Understanding the accessibility of retail mobile banking during the Covid-19 pandemic

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Abstract

Purpose

This study offers an understanding vulnerable populations' experiences of actual use of mobile banking and their expectations of mobile banking (MB).

Method

Data were generated from mobile banking customers and bankers using online reviews, focus groups, and semi-structured interviews, as a mix of methods and sources can provide rich and in-depth understanding.

Findings

The affordance of mobile banking for vulnerable populations is explained in four concepts: meaning, material, competency, and usability. Customization and personalization of services, access to digital health data of vulnerable population members, audio-based option selection and touchscreen options, and service and performance standards are some of recommendations that can further engage and improve the service quality of mobile banking apps for vulnerable populations.

Implications

It is suggested that retail bankers should improve the service quality and performance of mobile banks apps by considering the recommendations drawn from vulnerable people's experiences. This study discusses implications for retailers.

Originality

This study applied social practice theory and affordance of technology theory to understand how those in vulnerable populations experienced mobile banking apps; the results could be used to improve the accessibility, performance, and service quality of mobile banks apps.

Keywords: Covid-19, vulnerable populations, retail mobile banking, affordance, accessibility, triangulation.

Introduction

Mobile banking has become the most attractive channel for retail bankers, especially in developing countries where accessibility to banking services is low compared to developed countries (Thusi and Maduku, 2020). However, although retail mobile banking has many benefits, customers' acceptance and use of retail mobile banking are limited, especially in developing countries (Mukerjee, 2020; Thusi and Maduku, 2020). In Pakistan, 75% of the population use mobile phones (Kemp, 2020) and smartphone use is expected to increase to 51% by the end of 2020 (Statista, 2016). Although 19 retail banks offer banking services in Pakistan, in 2019, only 3.1 million (1.5%) of the total population of 204.6 million were registered mobile banking users (Rahi *et al*., 2019). There is evidence that social distancing, lockdowns, government financial help, and the environment of fear engendered by Covid-19 (ReliefWeb, 2020) have increased the use of mobile banking in Pakistan (Hassan, 2020). In addition, retail bankers are keen to know how they can reduce their operational costs, as well as develop a positive banking experience for customers (Mew and Millan, 2021; Thusi and Maduku, 2020; Wiese and Humbani, 2020), which mobile banking may help to deliver.

However, accessibility is a key issue for technology use; the performance of information technology (IT) infrastructures varies among developed and developing countries (Mathew Martin and Rabindranath, 2017; Kameswaran and Muralidhar, 2019). Globally, approximately 3 billion people face challenges accessing the financial services of online banking (Mathew Martin and Rabindranath, 2017). Most people in developing countries do not have access to a fast internet service, which has created a digital divide between those who have access to online banking services and those who do not (Raza *et al*., 2015). The accessibility of technology during the pandemic for vulnerable populations is

an important issue. The World Health Organization defined high-risk groups (vulnerable populations) in terms of the pandemic as “people who are older than 60 years or who have health conditions like lung or heart disease, diabetes or conditions that affect their immune system”. In addition, according to the United Nations Convention on the Rights of Persons with Disabilities (UN CRPD), web design must be easily accessible to everyone, especially those who have diverse abilities, as it is a basic human right.

According to Makris et al. (2021), more understanding is required with respect to how social marketing can address the needs of marginalized groups of people. If these ideas are transferred into the current context, then marginalized groups could be construed as those at high risk during a pandemic, who may be asked to self-isolate or to severely curtail their everyday activities to manage their possible vulnerability. For those in this vulnerable population, the use of mobile banking would help to reduce physical activities that increase Covid-19 exposure risk. Within this population there are likely to be those who have issues with text readability (people with disabilities/older people), internet access (lack of advanced infrastructure for technology use), and literacy (lower education and awareness). Therefore, it is important to understand their social practices surrounding retail mobile banking, as it will help marketers to better serve this vulnerable population and help ensure their independence.

This study offers an understanding vulnerable populations’ experiences of actual use of mobile banking and their expectations of mobile banking; these insights may be useful for marketers aiming to encourage retail mobile banking use. This study provides a research framework based on data generated from multiple sources and analysis techniques to create rich insights into how retail bankers can address the needs of those in vulnerable populations during mobile banking use. This holistic framework contributes to existing literature by offering theoretical as well as practical underpinnings related to the accessibility of retail mobile banking for vulnerable populations during a global pandemic. Further, the holistic framework can provide guidelines to retail mobile banking app developers and marketers to improve the service quality and performance of retail mobile banking apps. Finally, this study highlights its theoretical contribution, practical implications, and limitations, and suggests future directions for research.

Theoretical background

The impact of Covid-19 increased the use of online technologies and brought significant changes to consumer behaviour, making it more difficult for marketers to regain consumer loyalty as dissatisfaction levels because of the accessibility of the technology equality at all levels of the customers (Mason *et al.*, 2020). Kirk and Rifkin (2020) also argued that Covid-19 and technology use has brought many changes to consumer life because of the adaption of the technology to achieve required goals during the pandemic. Consumers are now more inclined to work and shop remotely as routine but level of the adoption of different users is different which required marketer attention to improve the adoption of online platforms (Kirk and Rifkin, 2020); however, this can also create more opportunities for marketers to use advanced marketing techniques by deploying interactive technologies to improve the accessible of the technology through addressing consumer accessibility strains (Caboni & Hagberg; 2019; Nabity-Grover *et al.*, 2020).

The use of augmented reality (AR) apps in different industries and mobile banking has significantly increased during the pandemic as people are restricted to their homes so they had to adopt these online apps to keep the social distance (Hassounah *et al.*, 2020; Willems *et al.*, 2021). The use of mobile apps in mobile shopping, and mobile banking have become habits for many consumers but still there are some accessibility issues in these apps, but Covid-19 pandemic has compelled them to use technologies to limit exposure to possible infection (Hassounah *et al.*, 2020; Willems *et al.*, 2021). Therefore, this research is considering the concept of affordance claimed by Gibson (1979) which help to understand environment provided to the social actors and how they act accordingly. Gaver (1991) claimed that affordance of technology is about the possibilities in surrounding environment of user that would lead them to adapt the technology under specific circumstances. Consequently, these technologies can be seen as “affordances” which is about the exploration of the possibilities of adapt technology under specific circumstances to achieve required objectives (Gaver 1991), where the chief concern for marketers is how life can be made easier for consumers and the best shopping experience conceivable be delivered (Anderson and Robey, 2017; Chen and Wu, 2021). Therefore, marketers are challenged to embed the new technology into the current social practices that can improve the adoption of technology in people’s routine life (Naeem,

2021). During the pandemic this is particularly pertinent to those in vulnerable populations who may face the accessibility issues of the mobile banking particularly the case in retail banking while they are staying home during pandemic. Hence, the provision of quality mobile banking services related to use is foregrounded.

