

Smartphone Technology and Social Transformation of Older Adults: From Capability Approach Theory Perspective

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Abstract

Older adult's (OA) participation in the digital world is still behind other consumer segments globally. Capability of using technology is crucial for the OA so that they can be free and be self-independent. This study explores the impact of smartphone adoption on OA's social transformation through the lens of the Capability Approach (CA) theory, which focuses on enhancing individual capabilities. In specific, it investigates OA's personal experiences in using smartphone technology, which is assumed to socially transformed themselves. Using a qualitative method via focus group discussion (FGD) involving 20 participants, the study found five emerging themes: i) social and business connectivity, ii) independence and health management, iii) technology accessibility and affordability, iv) digital literacy – motivation and openness to learning, training, and v) supportive social networks and technology experts. Overall, findings show that OAs are capable of using smartphones, and that the smartphone technology does function in improving this group's ability to stay connected with family, for some to manage their businesses, and their personal health and well-being. Access to technology and affordability, motivation, and openness to learning, and training play facilitating roles in OA's use of the smartphone technology. The OA's capability and confidence to use smartphones increased with the presence of social support from their trusted family members and/or other "technology experts". From the perspective of CA theory, the study concludes that the OA's problems in smartphone technology match their personal needs and problems; having social support facilitates ease of use and self-confidence in using the technology; and that smartphone technology has a positive impact on the social transformation of the OA and able to minimize social isolation problem. The findings offer several implications; one, on the importance of promoting smartphone technology to this group; two, on the importance of identifying specific and various technology applications to suit the OA's needs; three, on the importance of not neglecting the OA as a consumer group in society. These will help the government and other stakeholders in tackling the digital divide among Malaysian consumers and contribute to building an inclusive and digitally just society.

Keywords: Older Adult (OA), Smartphone Technology, Social Transformation, Consumer Behavior, Capability Approach (CA) Theory, Well-Being

Introduction

As populations age, digital technology such as smartphone technology plays a crucial role in transforming the lives of older adults (OA). The global scenario, however, indicates that this group is lagging behind the younger consumers in terms of ownership and usage of the digital technology. A similar scenario is observed in Malaysia. As of August 2021, OA is found with the lowest smartphone ownership compared to other younger consumer segments in the country although the group's adoption of smartphone technology is slowly increasing due to its many advantages that include enhanced social connectivity, access to important information and services, increased independence, and overall well-being (Statista, 2023).

Although there are calls for marketers to focus on this group as a high potential market segment (Ismail and Abdul Wahid, 2022; Soh et al., 2020; Wong et al., 2018; Hassan and Md. Nasir, 2014; Wong, 2011), in general, the OA is still not a favoured consumer group to marketers (Ismail and Abdul Wahid, 2023). Reviews in the literature describe them as individuals who are not technology savvy, possess limited access to digital technology, often having difficulty in learning technology and using it (Ismail and Abdul Wahid, 2023; Wong et al., 2018), as incapable individuals (Seifert et al., 2021), and as 'late comers' or 'laggards' in terms of accepting innovative technology (Price, Pak, Müller, and Stronge, 2013; Wong, 2011). However, the OA needs technology very much. Mainly because the group's ability to engage with technology (e.g., everyday technology (ET), smartphone) would help them in building a sense of independence (Schulz et al., 2019), well-being and social participation (Astell et al., 2019; Meijering et al., 2019). To close the digital divide and increase OA's participation, The United Nations Policy for Ageing (2021) suggests stakeholders make the digital technology more accessible, affordable, and available to them (UNECE, 2021).

This study puts forward a proposal that smartphone technology has a significant impact on the social transformation of OA in Malaysia, particularly when viewed through the lens of Sen's (1999) Capability Approach (CA) theory, which emphasizes the enhancement of individuals' abilities to lead fulfilling lives. In the context of smartphone technology then, this transformation is not limited to OA's adoption of digital tools but extends to improving social connections, independence, and well-being. Linking it with the CA theory, this study posits that smartphone technology serves as a means for OA to enhance their "functioning" to perform as independent individuals and conduct social transformation in their lives to achieve real freedoms via active participation in activities they value (e.g., staying socially connected rather than socially isolated, accessing important and relevant information to suit their needs, or managing health independently). Research has shown that with the right training and support, OA can improve their digital capabilities and expand their choices (Locsin et al., 2021), especially when technology is designed with their specific needs in mind. The objective of this study is thus, to explore the impact of smartphone technology on the social transformation of the OA group in Malaysia through the lens of the Capability Approach (CA) theory. In specific, the study explores OA's personal experiences in using smartphone technology, and to see whether smartphone play a role in transforming their lives socially, such as in improving social connectedness (to avoid social isolation), well-being, and independent living. From the Capability Approach theory perspective, this transition is crucial in expanding the "functioning" that OA can achieve and promote them with independent living.

