Older people's competence to use mobile phones: An exploratory study in a South African context

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K. Leburu, H. Grobler, D. Bohman. Older people's competence to use mobile phones: An exploratory study in a South African context. Gerontechnology 2018;17(3):174-180; https://doi.org/10.4017/gt.2018.17.3.005.00 The aging population, as well as the level of mobile phone penetration in Africa and Sub-Saharan countries, are increasing significantly. This study explored older people's competence to use mobile phones in the Tlokwe municipal area, Potchefstroom, South Africa. The study, which formed a part of a bigger study (iGNiTe), included a total of 48 respondents aged 60+ years who took part in semi-structured qualitative interviews and the visual Mmogo-method®. The findings indicate that older people's level of mobile phone use competence varies due to the complexities of mobile phone features that prevent a number of them from using their mobile phones. Lack of knowledge and skills to use mobile phones also contributed to them not benefiting from the use of mobile phones. Overlooking intervention techniques that promote older people's competence to use mobile phones prevent them from maintaining their autonomy and independence longer and subsequently affects their quality of life.

Keywords: mobile user patterns, mobile knowledge, Mmogo-method®, older people, gerontology, South Africa

Introduction

As the age structure of population changes, especially in Africa, there are corresponding changes in the developmental needs of older people's that need to be taken into account by policy-makers[1] and those responsible for their physical, social, and emotional needs[2,3]. Mobile phones now form part of older people's worlds, serving as a safety[4,5], emergency, and communication4 tool. Research shows that older people's prefer different uses of the mobile phone in order to serve their purposes[6]. Although the mobile phone has a great potential of enabling access to information and connecting with their significant ones[6], some older people's hardly use because they suffer from physiological problems such as impaired eye sight, dexterity, hearing, mobility, and cognition[7].

Studies have found that older people are less likely to use mobile phones due to their special needs[3,8] that are hardly met when these devices are designed[9,10]. In this era where technology is growing and coming up with advanced products, older people require all the necessary knowledge about the mobile phone in order to equally benefit from it and improve their quality of life[11]. However, studies have shown that older people lack such knowledge[12] due to their weakening memory and the mobile phone not user-friendly enough[13,14].

According to[9,15] some older people constantly require assistance whenever they have to use certain features of the mobile phone such as messaging, calling, and using correct buttons[16]. With all the complex features of the mobile phone and lack of skills, older people show both positive and negative attitudes towards the use of the device due to certain preferences[17].

This study incorporated the cognitive theory (theory of multiple intelligences) to explain older people's skills level and modes of acquisition of knowledge, the Technology Acceptance Model (TAM)[18] and The Mobile Phone Technology Acceptance Model (MPTAM) to explain older people affective reaction towards mobile phone use.

In spite of many gerontechnology studies that have focused on improving and enhancing functional capabilities in recognizing older people's decline in physical abilities[9,12,16], little is known about the competences of them regarding mobile phone use

in the Sub-Saharan Africa, particularly in South Africa. This study is also the first to explore older people's competencies in using a mobile phone in the context of South Africa. The focus of previous studies was more on older people's attitude towards different technological products and these studies were mainly conducted in the American and European countries.

Given that many Africans are still not connected to the world and the deep advancement of mobile phone design, it thus becomes imperative to understand if design guidelines have taken into account the advances in mobile phone usability for older people which is significant for their correct use and future development.

The current study formed the part of the bigger iGNiTe (InterGenerational Networks through Information Technology) study, which is component of a larger project "An exploration of enabling context" and focuses on the user patterns of mobile technology by older people. The current study aimed to explore older people's competence to use mobile phones. For the purpose of this study reference is made to Bloom[19] in the way that competence is seen as older people's psycho-motor ability (skills), cognitive acquisition (knowledge), and their affective reactions (attitudes) when using their mobile phones. Although the bigger iGNiTe study involved both qualitative and quantitative data-gathering methods, the current study only focused on the qualitative data.

Methods

Design

The study used a descriptive design within a qualitative research approach. The current study specifically addressed the question on competency, which was: What are the competencies of older people regarding mobile phone use? The study was approved by the North-West University Research Ethics Committee (NWU 00053-10-A1).

Study context

The primary study was carried out in three-old age day care centres in Tlokwe municipal area (Potchefstroom) of the North West province, South Africa. The area was selected because of its geographical position as well as the accessibility thanks to a result of an existing relationship with the North-West University. The managers of the day care centres were contacted in 2014 followed by information meetings to explain the purpose of the study.