Social practice theory (SPT) proposes that people's practice in different social contexts is neither fixed nor constant. People can have different reasons for their practices in different social contexts (Dreier, 2008). SPT highlights that the diversity and complexity of practices in which people indulge is life enriching for them instead of a burden. We explore what different mobile banking practices mean to people in vulnerable groups. Thus, we investigate the different conditions related to their social practice of mobile banking in the social situation of a pandemic. We explore the meaning and importance of these practices to those persons and the reasons they undertook such practices. The material component is related to the physical features of a practice, such as the human body (see appendix 1), and represents the bodily activities in which material artefacts are used (Reckwitz, 2002). The meaning component represents the beliefs, understandings, and emotions underpinning the usage of the material component (Reckwitz, 2002). For example, this includes the perceptions people have of mobile banking, such as privacy, identity information-related issues, and internet-related issues, which may influence their decisions regarding its utility. Therefore, we explored the meanings those in vulnerable populations attach to mobile banking that would encourage, or discourage, them from using mobile banking. Competence represents the knowledge and skills needed to perform the practice (Reckwitz, 2002). Hence, by using the competence lens of SPT we explored how accessibility to competences helped, or how competences helped, users access the social practice of mobile banking during the pandemic. This study also applied Gibson's (1978) affordance of technology theory to understand people's experiences and expectations of mobile banking, which may be helpful to improve the adoption rate of mobile banking in developing countries. The affordance of technology theory is about the *possibility* of something (Gibson, 2014), for example, the value that can be achieved after using a specific technology. It can be argued that affordance is about the *compatibility* of a technology, such as mobile banking, with the needs of users of that technology, such

as those in vulnerable populations, and that such compatibility is attached to the practices that develop (or do not) (see appendix 1).

