as larger fonts, simplified interfaces, and voice commands, can enhance usability and adoption of this group.

Community and family support is also found to be a critical determinant of enhancing OA capability. Encouraging intergenerational learning programs where younger family members or

community volunteers teach OA how to use smartphones for instance not only foster stronger family bonds but enhance digital skills too. Establishing peer support groups where OA can share experiences, tips, and support each other in using technology can also create a sense of community and mutual empowerment.

Policy Implications

The findings have policy implication to consider. As discussed, to foster digital inclusion among OA, policymakers should focus on improving technological accessibility, affordability, and digital literacy. Initiatives such as subsidized smartphone programs, community-based digital literacy training, and support networks can significantly enhance the capabilities of older adults, promoting their engagement with e-commerce and other digital activities.

Future Research

The study findings indicate further potential exploration of CAT on aging research and e-commerce. Future research should explore the long-term effects of smartphone use on the capabilities and well-being of OA, by investigating the diverse demographic and socio-economic contexts of this group. Additionally, examining the role of emerging technologies, such as artificial intelligence and virtual reality, in expanding the capabilities of OA offers promising avenues for further investigation.

Limitation of the Study

For this report, only data from two FGDs involving 20 respondents were analyzed. While the small sample sized FGDs may have provided in-depth insights (as they reflect the experiences and perspectives of the specific OA individuals who participated) in the study, depending on the participants' selection and possible researcher's biasness when interpreting the data, the findings may not have captured the full diversity of OAs in Malaysia. In other words, it limits the study finding's ability to generalize the findings for the whole OA population. It is important to note that the researcher has taken all precautions to make sure any biasness is avoided in data analysis.

Conclusion

This study demonstrates that the Capability Approach Theory provides a valuable framework for understanding the impact of smartphone technology on e-commerce participation among older adults in Malaysia. The study concludes that there are four emerging themes relevant to OA's capability on using smartphone technology and engaging in e-commerce. Namely, they are technological accessibility, digital literacy, social support, and perceived benefits. While they are factors that motivate OA's behaviors towards smartphone technology acceptance and adoption, they can also act as barriers. By addressing barriers related to technological accessibility, digital literacy, and social support, and increase their belief on perceived benefits of smartphone technology, it is possible to enhance the capabilities and well-being of OA, subsequently fostering their inclusion in the digital economy. Policymakers and stakeholders must collaborate to develop and implement strategies that empower older adults, ensuring that they can fully realize the benefits of smartphone technology and e-commerce. The application of CAT supersedes other

theories when the interest is to understand human capability and their development behavior (like the OA) of specific technology adoption. This study has contributed towards advancing aging research and e-commerce related to technology adoption literature.

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