Respondents

Following the information meetings, aged volunteers were invited to participate during meetings held at the three day care centres. All 48 respondents were purposefully selected who matched the inclusion criteria: (1) 60 years old and older[20,21]; (2) Able to access a mobile phone frequently (either borrowed or owned); (3) Understood and able to speak Afrikaans, English or Setswana; (4) Could engage in discussions about their experiences of mobile phone use; (5) Were without visible cognitive impairment; and (6) Both male and female. The exclusion criteria only included those who did not want to complete consent forms and were visually impaired.

Interviews

Qualitative interviews were carried out in 2014 in three old-age day care centres using three South African languages, namely, English, Afrikaans, and Setswana. Translators who were a part of the project and understood the content and context of the research were available to translate and explain informed written consent forms for all the respondents regardless of language.

The length of each interview was approximately 30 minutes[22]. The interviews were semi structured, using a prepared interview guide with one main topic: The role of the mobile phone and associated open-ended questions, such as "*Who do you ask for assistance with your mobile phone?*", "*Why do you ask this person?*", and "*Explain the interaction between you and this person when they assist you with your mobile phone*". This topic and associated questions did not determine the structure of the interview but served more as reminder of topics to be covered. Supplementary and probing questions were also asked. The interviews were audio recorded and transcribed verbatim.

The visual Mmogo-method®

The Mmogo-method® is a projective, visual technique that has the facility to allow underlying experiences which people are not aware of, to emerge[23]. Volunteers were invited to participate in the data-gathering process to attain a deeper understanding of their patterns of mobile phone use. They were provided with malleable clay, beads, a piece of cloth and straws and asked to do the following: "*Please use the material provided in front of you and make anything that illustrates how you use your mobile phone*". They were subsequently asked to explain what they had made and the reasons for creating their model in clay. Probing questions were: "*Tell me what you have made*" And "*Please tell me more about your representation*".

Data analysis

A thematic analysis using secondary data from the bigger iGNiTe study was conducted. The data constituted visual material (clay models were made using the Mmogo-method® and photographs were taken of them), as well as interviews. This was achieved following the steps recommended by Braun and Clark[24]. Once data had been organised, the authors firstly familiarised themselves with it by

re-reading all the transcriptions. During this process, we re-coding and 'cleaned up' by discarding the irrelevant information. Secondly, themes were generated where in the end they emerged as thematic categories[24,25] with supportive direct quotes. The visual data was used for connecting possible symbolic values that were attached to representations by the sample population. Thematic categories enabled interpretation of participants' different experiences and thus revealed different ways of understanding their competence. These findings were then interpreted in terms of theories used and literature searched to see how they are related to previous studies. This whole process reflected the process of crystallization[26,27].

Findings

The qualitative analysis revealed four (4) themes with regard to the competencies of older people's use of mobile phones. The themes were: (1) Limited user patterns; (2) Attitudes of older people; (3) Dependency; and (4) Challenges of using a mobile phone. The themes are presented below with their associated sub-themes and described in more detail.

Theme 1: Limited user patterns

It was clear that mobile phones were mostly used to make or receive calls and to receive electricity coupons. Respondents indicated different reasons for making and receiving calls for the purposes of emergency: "*I can use it when I have problems, for example, when you are sick you can phone an ambulance and it can arrive quickly.*" [P6: M3]

Other reasons for making or receiving calls on a cell phone included the convenience regarding the availability of cell phones, easy contact with family and friends, and obtaining information:

Sub-theme 1: Convenience

"*If I want to call someone I can call at any time of the day, even when you find that the gates are locked…if you find the gates at home locked you can phone people inside the house to open the gate for you.*" [P4:M3]

"*At times when my child is at work a can call her at any time and I can get hold of her at any time unlike using a landline.*" [P4:M3]

Sub-theme 2: Family and friends

"*I always call my brother's child … I always want to know how he is doing.*" [P2:M3]

"*It is family and friends and my brother specifically because he is the one helping me to look for a place to stay.*" [P3:M3]

Sub-theme 3: Information

"*I bought a cell phone so that I can phone around and look for a place to stay because I do not have a place of my own, I rent out.*" [P3:M3]

"*I use my phone to call my friends I'm involved with in a project to get information regarding the progress of the project, as well as informing about other people's funerals.*" [P5: I8]

One participant also voiced the advantage of having a mobile phone and said that: "*Inside the house, a cell phone is useful because I am able to buy electricity with my cell phone, rather than having to waste money on transport to go to town and buy electricity.*" [P5:M3]

Theme 2: Attitudes of older people

It should be noted that a mobile phone has proved to be a difficult device for older people to work with yet for others it is not; they express different attitudes for different reasons whenever they use a mobile phone: "*I don't use a cell phone because it's complicated, it involves please-call me, messages, etc. So my kids use it a lot.*" [P2:M3]. Another participant praised a mobile phone but had her own preferences regarding the time when she has to receive calls: "*Although I love my cell phone very much, I don't want to answer calls at night.*" [P1:I8]