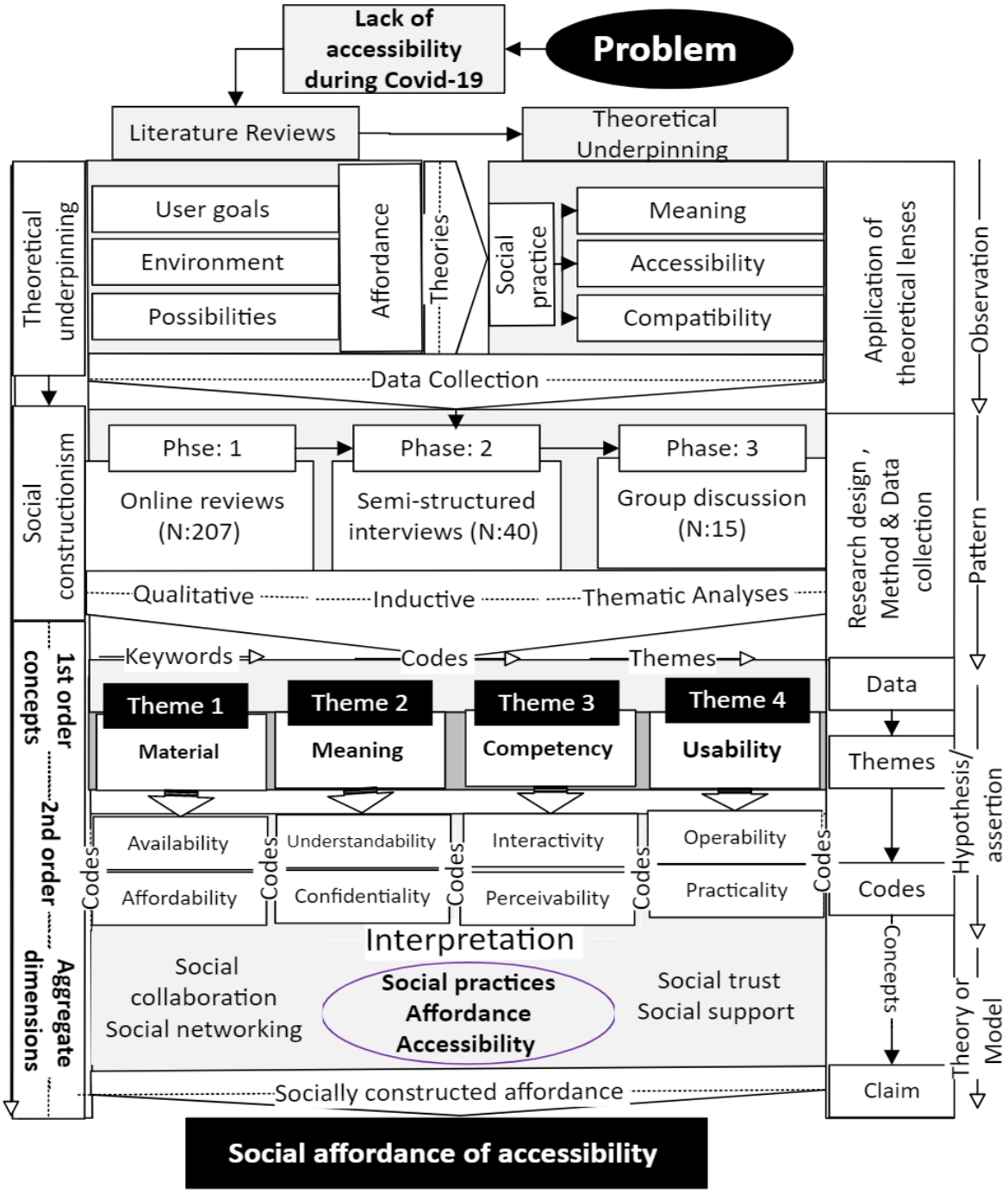
Methodology

Epistemological position

This research emanates from a social constructionist epistemology; hence, it seeks to explore the socially developed understanding related to mobile banking practices of vulnerable populations during Covid-19 pandemic and what serves to encourage or discourage these practices. Approaching the accessibility of mobile banking through the lens of social constructionism enables a first attempt to explore socially constructed material practices, meanings, and competencies in mobile banking use. For example, a father in a vulnerable population may seek help from his educated daughter to gain knowledge of mobile banking use to avoid infection. Here, the meaning might be construed as risk of illness, which motivates him to learn those competencies that can help him to independently use mobile banking. There are various other unexplored social realities that may help to understand how retail bankers can create mobile banking services that address the needs of those in vulnerable populations. According to SPT, particular attention should be paid to the variance in views among various people (Holland and Lave, 2009). As Parida (2015, p. 200) stated, the differences in gender, social, and economic classes of those in vulnerable groups "*are differentially exposed and also diversely resilient*". Thus, by taking a relativist and social constructionist philosophical position and applying the lenses of social practice and affordance of technology theory, we can understand the different reasons why different people in vulnerable populations use mobile banking and what initiatives are required by retail bankers to create affordances to encourage mobile banking use. This enables us to uncover the different social realities underpinning the same social phenomenon (i.e., the usage of mobile banking by those in vulnerable populations during a pandemic).

Data generation methods

The figure 1 research process provided the summary of whole research (problem identification to development of final framework). It gives the quick overview of each section of this paper.



Huber and Froehlich's (2020) study highlighted that no data generation method is free from weaknesses, therefore the use of multiple methods enables the quality and validity of findings to be enhanced. According to Flick (2018), triangulation in qualitative research is a common data generation practice, as the selection of multiple methods and sources can provide thick interpretation and rich understanding – often helping to develop

theoretical frameworks. Therefore, this study has used multiple data generation methods and sources to help derive a theoretical framework that platforms the development of guidelines for retail mobile banking app developers and marketers seeking to improve service quality and performance.

Three methods, across three consecutive phases, were used to generate data from various sources. As this research attaches value to customers' real experiences, through their reflections on various realities about mobile banking, customer online reviews and semi-structured interviews were conducted, and these realities were conceptualized and juxtaposed with bank managers' opinions gained through initial focus groups. Data generation took approximately seven months to complete. For each method, data generation ceased when thoughts and experiences started to repeat and, thus, data saturation was reached (Saunders et al., 2018).

Online reviews were obtained through the banking apps of various public and private sector Pakistani banks known to offer mobile banking services: Bank of Punjab, National Bank of Pakistan, United Bank Limited, and Habib Bank Limited. A total of 207 online reviews were downloaded from these banks' mobile apps using Heedzy (open-source compiling software). The selection of these mobile banking apps was not only made based on their extensive online user networks, but also on the volume of posted reviews about the challenges and benefits of accessing and using these mobile banking apps. Of the 207 online reviews, 40 were discounted because they were generated in a foreign language and 93 were excluded as they did not meet the goals of the research topic. The remaining 74 reviews were about improvements and social experiences that mobile banking customers normally look for, such as accessibility. The utilization of online reviews also enabled better general understanding of customers' experiences of mobile banking and further supported the development of interview questions to be used specifically with those from vulnerable populations.

Semi-structured interviews were conducted with customers of public and private banks; focus groups were undertaken with the managers of public and private banks. The selected private and public banks were located in Lahore and Islamabad and in rural areas surrounding these cities. The people of developing countries usually belong to

lower-middle income groups, thus, they have limited mobile banking exposure and experience, whereas bank managers in these countries can pursue mobile banking to enhance public access and optimize market opportunities. Semi-structured interviews helped gain in-depth insights into customers' expectations and experiences of mobile banking during the pandemic. In addition to facilitating discussion, semi-structured interviews tend to encourage participants to be fully engaged in the entire research process.