Literature Review

Smartphone Technology

The smartphone era was officially established with the launch of the Apple iPhone in 2007 and the device has since been a significant communication tool for everybody (Tan, 2017; Wong et al., 2018). Smartphone technology refers to the integration of advanced mobile phone capabilities with computational power typically found in computers, enabling a wide range of functionalities beyond basic communication. This is because a smartphone combines both hardware and software operating systems (e.g., Android or iOS), allowing its users to install various apps to help them perform tasks such as internet browsing, running applications, and multimedia playback, alongside traditional functions like calling and texting. The touchscreen interface is currently a major feature of this device, which enables users to engage in intuitive interaction via multitouch display gestures. The cellular networks (3G, 4G, 5G), Wi-Fi, and Bluetooth for wireless communication, allow its users to make calls, access the internet, and exchange data. The functionality of a smartphone is expanded by downloadable applications and software that provide services ranging from social networking and gaming to financial management and healthcare monitoring. Smartphones are also equipped with various sensors, such as accelerometers, gyroscopes, and GPS, along with high-resolution cameras for capturing photos, recording videos, and supporting apps like augmented reality (AR). In addition, many smartphones offer cloud storage services for backing up data, photos, and apps, facilitating access to content from different devices.

Globally, the OAs are still behind other consumer segments as active participants of the digital world, thereby creating a digital divide in the marketplace (UNECE, 2021). Different needs, interest, and capability towards technology use may be the reasons behind why the OAs are still lagging compared to other consumer groups. The OA with health conditions and social isolation, often encounter difficulties when engaging with changing and dynamic everyday digital technology like a smartphone. In Malaysia, for instance, digital technology for the OA's market remains largely unexplored and lucrative (Wong, 2011) as the group is neglected by designers of mobile devices and services whose focus is more towards the younger generations (Wong et al., 2018; Hassan and Md. Nasir, 2014). This may be the reason why many digital devices or system designs developed and sold in the market do not meet OA's requirements and expectations (Wong, 2011). To date, however, smartphone technology has played a significant role in driving social transformation by altering how people interact, communicate, access information, and manage their daily lives. This transformation is evident across various social groups, OA included, where smartphones have empowered individuals, enhanced social inclusion, and contributed to a broader digital economy (Locsin et al., 2021; Elimelech et al., 2024). OA's ability to use smartphone technology offers them with a convenient and accessible platform for social connection and other types of communications, including online shopping and online banking. 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 and 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).

Older Adult

Although the OA has been identified as a consumer group long ago in the literature, it is only recently that researchers show more interest in this segment and its behavior. Various terms including elderly, baby boomers, older consumers, senior, senior citizens, silver consumers,

gray consumers, and mature customers have been used to represent OA (Guido et al., 2018; Wong et al., 2018). Finding an agreeable definition of OA is problematic, since researchers have different views about how it should be done. As an example, although age is the most common and simplistic measure used by researchers in defining OA, the literature has yet to find clear boundary on the specific ages or ranges of age an individual should be in to qualify as an OA. The literature has been reporting different age ranges as well as different labels given to the subgroups of OA. Examples include cases whereby OA is defined as those between 45 and 69 years old (Najdeny et al., 2019; Zniva and Weitzl, 2016) when researchers widened the bottom and ceiling category of the OA age, or that, in other cases, OA is meant for those reaching the age of 50 years old and above (Lian and Yen, 2014) when researchers decided to identify only the minimum age of the OA. In Malaysia, Ismail and Abdul Wahid's (2023) review of reported cases reveal different OA ages and ranges of age used by researchers, however, 50 years old has been found as the minimum age for OA group.

More interesting is when the literature also reports argument about the validity of using age for defining OA. Edgar and Bunker's (2013) study concludes that using age as a single measure is not a valid method. Their study has identified as many as 10 ways for how one can feel old and thus, consider themselves as OA: i) through feeling age (how old one feels s/he is), ii) through looking age (how old one feels s/he looks to other people), iii) through doing age (to what extent one's behavior reflects to the typical behavior of his/her age group), iv) through interest age (to what extent one's interests reflect a certain age group), v) through one's perceived age in relation to his/her peers, vi) through one's perceived age in relation to his/her thinking/mental processes, vii) through one's perceived age in relation to his/her mental energy, viii) through one's perceived age in relation to his/her physical energy, ix) through one's perceived age in relation to his/her ambitions and horizons; and x) through one's perceived age in relation to the types of people s/he tends to identify with.

A more recent review by Guido et al. (2018) suggests four different ways to categorize and segment the OAs. Apart from the usual practice of using chronological age (e.g., young-old (elderly age up to 72 years old) versus old-old (elderly age over 73 years old)), they suggest three other alternatives, namely, through a) generational (e.g., baby boomers versus seniors), b) socio-demographic, physical social and psychographic (encompasses of different social and psychological criteria for the individuals involved), and c) gerontographic (this method encompasses all types of segmentation criteria described earlier) segmentations.

From the discussion, it is clear that defining OA should not be made based on chronological age as a single criterion (Guido et al., 2018; Edgar and Bunker, 2013). As per Edgar and Bunker's (2013) findings, for some people, the way they feel, look, act, or think can make them be part of an OA group. Moschis (1994) explains that biological, psychological, and sociological changes happen when people age. This is why age is a multidimensional, not a unidimensional construct (Guido et al., 2021); and why marketers should not use chronological age as the only criterion in evaluating and interpreting OA's consumption behavior in the marketplace. In conclusion, the boundary for defining and determining the OA market is still blurry even to date.

Social Isolation and Social Transformation of Older Adult

As people age, they will experience changes biologically, psychologically, and sociologically (Moschis, 1994; 1993) with positive or negative outcomes depending upon how they respond to the change process. Social isolation, for instance, is currently a pressing problem with OA. At least 30% of OAs experience some degree of loneliness while another 50% or more are at

risk of social isolation (Fakoya, McCorry, and Donnelly, 2020). The older seniors (aged 75-85 years old) tend to experience a more severe social isolation problem compared to the younger seniors (57-65 years of age) (Locsin et al., 2021).