Theme 3: Dependency

For the purpose of this study, older people's ability to use these intelligences could have the great potential of strengthening their competences when using a mobile phone and enhancing their knowledge. However, such evidence was lacking in the findings of this study as some older people seemed to have much impaired multiple intelligences or physiological challenges that forced them to rely on other people for assistance with the mobile phone: "*When I have a problem with my phone, I ask for help from one of the family members, siblings. My sibling helps me when I experience difficulties with sending messages, sending a please-call me, shooting wedding and party pictures, and answering a call that brings sad news.*" [P1:I8]

Sometimes neighbours are also instrumental in terms of assisting older people with their mobile phone use in cases where there is no one close by in the house to assist: "*Even when I receive electricity coupon, I ask Irene by Matseke's family to come and enter the coupon numbers that I bought.*" [P3:I2]

Respondents also expressed their various reasons for asking a specific person for assistance during difficult times of using a mobile phone. These reasons included availability, as well as trust and attitude issues:

"*Because she's the only one available at home.*" [P2:I2]

"*He is the only one I can trust.*" [P1:I5]

"*Because she is polite like her name and she's also intelligent.*" [P1:I5]
"*She is not naughty…she's not short tempered…she's sweet.*" [P1:I6]

Theme 4: Challenges of using a mobile phone
Our findings indicated different challenges older people face that had proved to be related to their low proficiency level when using a mobile phone. Such challenges include the recharging of airtime and the reading/sending of English texts, which was experienced as a language barrier:
"*To put in airtime*" [P1: I5]
"*Now, I buy it, when I'm done buying, I will put it here, I wait for them to knock-off, then I say, please enter this my child.*" [P1:I7]
"*…texts. I can read them but if it's English, I call him to assist.*" [P1:I5]
"*…but if I want to call them, I must ask someone to enter the numbers for me.*" [P3:I2]

Societal negligence, where people don't want to assist them with mobile phones and this ultimately forces some of them not to use the device until the person who assists them regularly comes back home:
"*I never get help from other people if I encounter problems with my phone because they don't want to help me. I don't know the reason why they don't want to help me whenever I need their help.*" [P1:I8]
"*I wait for her to return.*" [P1:I8]

Sub-theme 1: Lack of knowledge and skills
Most respondents showed lack of knowledge in using the phone; as well as not understanding how to use the instrument was their common gap in knowledge. Two respondents averred about their lack of knowledge by stating that:
"*It has too many features but I don't know them.*" [P1:I5]
"*I can't even use it, my goodness! I don't know where to dial…I don't know where to and not to press. I don't know where to dial.*" [P1:I2]

Respondents reported that they also lacked skills to use the instrument as they could only use certain features, especially for calling. Bodily-kinaesthetic intelligence refers to one's ability to influence body parts to solve a problem; however, such intelligence seems to be weaker among older people in the current study:
"*They usually tell me, they don't give it to me to listen.*" [P2:M3]
"*I know how to make a call. I can't SMS, I have children who help me.*" [P1:I5]

One participant showed a stronger musical intelligence where they are able to recognise the sound made by a mobile phone and respond:
"*When it makes a ringing sound, I just press and say 'hallo'.*" [P1:I2]

Sub-theme 2: Deteriorated physical and mental health
Deteriorated physical and mental health were also mentioned as part of the challenges experienced by older people. Respondents reported some experience of physical and mental health decline that defeated their competency to use a mobile phone effectively. The deteriorations in health recorded in the current study include declining memory, weakened eye sight and physical mobility:
"*I forget.*" [P1:I6]
"*I don't use a cell phone, I use a landline…because I can't see properly.*" [P1:M3]
"*Yes, I do ask for help to enter airtime because I don't see so well.*" [P1:I3]
"*I was asking her whether she is still coming to check up on me… because I am still struggling with feet…*" [P1:M3]

Discussion
Respondents did not grow up with exposure to modern technology which resulted in some of them experiencing challenges when having to manoeuvre the mobile phone. Our findings show that application of skills and knowledge about mobile phones among people beyond the age of 60 can be a problem. Their competence level in using mobile phones appeared to be of lower proficiency. The study discusses the key findings below:

Challenges of using mobile phones
Lack of knowledge and skills
Older people generally lack knowledge and skills in the use of mobile phones so that many of them could not use some of their features as they appeared to be too complex for their level of knowledge. As a result, these complexities defeated their cognitive abilities and some did not even know where to dial when trying to make a call.