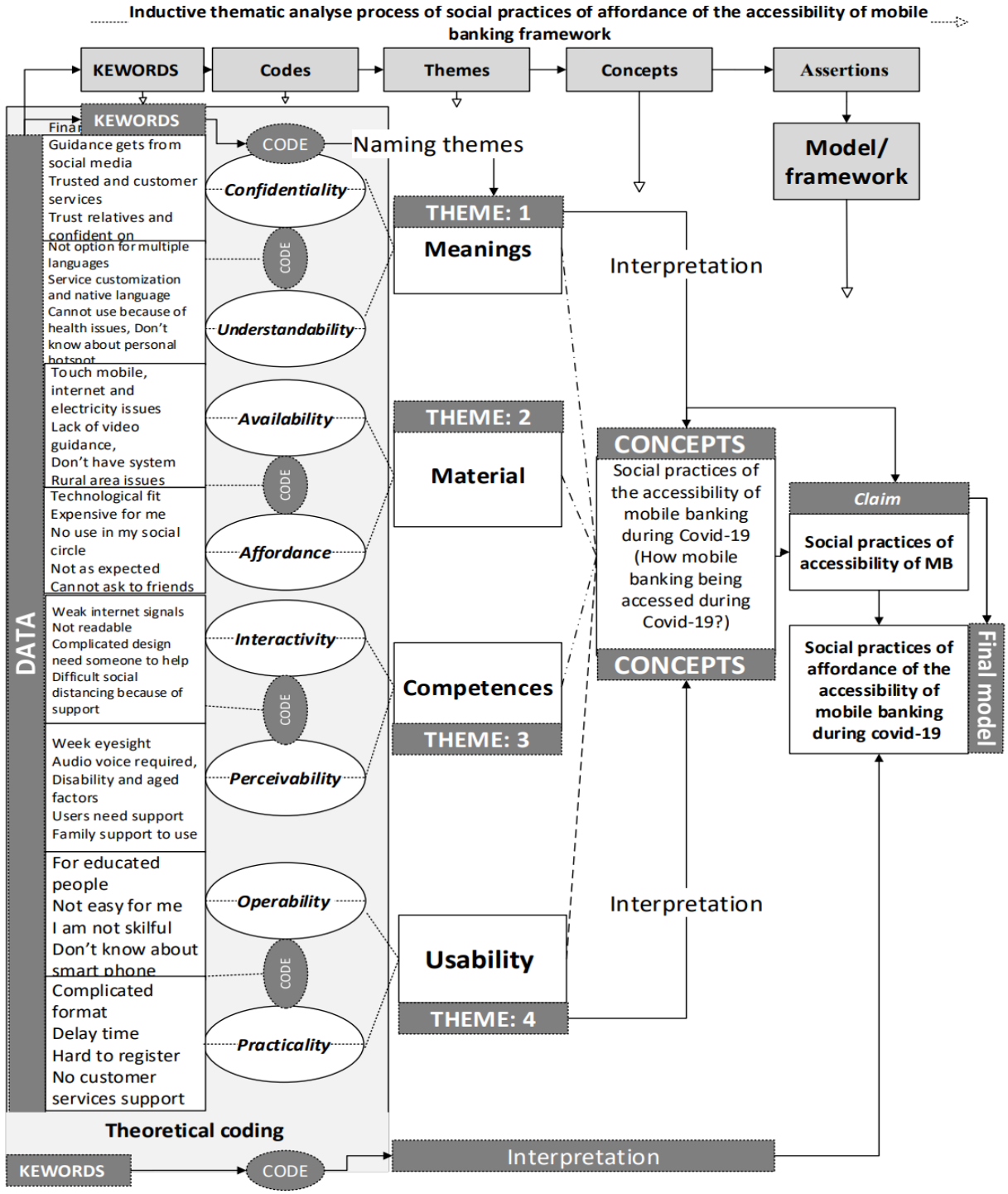
A total of 15 bank managers in 3 groups of 5 managers each (see Appendix 2 for bank managers' demographic information) and 40 mobile banking customers (see Appendix 3 for bank customers' demographic information) in vulnerable populations took part. According to many past qualitative studies, researchers can achieve data saturation before the 30th interview (Naeem, 2020); the method of the current study is consistent with this (Naeem and Ozuem, 2021). The social network of the lead researcher was useful in recruiting bank managers to participate in the focus groups. The researchers initially used social media to approach mobile banking customers in vulnerable populations, then sent reminder emails to confirm their interview schedules, which were conducted either over the telephone or through Skype. In addition to maintaining social distancing during the Covid-19 pandemic within the focus groups, this approach to customer interviews helped participants feel comfortable throughout the interviews. The participant inclusion criteria were: the customers should be active mobile banking users and have used the service for the first time at least three months before being interviewed, whereas managers must have had five years' work experience as a banker. These inclusion criteria are aligned with those of Ringberg *et al*.'s (2007) study. Bank manager focus groups lasted about 45 minutes each. The groups were conducted remotely via Skype to comply with social distancing concerns. The semi-structured interviews were each approximately one hour in length.

For this study, a systematic approach was used to analyze data which were obtained from semi-structured interviews, online reviews, and focus group discussion. First order, second order and aggregate dimensions are generally considered to represent the three stages of this systematic approach (Gioia et al., 2013). Some of the recent studies also

used similar thematic analysis process in their studies (Ozuem et al., 2021; Naeem, and Ozuem, 2021) therefore we have followed this thematic analysis approach (Gioia et al., 2013). The complete process of first order, second order, and aggregated concepts demonstrated in appendix 4 by following the well-known studies (Gioia et al., 2013; Ozuem et al., 2021).

Findings

The Figure 2 (inductive thematic analysis process) highlighted the crux how the keywords, code, and major themes extracted from findings and these concepts helped to develop the final framework.



The Table 1 (definitions and description of emerging themes) provided the definition and description of major codes which are discussed in findings section.

Availability	The possibility of being able to use material and competencies of mobile banking. For example, the existence of required material and competencies, such as availability of internet, mobile, and skills to practice mobile banking.
Affordance	Social sources, such as family and friends, who help to create the affordance of mobile banking.
Interactivity	Interactivity is about strengths and weakness of the technology to react and respond to the physical traits of users.
Confidentiality	Confidentiality refers to the financial and personal information that is not sharable with everyone and what steps customers and bankers take to enhance the confidentiality of customers' sensitive information during their initial experiences of mobile banking.
Understandability	The information available to the user must be understandable. For example, awareness and information about all the material which is required for mobile banking use.
Perceivability	Capability to use the available material and competencies to achieve the required goals of internet banking. For example, weak eyesight and hearing loss prevent

	the social practice of mobile banking even when material and competencies are available.
Operability	Ability includes all those skills which are helpful to practice mobile banking. Ability means to use, understand, manage, and access mobile banking with ease.
Practicality	According to Tran et al. (2016), practically can be derived after applying the practical knowledge and gets the actual experiences. These real time experiences really helped to improve the services quality of MB.

Availability

Keywords: touch mobile, internet, electricity, video, system, distance, rural area

Availability refers to all the system-related things that can help a person to practice mobile banking. For example, availability of touch mobile, smartphone, internet, electricity, and videos about mobile banking. During Covid-19 lockdown, many people were restricted to their homes; as a result, education, work, and some business activities were done online. Furthermore, people living in rural areas faced severe issues with respect to electricity load shedding and unavailability of internet; so, people used different banking methods, such as ATMs, in-person banking, and carrying cash, which are not risk-free options during Covid-19 pandemic. For example, Customer 6 stated, *"I have a touch mobile, but there is unavailability of internet in our area. So, most of the time I have to travel some distance from my home where internet is available".* Online review 19 highlighted, *"we live in a rural area where electricity load shedding is high, we have to travel to nearest city for mobile banking use"* (date of post 12/06/2020). Bankers also played a positive role as they created and shared posts and videos through social media and their social circles advising that vulnerable customers should avoid visiting banks. Bankers' videos also

increased the awareness of customers of the material and skills required for mobile banking use.

Affordance

Keywords: technology fit, expensive, internet packages, social circle, design, expectations.