In Malaysia, social isolation is one of the serious challenges faced by OA apart from lower levels of digital literacy, and limited access to technology. It is thus crucial for stakeholders to understand how these factors impact on their capability to engage with smartphone technology, and to develop inclusive digital strategies for the group (Hassan et al., 2020; Wong et al., 2018). Noting the problem, the government has initiated the National Policy and Action Plan for Older Persons (DPTWEN, 2011–2020) with the vision of seeing that OAs will live as independent individuals with dignity. More important is to develop OAs who can optimize their self-potential through healthy, positive, active, productive, and supportive aging to lead a well-being life (Ministry of Women, Family, and Community Development, 2017).

Applying social transformation concepts through knowledge and technology use (e.g., smartphone) is one way proposed to tackle the OA's social isolation issue. As mentioned earlier, smartphone technology has played a significant role in driving people's social transformation by altering how people interact, communicate, access information, and manage their daily lives. Locsin et al. (2021) explain how a person can be socially transformed positively just from participating in inexpensive communication with multi-form activities (e.g., texting, audio, and/or visual) using digital technology like smartphone between OA and other parties at anytime and anywhere, because the activity could help to lessen OA's personal stress and minimize social isolation feelings.

The Capability Approach Theory

The idea behind the Capability Approach (CA), as proposed by Amartya Sen, is to shift the focus from economic wealth to the actual abilities or "capabilities" people have to lead the life they value. The beauty about CA is that it is an open approach, so researchers are free to develop it into a range of capability theories or capabilitarian applications mainly because the focus is emphasized on what people can do and be (their capabilities) and on what they are achieving in terms of beings and doings (their functionings) (Robeyns, 2017). Although the CA has been traditionally used as an evaluative framework for social arrangements and its capacity to provide substantive opportunities for a good life, it is also applicable for exploring people's perspectives on their individual capabilities and on what they consider to be a good life (Briones and Meijoring, 2021). It is important to note that the CA defines individual and contextual characteristics as conversion factors (i.e., personal conversion, social conversion, and environmental/situational conversion), which can expand or constrain the freedom of individuals to translate resources into valued beings and doings (Robeyns, 2017, 2005). By doing so, it allows researchers to understand the contextual characteristics that frame the agency of individuals from their own inside perspective.

Explaining how the conversion factors work would be the best way to understand whether the CA is applicable for use in any situation. Given the current study's intention to explore whether smartphone technology can influence the OA users towards social transformation as example, OA's capability to use this device would depend on what knowledge and how much knowledge they have and are able to use the smartphone (this is considered as a personal conversion factor), having personal support to help them to fix any arising problem with the smartphone when they need it (this can be seen as the social conversion factor), in addition to freedom to use the device whenever, wherever and for whatever reason they want without

any interference (this can be considered as the environmental conversion factor or situational factor). In this research however, related factors which the OAs in Malaysia are experiencing in digital inclusion, including limited access to technology, digital literacy gaps, and socio-economic barriers, may be relevant to restricting their ability to exercise agency and to achieve valued outcomes. From the CA perspective, we can posit the assumption that access to smartphone technology and other support received such as proper training (through various means) can help address the gaps when the OAs are enabled to expand their choices, such as, from staying socially connected with family members to accessing health services remotely. Once it is positioned this way, the smartphone technology can be conceptualized as an important resource for OA's wellbeing and independent living (social transformation). In other words, the CA theory is thus, very much relevant, and suitable as a theoretical lens in this current study that explores the capability of the OA group in using the smartphone technology for social transformation on themselves. Mainly, the theory's emphasis on the contextual characteristics expands OA's freedoms through access to technological resources and available opportunities, which concurs with Al-Janabi et al. (2013) who explain the importance of participant's subjectivity (in this case, the OAs) so that an insight into the influence of individual and on capabilities can be achieved.

Method

Overview

This study presents part of a larger external research grant project entitled 'An Investigation on Smartphone Users in Malaysia' focusing on multiple topics regarding smartphone users and their behaviors. This study applies qualitative research methodology as it represents a holistic approach to the object, obtaining of quality data, the openness of the research, the status of the researcher as a cognitive instrument, and the experience gained and used in describing the object in the study itself (Krueger and Casey, 2014). The larger study involved 229 OA in Malaysia that participated either for a series of semi-structured interviews (ranging 30-50 minutes each), focus group discussions (FGD) (ranging 70-90 minutes each), or an exploratory survey (expected to take around 20-25 minutes to answer). For this current study, however, the qualitative investigation involves FGD which is selected mainly because researchers can get detailed descriptive data collection in small groups that focuses on group participants' personal experiences, interests, preferences, attitudes, and opinions on issues investigated which they share freely during the session (Krueger and Casey, 2014, Rabiee, 2004).

This article reports only the two FGD results in line with its objective to explore the impact of smartphone technology adoption on OA's social transformation from the perspective of capability approach theory. The transcriptions are expected to contain OA's personal capability experiences with smartphone technology and the social transformation on the participants that resulted from technology use. Researchers will get an insight into OA's capability to use technology and usage behavior which is useful when planning strategies to close the digital divide on this group.