In his proposed model of a five-stage process of product adoption[28] Rogers included the knowledge phase which he explains as the first part of the process where an individual gets to know about the product they are using. Rogers argues that it is not possible for a person to adopt the product without having acquired the knowledge about it[28]. It could therefore be deduced that older people's lack of knowledge could plausibly be a result of lack of inquiring about how to use a mobile phone after purchase or after it has been passed on to them by someone.

Gardner's cognitive theory of multiple intelligences identified, among others, the two intelligences, Musical-intelligence and Bodily-Kinaesthetic intelligence[29]. The current findings contradict those from studies conducted by[30,31], who found older people being proficient in the use of mobile

phones. However, our study reflects the findings from the previous researches which indicated unsatisfactory skills levels among older people with regard to mobile phones even though some have capabilities to use some functions of the mobile phone. The other challenges that they faced when using mobile phones, included being unable to recharge airtime, reading/sending English texts (language barrier), dialling and societal neglect.

Deteriorated physical and mental health
Respondents also experienced challenges with their deteriorating physical and mental health. These handicaps prevented them from using mobile phones as often as they would want to as they experienced failing memory, declining eye sight and physical mobility. Studies show that older people report challenges such as seeing at a distance, visual searching and colour blindness[32,33].

It is believed that changes in vision can affect the interpersonal information exchange as reading can be affected, because mobile phones rely mostly on text-form at the user interface[34]. When older people are faced with physical mobility challenges they are more likely to have fewer movements as they often cannot control their movements[35]. Lesnoff-Caravaglia[33] adds that the inability to coordinate movement and reduced level of strength influence how one uses mobile technology.

Limited user patterns
The mobile phone needs of older people are notably centred on emergency and health support services, as well as communication aspects that assist in enhancing safety and other services that make their daily tasks easier. Although some cannot explore different user patterns of the mobile phone due to deteriorated physical and mental health, those that are able to, have shown that they are enjoying the technology.

Our findings showed that respondents' use of mobile phones are mainly limited to making calls and receiving electricity coupons. Calling family members and friends as well as making calls for emergency purposes were the main reasons for using the mobiles.

Research shows that they do not necessarily avoid using technology, but they can be afraid to make mistakes when executing a task using a technology product[36]. This, in turn, makes them selective in what functions of a technological product they prefer to use.

Attitudes towards the use of mobile phone
Among the attitudes displayed by respondents, there were a lack of interest in using a mobile phone and late calls not being welcomed. The complexities of these mobile phone features created a negative attitude among some older people towards mobile phone use as they considered them too complicated.

That being said, findings from the current study showed that there were older people for whom the complexities of mobile phones were too great and defeated their ability to apply their cognition processes, such as problem-solving and cognition; they therefore had negative attitudes towards the use of the phones.

The TAM suggests that the Perceived Usefulness (PU) and Perceived Ease of Usefulness (PEU) are the external variables (EV) that influence individuals' attitudes towards the use of the product adopted. In the current findings, older people showed negative outcomes of the (PEU) and (PU) where they showed lack of interest in the mobile phone.

Dependency
Although many older people use mobile phones, the ease of using this technology is still a problem. We found that they need assistance in this regard, especially from young people. The theory of cognition (multiple intelligences) suggests that as people grow older and experience physiological challenges, they tend to use both their weaker and stronger intelligences in order to execute a task.

Finally, respondents also explained how the difficulties encountered using a mobile phone caused them to depend on other people for assistance, particularly their children and grandchildren. The reasons for depending on these people were entirely based on their availability, trust and attitude.

Limitations, implications for practice and future research
This is the first study to specifically explore older people's competencies of mobile phone use in South Africa. Many studies have been documented regarding older people and the use of mobile phones but without specific attention being paid to their competencies. While the findings of this study add to the literature on older people's competences of using mobile phones, there were also important limitations that impact on the transferability of the results of this study to their larger numbers who also now use mobile phones. The respondents were purposefully selected because they were in Potchefstroom. Findings show that there is a poor level of competence among older people due to the echoed complexities of mobile phone features. Such problems indicated in the findings that mobile phones need to be made learnable to accommodate different age groups. This will help in accommodating the different levels of compe-

tencies acquired by older people when using this technological device. The second reason for creating learnable mobile phones will be to accommodate the physical and cognitive declines that defeat older people's capabilities of using a mobile phone. It is thus suggested that, since this technology product (mobile phone) is changing and with time becoming even more advanced with new features, older people's competencies in using a mobile phone should be studied over a longer period of time.

Conclusion

Given the findings highlighting older people's competence to use mobile phones, we therefore conclude that indeed older people's level of competence regarding mobile phone use is unsatisfactory and that not as many are benefiting from the use of the instrument as might be expected. This, in turn, has a negative impact on their level of autonomy and quality of life as their low level of competence is preventing them from accessing information which could be of more value in some cases.

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