Affordance is all about the inexpensive ways that create technology fit for customers when they really need it. Affordance means all the social sources which help to make mobile banking useable for customers who cannot afford the technology. Many people who live in developing countries have a low income and cannot afford expensive technology, such as smartphones and internet package for mobile banking use. It was found that the use of mobile banking is a strong need of time during Covid-19 pandemic; as a result, people, especially those who are vulnerable, asked friends to help them with mobile banking or borrowed their smartphones. For example, Customer 15 stated, *"I cannot afford a touch mobile as it is very expensive for me, so I take help of my trusted close friend for mobile banking".* Online review 1 highlighted *"I have a touch mobile, but internet packages are very expensive, so I have used my son's personal hotspot to access internet for mobile banking"* (date of post 02/04/2020). It was also found that some people with disabilities were willing to use mobile banking, but the design of mobile banking features meant they could not use it independently. For example, Banker 13 said, *"I do not think that we took account of any disability expert's or older people's experiences during the design of our mobile banking app, as it would take more time and cost. So, our mobile banking app does not reasonably address the expectations of disabled and older people.* Similarly, some customers shared that they could afford to use MB, but their health and age does not allow us to use independently. For example, Customer 38 stated *"although mobile banking is useful but not useful for aged and disable people even when they can afford the technology".*

Understandability

Keywords: multiple languages, service customization, native language, health issues, personal hotspot.

The information available to the user must be understandable. This includes awareness and information about all the material, which is required for mobile banking use, as well as affordable ways to practice mobile banking during a global pandemic. It was found that

most mobile banking apps are in English, but the different provinces of Pakistan have different languages; as a result, some vulnerable people required the help of educated people due to lack of service customization. For example, Banker 10 said, *"there are multiple languages, but we do not have a service customization option as per customer's native language; that's why customers have issues of understanding".* For some people Wi-Fi was too expensive so they used their neighbour's Wi-Fi for mobile banking. For example, Customer 24 said, *"my native language is Punjabi and there is no way that I can covert English into my native language especially when I am having many health issues".* a*".* Furthermore, few people in a family have employment, and it is a social norm that most female members are dependent on the earnings of their male family members; therefore, a family cannot afford that all members have use of expensive technology. For example, Customer 36 stated, *"my husband knows how to share internet through personal hotspot that's help me to use mobile banking when I was quarantined due to Covid-19".*

Confidentiality

Keywords: financial information, guidance, trusted, relatives, confident, customer service.

Confidentiality refers to the financial and personal information that is not sharable with everyone, and what steps customers and bankers take to enhance the confidentiality of customers' sensitive information during their initial experiences of mobile banking. As most of the people who are vulnerable were not very familiar with how to ensure the confidentiality of information, they took advice from customer services and their close family members for mobile banking use. For example, Customer 32 said, *"I cannot share financial information with my family members, so I called customer service and took guidance about how to securely use mobile banking".* Customer 40 shared, *"My daughter is very educated and trusted, so she opened my mobile banking account with the motive that I should not go outside as I aged and many of older relatives got Covid-19 infection".* Online review 21 highlighted, *"I saw several videos where bankers talked about how to protect confidential information, so I am now confident during mobile banking use"* (date of post 01/08/2020)*.* People took the advice of their social circle and watched the videos of bankers in which they shared two-step verification, strong password, and activation of

text messages to ensure the confidentiality of financial and personal information related to mobile banking.

Interactivity

Keywords: weak internet signals, readable, complicated design, older people, difficulties, social distancing.

Interactivity is about strengths and weakness of the technology to react and respond to the physical traits of users. As the Interactivity of technology derived from potency, intensity and appetite of technological features which exemplified users react communication with the respond to these physical traits the technology. This study conceptualizes the interactivity as social affordance as the extent of social collaboration and networking of actor overcome the lack of own material and competencies to achieve the required objectives reciprocal, more responsively, and speedy through minimizing the user and system interaction issues such as eyesight issues, low specification devices etc. For example, Customer 22 stated, *"I pay a higher cost for home internet device, but internet signals are very weak in my home; so, most of the time I use mobile banking in my brother's home, who lives in the next town from our residence".* Customer 38 stated, *"I am old and the text on mobile banking app is not readable for me, so I cannot complete transactions without my family's help".* Results revealed that some customers had complaints regarding the complicated design of mobile banking apps that created barriers to mobile banking use. For example, Online review 11 highlighted, *"complicated mobile banking app design limited the access and use for older people"* (date of post 26/08/2020). Some bankers shared that interactivity issues are more prominent due to lack of service performance standards as well as lack of digital health data on vulnerable groups who need the services of mobile banking, especially during a global pandemic. For example, Banker 1 said, *"we have not the standards to check service performance and interactivity of mobile banking app; as a result, many old and special people are experiencing difficulties, especially in global pandemic when everyone is trying to use mobile banking to maintain social distancing".*

Perceivability

Keywords: eyesight, audio voice, disability, aged, user need, complaint, family support

Perceivability means the information provided by mobile banking should address the needs of people with issues related to sight, touch, hearing, and so on. For example, information provided in the form of text should be readable, in the form of visuals should be seeable, and in the form of electronic devices should be touchable. For example, Customer 24 said, *"my eyesight is weak, and I have readability issues, but there is no option to convert text into audio format. So, every time my daughter helped me".* Customer 34 argued, *"I am old, and my hand shakes when I tried to use mobile, so it is not possible for me to read text on mobile banking app, but if banks provided customers with audio voice to select options, then it would be comfortable for people like me".* Some customers highlighted that mobile banking apps are accessible and useable for normal individuals rather than vulnerable people and people with disabilities. For example, Online review 17 highlighted, *"I noticed that the design of mobile banking app is not supportive for disabled people, as my uncle could not use it independently"* (date of post 2/06/2020). Banker 11 said, *"unfortunately, I do not think that we design our apps to address the user's needs; as a result, many disabled people complained that they could not use it without family support".*

Operability

Keywords: educated people, not easy, sharp, skilful, knowledge, smart phone, awareness.