Recruitment Procedures

Participants were recruited using purposive sampling as the technique allows the researcher to select the best trustworthy people with the best knowledge to share on issues investigated in the study. Importantly, researchers are provided with credible, transferable, dependable, and confirmed data characteristics to match the objective(s) of the study (Campbell et al.,

2020). The OAs recruited were those attendees of a community event organized in Penang, Malaysia. Potential participants were approached when they registered for the event. Only those who answered 'Yes' to three screening questions regarding i) ownership of a smartphone(s), ii) reaching the age of 50 years old and above to fit in with the chronological age definition of OA according to Ismail and Abdul Wahid (2023), and c) self-willingness to participate in the study were invited to join the study. This exercise managed to rope in 22 participants for the FGD.

In line with research ethics procedure, all 22 participants were informed of their voluntary participation rights, whereby they knew that they had the power to terminate their FGD participation at any point of time they decided to do so without any penalty for the discontinuation act. The participants in the study were given a written consent form to sign before they participated in the study and requested to complete a short demographic questionnaire. Two participants withdrew from participating due to personal reasons a few days before FGD sessions were set, reducing the total participants to 20 people. A reshuffling of the FGD members was made so that each FGD comprises 10 individuals (FGD1, FGD2). The FGD size matches the suggestion given by Krueger and Casey (2014) as the common guideline for FGD is to conduct at least two focus groups for each demographic stratum in the study (Hennink et al., 2019; Krueger and Casey 2015; Barbour 2007; Fern 2001; Greenbaum 2000; Morgan 1997). At the end of the FGD sessions, participants were given a 'thank-you' letter and a small gift as a token of appreciation for their willingness to share their experiences in the study.

Data Collection and Analysis

Overall, the data collection process took more than seven (7) months to complete. Refining the FGD transcripts on issues investigated took two more months, after which they were analyzed thematically and empirically. Both FGD and thematic analysis are well acknowledged methods for data collection and data analysis in qualitative study like this. Using thematic analysis allows researchers to identify the key themes and patterns in the data of interviews and FGD transcriptions that should be aligned to the study's intended objectives (Rabiee, 2004). It is expected that the exploration will result in identification of relevant emerging themes regarding the impact of smartphone technology on the social transformation of OA in Malaysia.

The two focus group sessions were moderated by the researcher herself with help from a research assistant who video recorded the whole of each session. The moderators created a relaxed and friendly environment, encouraging participant interaction, and continued data collection until the main issues were repeated, and theoretical saturation was reached (Rabiee, 2004). The two FGDs were conducted in different weeks with each session ranging 70-90 minutes. The sessions focused on OA's experiences using smartphones, the challenges they faced, and the benefits they derived. The discussions also covered their perceptions of independence, social connectivity, and health management enabled by technology. Basically, the OAs shared what they know about smartphone technology, and how they perceive the technology can affect their social transformation and social isolation.

The transcriptions were analyzed thematically. The purpose of thematic analysis is to identify key themes and patterns in the data of interviews and FGD transcriptions, in line with the study's objective to explore the impact of smartphone adoption on OA's social transformation. Application of FGD and thematic analysis are well acknowledged qualitative methods for data collection and interpretation in the literature (Braun and Clarke, 2021). The

data transcription and analysis of the research data did not reveal any personal information of any participant. All names and other personal data used in the study are changed at the discretion of the researcher.

Findings

Profile of Respondents

The FGD respondent profiles found a slight imbalance between gender participants (11 females versus 9 males). Their age varies from 50 to 65 years old although the majority (15) are in the 50-59 years old category. They come from different states of Malaysia, including Penang. Majority were married (11), with the remaining either unmarried (5), divorced (2) or widowers (2). All participants are active individuals with the majority (18) either working or managing their own business. One male participant is still studying at a local university. Of the four retirees in the two FGD groups, three were found to be still actively 'working' in the area that they know best or love. For instance, two male retirees were palm oil grower, and a small organic farm producer, while one female retiree is a proud owner of a small café owner, whereas the other female retiree is a satisfied grandmother. One male respondent (52 years old) is still studying at a university, while the rest of the FGD participants (15) indicated that they work in or have their own business. The participants' health condition varies from good health to chronic conditions like diabetes, hypertension, heart problems and arthritis. All of them seek medical advice to monitor their health conditions and take medication. As for the OA's smartphone technology knowledge and use, it ranges from novice (2) to medium (6) and experienced (12) users, with varying comfort levels in using smartphones for business, health management, social media, and communication ones.

Emerging themes

The study found five main emerging themes, namely, i) social and business connectivity, ii) independence and health management, iii) technology accessibility and affordability, iv) digital literacy – motivation and openness to learning, trainings, v) supportive social networks and technology experts.

Theme 1: Social and business connectivity

A key theme that emerged from the study is the enhancement of both social relationships and business connectivity facilitated by smartphones. Participants unanimously agreed that smartphones played a key role in maintaining social connections, particularly with family members living far away. Many participants highlighted how using applications like WhatsApp, Facebook, and video calls helped them keep in touch with their children, grandchildren, business associates and customers even across long distances. This was particularly important for maintaining emotional well-being and reducing feelings of isolation. Participants mentioned how this technology helped them feel connected and supported, despite physical separation from loved ones as well as from their business partners and customers. The three quotes shared here represent the emergence of social and business connectivity theme:

"I live alone (after retirement), but through my (smart)phone, I never feel alone. My children are just a call away. ... I use WhatsApp mostly to stay in touch with my children and grandchildren. They're busy, but with the phone, I can easily call or message them. It makes me feel like I'm still part of their lives, even though they live far away."