Ability includes all those skills which are helpful to practice mobile banking. Ability means to use, understand, manage, and access mobile banking with ease. It was found that more educated and competent people usually face lower issues of skills during use of mobile banking compared to those who have a lower level of education as well as limited social awareness and knowledge about mobile banking. For example, Online review 19 highlighted, *"I believe that mobile banking is for younger and educated people as app design is complex and options are not easy to understand if you are not very sharp and skilful"* (date of post 19/06/2020). Some people shared that although they have digital competences to use smartphone and mobile banking, they do not really like smartphones as they feel that they are a waste of time. For example, Customer 16 stated, *"I am a retired officer, aged, and private business owner. Before Covid-19 I was using ATM*

regularly as I am educated, but I do not like smartphone as it is a time killer. Now, I made a mobile banking account on my wife's smartphone as during global pandemic going outside and touching ATMs was not risk-free anymore". Some people of vulnerable population shared that although they are skilled but unable to use MB as they are aged and facing severe health issues therefore, they need their family support. For example, Customer 24 *"I am aged and having many diseases so even when I have skills to operate MB but could not do as my hand and eyesight is not very supportive".*

Practicality

Keywords: dissatisfied, multiple service options, comfortable format, delay time, click, frustration

According to Tran et al. (2016), practically can be derived after applying the practical knowledge and gets the actual experiences. These real time experiences really helped to improve the services quality of MB. Some customers shared that there are not many options to format and personalize services; as a result, mobile banking apps are not very likely to attract customers. Therefore, there are opportunities for retail mobile bankers to add these services with the purpose to increase engagement with mobile banking apps. For example, Customer 34 said, *"I am aged, and I could not find option where I can adjust text and colour as per the comfort of my eyesight, so I think bankers should give more options for enhancing its use".* Customer 21 said, *"I am really dissatisfied as there is no multiple service options that can give me access to my native language and comfortable text format".* Some customers shared that they have faced issues of both internet speed and slow acting time of each command on mobile banking app; therefore, retail bankers should take initiatives to resolve these issues. For example, Online review 37 highlighted, *"the slow internet and time delay after each click made me too mad and frustrated to use this mobile banking app".*

Discussion and theoretical contribution

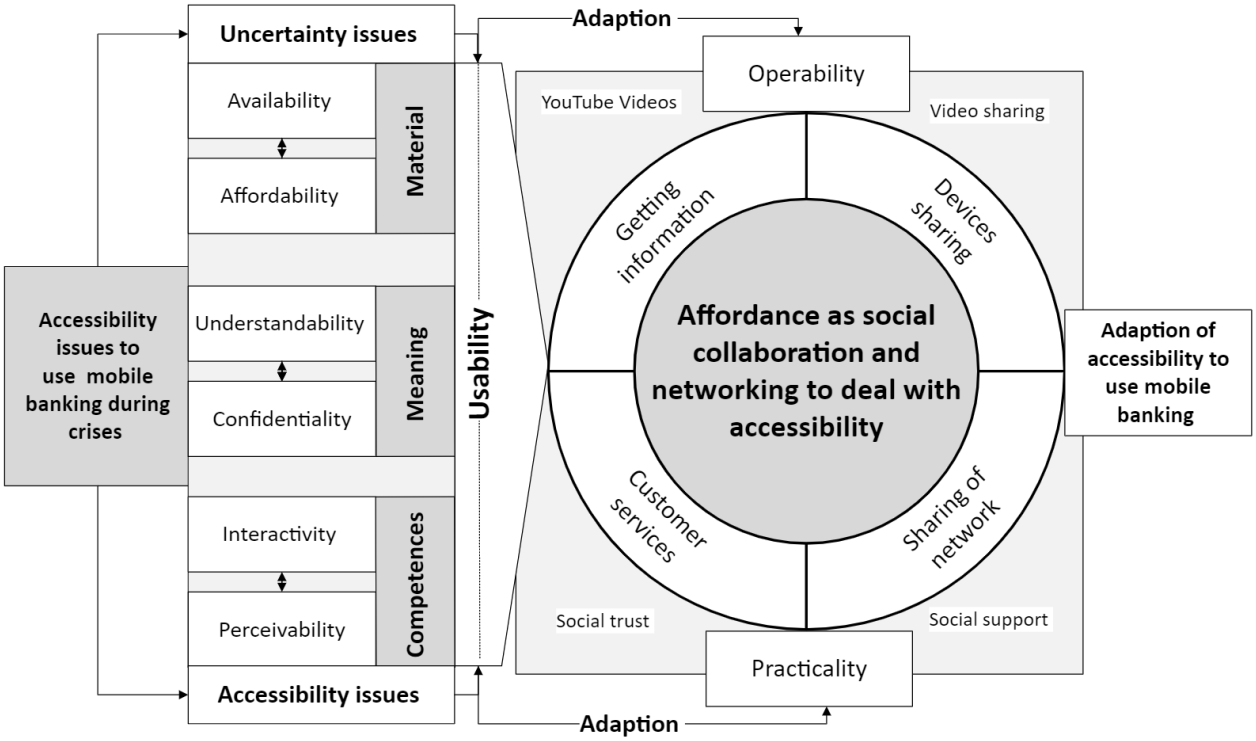
We answered Jebarajakirthy and Shankar's (2020) call for the inclusion of people from young and older age groups, men and women, educated and uneducated, and rural and urban areas to provide in-depth and rich understanding of the adoption of mobile banking. Results reveal that some vulnerable people have competences, but they do not have the

material to use retail mobile banking apps. Here, it is important to understand how the elements of SPT, such as competences, adapt to material. For example, people shared that although they have skills to use mobile banking, either they cannot afford a smartphone or thought that smartphones are a time killer; however, the fearful environment of Covid-19 forced them to avoid using ATMs as they are not a risk-free social practice during outbreak of Covid-19. Therefore, they used their close friends' and partner's material (e.g., smartphone) to create and use a mobile banking account. Giovanis *et al*. (2019) highlighted that people who have limited experience expect that they can only use technology that requires little effort, and they are very keen to take the recommendations and help of their social networks.