(FGD2-P3 - a 65-year-old female retiree participant, 5 children, grandmother)

"After my divorce, I seldom see my kids. They are now living in Johor. My ex-wife takes care of them. ... through video calls, I can talk to my kids. Yes, I know that it is not the same as being there in person, but it's better than nothing. I can see them growing up."

(FGD1-P3 - a 53-year-old male divorcee, 3 children)

"Since I started using my smartphone to manage orders, communicate with clients, and market my products on social media, my business has completely transformed. I can stay connected with my customers no matter where I am, and the beauty of it is that I don't need to be tied to an office. The flexibility has helped me grow my brand and connect with suppliers across the country, something I never thought possible before."

(FGD2-P6 – a 50-year-old female, widow, running a beauty and wellness product line)

The first two quotes provide a powerful reflection on the emotional and social significance of smartphone technology for OAs, particularly those living alone or separated from family. We can see how in the first quote, the 65-year-old female retiree emphasizes how her smartphone bridges the physical distance between her and her five children and grandchildren. Even though her children are busy and live far away, she highlights the comfort and emotional security that technology provides, making her feel connected and still a part of their lives. This showcases how smartphone technology mitigates feelings of isolation for older adults, especially after retirement.

As for the second quote, the 53-year-old male divorcee shares a similar experience of using smartphones to maintain ties with his children, who live with his ex-wife in another state. Despite not being able to see them in person, he acknowledges that video calls offer a form of connection that, while not the same as physical presence, still holds significant value. This highlights how smartphones help individuals navigate complex family dynamics post-divorce, especially in managing long-distance relationships with children.

Both quotes underscore how smartphone technology not only aids in communication but also provides a sense of presence in relationships, helping OAs cope with loneliness and separation from loved ones.

As for the third quote, it reflects how smartphone technology facilitates remote business management, client communication, and market outreach, transforming how small businesses operate in the modern world without feeling isolated whatsoever.

Theme 2: Independence and Health Management

Smartphone technology plays a crucial role in promoting independence among OAs, empowering them to manage various aspects of their lives without the need for constant assistance. Participants in this study highlighted several ways in which their smartphones have allowed them to navigate daily tasks and maintain their autonomy, including the use of health apps, mobile banking, and GPS for navigation. An example of a participant reflected on how the health app has helped her manage her personal well-being is given below:

"I am a busy person and tend to forget ... The health app I installed in my phone reminds me to take my medicine on time, and I can consult a doctor through video if needed."

(FGD2-P7, a 63-year-old female with 35 years of experience as a special event manager and freelance graphic designer)

This quote illustrates how health-related smartphone apps provide more than just reminders—they offer real-time solutions like teleconsultations, which are especially valuable for OAs in areas with limited access to healthcare facilities.

In line with the CA theory, which focuses on enhancing individuals' freedom to engage in valued activities, smartphones expand the opportunities available to older adults. By using health apps to track medications, perform remote health consultations, or even manage personal fitness, these OAs gain control over their health, thus reducing reliance on others for daily care. This is particularly beneficial for those with chronic conditions, as managing health becomes more accessible and consistent. Additionally, smartphone features like GPS navigation, mobile banking, and online shopping enable OAs to perform day-to-day tasks without needing external help. Several participants expressed appreciation for the independence these features provided, enabling them to maintain a sense of autonomy. The ability to navigate with GPS, for example, allows OAs to explore unfamiliar areas without worrying about getting lost, while mobile banking eliminates the need for physically visiting bank branches. These findings align with past research that has shown how technology can support healthy aging by promoting independent living. By facilitating access to essential services like healthcare and financial management, smartphones act as tools for maintaining personal autonomy, which is a key contributor to well-being for OAs.

In summary, smartphone technology promotes independence by enabling OAs to manage health, perform daily tasks, and access services without external assistance. As reflected in the quote, the benefits of technology align with the CA theory and help OAs live more autonomous and fulfilling lives, even in later stages of life.

Theme 3: Technology accessibility and affordability

One of the key emerging factors influencing OA's ability to benefit from smartphone technology is the accessibility and affordability of these devices. In the context of the CA theory, which focuses on enhancing individuals' opportunities to achieve their valued life outcomes, accessible and affordable technology serves as an enabler, allowing OAs to expand their capabilities in both personal and social domains.

Participants in the FGD frequently mentioned that the cost of smartphones and internet access, as well as the ease of using devices, played a significant role in determining whether they could fully utilize the technology. For many OAs, the availability and/or affordable smartphones has been crucial in allowing them to stay socially connected, manage their business, manage their health, and perform essential tasks without relying on others. A notable example came from FGD2-P3, a 65-year-old female participant who has retired from a clerical position few years ago:

"I didn't get a smartphone until my son (one of her children) bought me one because it was expensive. Now that I have it, I use it for everything—from calling family to checking my bank balance. It's like a lifeline for me, but I wouldn't have been able to afford it on my own."
(FGD2-P3 - a 65-year-old female retiree participant, 5 children, grandmother)

This quote illustrates how affordability is a critical factor in determining whether some OAs can access the benefits of smartphone technology. In this participant's case, the initial barrier was the cost of the device, but once she had access to it, the smartphone became an indispensable tool for managing daily life. This aligns with the CA theory, which emphasizes the need to remove barriers—such as financial constraints—that limit individuals' capability

to live the life they value. Moreover, once the technology is accessible, usability becomes a key aspect of capability development. Several retiree participants mentioned that while smartphones offered significant benefits, the challenge is for them to learn the initial learning curve and complex user interfaces. To tackle this problem, simplified user interfaces and subsidized programs for OAs could be suggested to further enhance their technological accessibility, aligning with the CA framework by promoting a more equitable distribution of opportunities for independent living.