Although there is evidence that young and educated people have a stronger intention to use mobile banking apps (Laukkanen, 2016), there is limited understanding of how the fearful environment of Covid-19 pandemic can motivate the vulnerable and people with a low level of education to practice mobile banking as a social practice. We found some examples regarding how material is adapted to competences. For instance, it was found that retail bankers created videos about the material required for mobile banking as they wanted to protect their working environment and customers, as well as develop understanding among targeted population regarding how they can use mobile banking, which is the best and safest banking option for vulnerable population. The findings of this study also highlighted that when meanings are adapted to competencies then the affordance of mobile banking is developed. For example, some people shared that mobile banking is only suitable for educated people because they understand the English language and there is no option for Urdu language translation. Therefore, they took help from educated family members regarding how to practice mobile banking.

Prior research highlighted that the education and awareness levels of different people in developing countries differ; therefore, their experiences are useful to develop mobile banking culture (Shaikh and Karjaluoto, 2015). The uniqueness of this study is that it provides understanding regarding how the affordance of mobile banking occurs. Affordance refers to the possibilities of how people can practice mobile banking.

Figure 3: Affordance of mobile banking adoption model



The findings of the research tried to develop canonical definition of affordance of accessibility issues of mobile banking as social collaboration and networking involves essential elements of social practices (e.g. devices sharing, internet sharing, helping each other, share knowledge through videos and helping disables) as committed parties, their limits to collaborate like confidentiality issues, collective efforts to keep safe, differences and mutual benefits of families and friends to facilitate the mobile banking as social affordance practices. In the term of findings of social collaboration and networking towards mobile indicates that include the practice of expanding knowledge, share devises, network by making connections with customers of similar interests. Both the lenses of social practices and affordance interpretations imply the socialization process of adoption of mobile banking involving participating parties, competencies building material sharing and building new meanings of the mobile banking through the social practiced affordance to deal with accessibility issues. The overlapping spheres of existing competencies, material and meaning of accessibility have shifted so social affordance which is based on the social collaboration and networking are exemplified in the social

bonding among mobile banking users which is names as social affordance building of individuals through sharing of material and competencies which developed new meanings. There are two differ in the form of physical periphery of accessibility of mobile banking which included the threshold of existing material and competencies leads to social collaboration which is bases on social trust and social support environment. This research tends to restrict accessibility which is limited to user's competencies and required material to afford the mobile banking where users develop own the sense mobile banking as meanings. The social collaboration and networking move beyond limit of existing material and competencies and reach out the larger ulterior of the role social affordance to develop new meaning as social practices.

The first unique theoretical contribution of this study is the integration of SPT elements: material is adapted to competencies, competencies adapted to material, meanings adapted to material, and competencies adapted to meanings. For example, competencies adapted to meanings means some people took the help of their skilful and educated family members who created secure two-step verification for mobile banking to protect sensitive financial information. Material is adapted to competencies means, for example, that retail bankers disseminated videos through social media and social circle about the material required for mobile banking use as they wanted to protect their working environment and customers, as well as develop understanding among targeted population regarding how they can use mobile banking, which is the best and safest banking option for vulnerable population. This is an example of how videos help to build the understanding and competencies of vulnerable people regarding how to use mobile banking and avoid practices of in-person banking and ATM use.

Although there is no doubt that most of the vulnerable population of a developing country have issues of readability, literacy, signals of internet, and electricity shortages, social practices were the affordances that enabled vulnerable people to use mobile banking. To understand this, this study has used affordance of technology theory. The affordance of the artifacts represents the conducive and inhibiting aspects of utilizing the artifacts. The experience of the technology user, technology infrastructure, cultural background and social context determine the perceived affordance of an artifact (Hutchby, 2001; Chen, &

Wu, 2021) of the use of MB banking. Hutchby (2001) observed that affordance had both constraining and enabling elements with which the users can engage. For example, it has found that personalization and customization in MB banking apps help user to attain their MB banking goals in easy way. Furthermore, the addition of audio speaking functions, translate English into native local language, better visualization (e.g., easy to read the text) are some of the aspects that can enhance the affordance for MB banking especially for vulnerable population. On the other hand, major constraints are lack of internet speed, loadshedding, and lower level of awareness and skills which can negatively influence the engagement of MB users.

Implications for retail bankers

After in-depth discussion and theoretical implications, this study has provided various implications for retail bankers that can help to improve MB services especially during public crises situation. Retail bankers can enhance customer engagement with digital banking when they meet diverse customers' expectations and needs (Devlin and Yeung, 2003; Jamal, 2004; Kosiba *et al*., 2018). Although mobile banking is new in Pakistan, retail bankers should focus on improving the customization of services and personalization options for vulnerable people so that they can reduce the operational cost. It is suggested that retail bankers should give more options so that older people can adjust the app as per their requirements of eyesight and ease of reading. Furthermore, it is suggested that retail bankers should improve the service quality and performance of mobile banks apps by considering the recommendations of disability experts and older people's experiences. English is not the native language of many vulnerable people; therefore, retail bankers should provide options to translate text into local language. There is a need to develop standards to check service performance and accessibility of mobile banking apps as some people shared that the design of mobile bank apps is complicated and not easy to understand or use especially for vulnerable population.

Mobile bankers should create pressure on government and consult with telecommunication companies with the purpose to take positive initiatives for improving the availability and accessibility of the internet and electricity, which are major hurdles to mobile banking adoption. There should be more options for people with disabilities to convert mobile banking app options into audio/touchable format. There is an urgent need

for the Government of Pakistan and retail bankers to develop a database of vulnerable people and people with disabilities so that retail bankers can enhance the customization of services, especially during a global health crisis.

Limitations and future directions

Future studies could also test how fear appeals through the health sector influence consumer behaviour towards technology adoption for various sectors such as retail banking, supermarkets, tourism, and fashion industries. Future studies can use a combination of both qualitative and quantitative methods as it can offer thicker interpretations and the results could be generalized for a larger population. Future studies can collect data from experts in the field of disability and older ages so that they can provide more accurate information to create compatibility and mobile banking affordance for vulnerable populations during and after the pandemic.

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Dr. Philippa ward[3] had over 25 years of retail and academic experience, Philippa has a range of journal and book publications, over 20 doctoral completions and a similar number of examinations. Her research centers on the effects of the in-store environment on customers, de-shopping, and retail theatre. These areas are also the focus of her doctoral supervisions. This interest in retailing was generated through her management roles within Debenhams and Asda. She also continues to work with a number of retailers, manufacturers and marketing agencies as a consultant. Philippa is also a Head of the Marketing and Retail Analysis Research Centre – where research on issues including consumer behaviour and services marketing is located. She can be contact at pward@glos.ac.uk.