At this point, it can be concluded that this third theme highlights the fact that the availability of affordable smartphones and simple user interfaces can empower OAs to lead more autonomous lives. The reflection from participants reinforces the idea that affordability and ease of use are pivotal in unlocking the potential benefits of technology for this group, which is consistent with the CA theory's emphasis on expanding freedoms and opportunities. Access to affordable technology not only reduces social isolation but also empowers OAs to engage in valued activities such as socializing, shopping, and accessing healthcare services online (Tsai et al., 2017). By addressing these factors, policymakers and technology developers can ensure that OAs are not left behind in the digital age.

However, interestingly, the study stumbled onto another view on this point:

"(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."

(FG2-P9 - a 52-year-old female content creator and an influencer with quite a number of followers of her own)

This quote from a content creator and influencer introduces an important diversity of experience regarding the OA's capability through technological accessibility and affordability theme. This individual's perspective adds a layer of complexity, highlighting that while affordability is a significant barrier for some, others with higher economic means leverage technology in more advanced ways. Looking deeper into it, it seems that there are two ways on how this specific quote would make its impact on this third theme. One, it expands the role of technology beyond necessity, and two, it clarifies the fact that affordability becomes less of a barrier for certain OAs.

Expanding the Role of Technology Beyond Necessity

The original theme focused on OAs overcoming barriers such as affordability to perform essential tasks and maintain independence. However, the influencer's quote shifts the narrative to how technology is not just about performing basic tasks, but also about personal branding, social interaction, and economic opportunities. This content creator depends on advanced technology, such as 5G connectivity, to maintain a successful career in content creation, illustrating how smartphones can serve as professional tools rather than just communication devices. In this case, the CA theory is expanded to highlight how technology can support economic independence and provide income-generating opportunities, even for OAs. While most participants cited smartphones as a tool for maintaining social and health-related activities, this quote shows that some OAs may also use technology to engage in

creative work, develop their online presence, and even become financially independent through digital platforms.

Affordability Becomes Less of A Barrier For Certain Oas

Unlike the majority of participants who pointed to the cost of smartphones as a barrier, this participant states, *"I can afford to buy (smartphones that I want and need), it is my life,"* emphasizing that affordability is no longer a limiting factor. This is an important addition to the discussion of accessibility: for some OAs, the challenge is not affording the device but rather keeping up with technological advancements (e.g., the shift to 5G). The quote shows how financial resources enable greater technological engagement and a deeper integration of technology into personal and professional life, which supports the idea of technology as an extension of identity and lifestyle, rather than merely a tool. This quote significantly diversifies the discussion on technological accessibility and affordability by showing that OA is not a monolithic group. Some may face affordability issues, while others actively utilize the latest technology for professional endeavors. The content creator's perspective reflects the growing trend of OA as influencers and participants in the digital economy, where technology plays a role in both social and economic aspects of life. It also expands the CA theory application, where capabilities extend beyond just fulfilling basic needs to achieving creative, professional, and economic aspirations. In conclusion, this addition broadens the theme by illustrating that affordability and accessibility challenges vary widely among OAs, depending on their economic standing, professional engagement, and the extent to which they integrate technology into their lives.

Theme 4: Digital Literacy – motivation and openness to learning, trainings

Despite the numerous benefits smartphones offer, digital literacy remains a key challenge for many OAs. Participants in the study highlighted a range of difficulties, from unfamiliarity with interfaces to the fear of damaging devices or misusing apps. These barriers demonstrate how a lack of digital literacy can impede full utilization of smartphone technology, which directly impacts OA's independence and quality of life.

The motivation and openness to learning among older adults play a significant role in overcoming these barriers. While some expressed frustration, others displayed a willingness to persist, reflecting diverse levels of digital literacy and acceptance within the group. The experience shared by FG2-P1, a 63-year-old male retiree and palm oil grower, encapsulates the typical struggles at the beginning and the triumphs achieved of learning to navigate new technology:

"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. ... It was frustrating at first, but after some practice, I got better."

This quote reflects both the initial difficulty and the willingness to adapt once support and practice are available. The experience of needing help from family members underscores the importance of informal support systems for OAs, but also suggests the need for formal training programs to bridge the digital divide.

In contrast, participants with higher levels of digital literacy demonstrated confidence and a sense of empowerment. For example, FG1-P5, a 59-year-old male bakery co-owner, revealed:

"I (often) checked on my family ... making video calls, chatting ... 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."

This participant's quote highlights a more advanced level of digital competency and shows how OAs with better digital skills can fully leverage smartphone technology for social and business purposes. This also ties into the Technology Acceptance Model (TAM), where the perceived ease of use and perceived usefulness of technology directly influence its adoption. For participants like FG1-P5, who see clear value and find the technology manageable, the motivation to adopt and integrate smartphones into daily life is much higher. It can also be tied to the Diffusion of Innovation Theory by Rogers (2003). With higher levels of digital literacy, OAs can be included as innovators, early adopters, or early majority groups rather than late majority and laggards in accepting smartphone technology innovation aspects.

In reflection, the CA Theory provides a useful lens to understand these variations in digital literacy. The theory focuses on enhancing individual's capabilities—their ability to perform activities they value. In the context of OAs, being able to use smartphones effectively can significantly expand their freedom to engage in socially valuable activities, such as staying connected with family, accessing healthcare, or running small businesses. However, the digital divide—in terms of access to training and willingness to learn—limits the capabilities of many OAs. Participants who have access to family support or training programs can overcome their initial reluctance or fear of technology. Meanwhile, others may remain digitally excluded if they lack such resources. This divergence mirrors existing urban-rural disparities, as well as differences based on income levels and prior exposure to technology, creating a complex picture where not all OAs benefit equally from smartphone technology.

To address these digital literacy gaps, accessible training programs tailored to OAs are essential. These programs should focus not only on technical skills but also on building confidence in using technology without fear. By enhancing digital literacy, OA will be able to expand their capabilities, aligning with the CA theory's goal of ensuring people have the freedom to live the lives they value.

In conclusion, motivation and openness to learning are crucial in overcoming the digital literacy gap among older adults. Support systems, whether from family or community initiatives, along with targeted training programs, can significantly improve OA's ability to engage with technology and maximize the potential benefits it offers for their independence and well-being.

Theme 5: Supportive Social Networks and Technology Experts

Supportive social networks and access to technology experts play crucial roles in enabling OAs to fully harness the benefits of smartphone technology. In the context of the CA Theory, which emphasizes expanding individual freedoms and capabilities, these networks act as enablers that empower OAs to navigate, understand, and utilize technology for enhanced well-being. Participants consistently highlighted that the presence of supportive family members, friends, and tech-savvy individuals allowed them to overcome challenges related to digital literacy and adopt smartphone technology more effectively. These networks not only help reduce the barriers of unfamiliarity and fear but also alleviate feelings of social isolation, transforming their social lives in the process.

The experience shared by a 62-year-old female home-based sewing hobbyist turned business (FG1-P10) adds depth to this theme by illustrating how family and inter-generational support can lead to transformative learning experiences for OAs. Her story highlights how initial guidance from her daughter—teaching her to order groceries online—served as a catalyst for broader technological exploration and eventual independence. This experience shows how supportive networks can build confidence, leading to expanded capabilities, as framed by the CA theory. The participant shares: *“My daughter taught me how to use my smartphone to order groceries online during Covid-19. Without her help, I would not have tried it at all.”* This demonstrates the initial reliance on family support to overcome technological barriers, a common theme for OAs new to smartphones. The pandemic intensified the need for technology, but family members helped bridge the gap between fear of new technology and practical applications, such as online shopping.

Interestingly, we can see how the OA participant’s confidence grows, reflecting the transformational potential of technology as she continues her experience: *“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. ... I no longer feel afraid to explore the apps (applications) myself.”*

From this narrative, it indicates how her newfound skills not only improve her daily life but also give her the courage and confidence to explore other apps and platforms independently. This shift is an example of how family support can unlock the capacity for self-learning, aligning with the CA theory’s focus on expanding capabilities to engage in valued activities. Moreover, her willingness to share her skills with others—through WhatsApp groups to promote her sewing business—highlights how technology facilitates not only personal growth but also social and economic empowerment. Her success in finding customers for her sewing hobby via digital platforms speaks to the transformative potential of technology in enabling economic independence for older adults.

In reflection, this participant’s journey exemplifies how supportive networks and digital literacy intersect to expand capabilities in significant ways. The CA Theory emphasizes the importance of opportunity and choice, and this participant’s story illustrates how technology, when supported by a network, can dramatically increase an individual’s freedom to explore new opportunities. The confidence she gains from online shopping translates into broader exploration and eventually enables her to launch a business. Furthermore, the participant’s use of WhatsApp to promote her sewing business highlights how technology can transform social isolation into economic activity, reinforcing the idea that smartphones are not merely tools for communication but also for self-expression and entrepreneurship. The support she received from her daughter was crucial to unlocking these capabilities, aligning with the theory’s emphasis on enabling conditions for well-being. In this example, supportive social networks catalyzed the participant’s transformation from a novice smartphone user into an empowered individual capable of navigating digital platforms independently. This progression from reliance on family to self-directed technological exploration and entrepreneurship illustrates how technology, when combined with the right support systems, can significantly expand OA’s capabilities, reducing isolation and improving both their social and economic well-being.

The excerpts also clearly show a strong link between social isolation and social transformation. These supportive networks are not just technical enablers; they play a critical

role in combating social isolation. Smartphones and digital platforms offer OAs the ability to stay connected with friends, family, and their communities, but this is only possible when they can use the technology confidently. In short, the presence of social and technical support helps alleviate the isolation that can result from technological barriers whereby the support network received helped in facilitating her social transformation aligning with the CA Theory by enabling her to engage in valued activities that improve her mental and emotional well-being and economic situation.

Supportive social networks and access to technology experts are essential enablers of smartphone adoption among older adults. These networks play a critical role in overcoming barriers related to digital literacy, reducing social isolation, and transforming how OAs engage with the world. In the context of the CA theory, these networks expand OA's opportunities to achieve valued outcomes—such as maintaining social relationships, participating in community life, and managing their personal affairs independently. Thus, family, friends, community volunteers, and tech experts serve as crucial elements in enhancing the digital inclusion and overall well-being of OAs, promoting social transformation through technology. The narrative of this participant becomes more interesting and meaningful with additional part of her quote: *"... I googled, and joined (free IT) classes... I learned more skills. 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 further enhances the narrative of this fifth theme, emphasizing the empowering role of learning opportunities and self-directed growth for this OA. It illustrates her journey from dependence on family support to self-initiated digital learning. After gaining initial confidence with online shopping, the participant took the next step, joining free IT classes, which allowed her to acquire more digital skills. By using resources like Google and taking advantage of free digital literacy programs, the participant expanded her capabilities, in line with the CA theory.

This segment highlights that technology not only enables daily life but also serves as a gateway to continuous learning and self-improvement. The participant's motivation to enroll in IT classes signals a shift from basic digital use to advanced skills acquisition, showing how smartphone technology can be transformative when combined with a supportive learning environment.

Her story goes beyond just acquiring skills—she turned her hobby into a home-based business, promoting her sewing outcomes through WhatsApp groups. The positive response from her customers reflects how digital platforms can help older adults connect with new markets and leverage social networks for economic gain. The pride she expresses (*"face brightens, looks proud"*) shows the personal empowerment that comes from not only learning but also applying those skills in meaningful, economically productive ways. This progression from learning to entrepreneurship represents the essence of the CA theory: expanding the capability set of individuals to engage in activities that they value. In this case, the participant values both her newfound confidence and her ability to turn a hobby into a business. In a nutshell, this personal transformation of hers can be summarized as 'empowerment through social and economic transformation.' Not forgetting the fact of the participant's reliance on free IT classes, her action underscores the importance of having access to technology experts and structured learning environments. While family support initiated her journey, the classes provided a structured way for her to further develop her digital literacy, enabling her to transition from basic smartphone use to online business activities. She has been cleverly connecting herself to not only social networks but also the IT and technology experts.

As a reflection, one can agree that this participant's experience reflects a broader social transformation. Not only did she overcome her initial hesitation with technology, but she also used her newfound skills to engage in social networks and foster economic independence. This transformation reduces social isolation, as her participation in WhatsApp groups for both social and business purposes allow her to stay connected and integrated into her community. Thus, the combination of supportive social networks and technology experts helped expand her capabilities, bridging the gap between social isolation and economic participation. It aligns with the CA theory's focus on enabling OAs to live the life they value through expanded choices and opportunities.

In summary, this additional part of the quote highlights how OAs can transform their lives with the help of support systems, continuous learning, and technology experts, moving from basic use of technology to social and economic empowerment.

Discussion and Conclusion

Overall, the FGDs provided rich qualitative data on how smartphone technology has socially transformed the lives of OAs in Malaysia, particularly in enhancing their capabilities (abilities) to lead more connected, fulfilling lives with their loved ones and those within the social circles and businesses they manage. Interestingly, social isolation is not perceived to be a serious problem with the OAs in this study. This may be because all of them were busy using the smartphone they own to attend to and manage the either their businesses, family members, and/or friends.

Altogether five emerging themes were found from this initial investigation. One is on social and business connectivity (whereby the OAs described how they use smartphones to socially connect with their loved ones and/or business associates and customers), two, is on independence and health management (smartphones led the OAs to be self-reliant as monitoring their health is an example of this freedom), three, is on technology accessibility and affordability (the study has two views whereby one refers to the affordability of accessing the smartphone that can be the barrier while the other is the opposite of this situation).

As theme number four, it is about digital literacy – motivation and openness to learning, training (how digital literacy can differentiate OA's motivation and action to do something great), and the last theme is on supportive social networks and technology experts (describing the importance of having strong support either socially and/or technologically).

Overall, findings show that OAs are capable of using smartphones, and that the smartphone technology does function in improving this group's ability to stay connected with family, for some to manage their businesses, and their personal health and well-being. In general, some of them (as entrepreneurs, social influencer, professionals), even showed that they possess impressive up-to-date knowledge of the software applications in the smartphone technology that they can easily 'dictate' what they want to do with the device. In short, they have digital literacy. Motivation and openness to learning are believed to be the facilitating role in OA's digital literacy and ease of use of smartphone technology.

Access to technology and affordability, motivation, and openness to learning, and training play facilitating roles in OA's use of the smartphone technology. The OA's capability and confidence to use smartphones increased with the presence of social support from their trusted family members and/or other "technology experts". From the perspective of CA theory, the study concludes that the OA's problems in smartphone technology match their personal needs and problems; having social support facilitates ease of use and self-confidence in using the technology; and that smartphone technology has a positive impact on the social

transformation of the OA and able to minimize social isolation problem. The findings offer several implications; one, on the importance of promoting smartphone technology to this group; two, on the importance of identifying specific and various technology applications to suit the OA's needs; three, on the importance of not neglecting the OA as a consumer group in society. These will help the government and other stakeholders in tackling the digital divide among Malaysian consumers and contribute to building an inclusive and digitally just society.

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