Appendix 1: social practice and affordance theory

Theory used	Major elements	Keywords
Social practice theory (SPT)	Material	Tangible physical bodies: things, stuff or objects, technologies (Reckwitz 2002; and Shove et la., 2012), communication, body, information, and products (Jin et al., 2020).
	Meaning	Techniques, skills, know-how (Reckwitz, 2002; Shove, Pantzar, and Watson 2012), knowledge (Jin et al., 2020).
	Competencies	Aspirations, ideas, symbolic meanings (Reckwitz, 2002; Shove, Pantzar, & Watson 2012), significances, purposes, and beliefs (Jin et al., 2020).
Affordance theory	Artefacts	The experience of the technology user, technology infrastructure, cultural background and social context determine the perceived affordance of an artifact (Hutchby, 2001; Chen, & Wu, 2021).
	Enablers and constraints in user engagement	Hutchby (2001) observed that affordance had both constraining and enabling elements with which the users can engage.

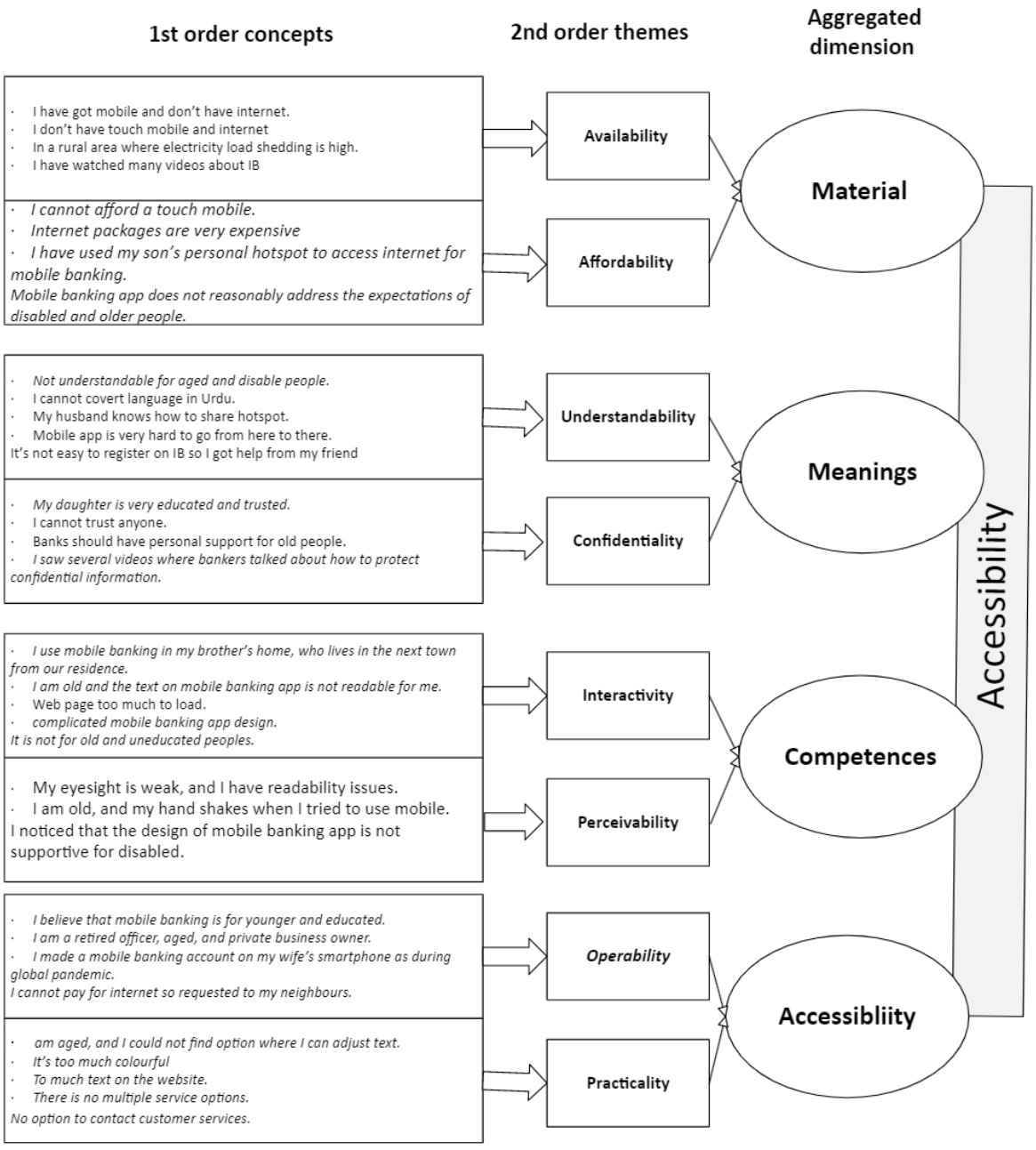
Appendix 2: Bank managers' demographic information

No.	Gender	Number of active social media accounts	Designation	Education
1	F	2	Head of Marketing	MBA
2	F	3	Head of IT	MCS
3	M	3	General Manager Accounts	CA
4	F	2	Head of Customer Services	MBA
5	M	1	Manager of Front-Line Employees	MBA
6	F	2	Manager of Customer Relationship	MA
7	M	3	Manager of IT	MS IT
8	M	3	Area Vice President	MSBA
9	M	2	Operational Manager	MBA
10	M	3	Manager of IT	MBA
11	M	2	Manager of IT	MBA
12	M	4	Head of Customer Services	MBA, CA
13	F	2	Manager of Customer Services	MBA
14	M	3	Head of Marketing	MA
15	M	2	Manager of Marketing	MBA

Appendix 3: Bank customers' demographic information

No.	Gender	Profession	Education
1	M	Unemployed	BA
2	M	Student	BCS
3	M	Unemployed	Grade 10
4	F	Unemployed	Grade 10
5	M	Accountant	ACCA
6	M	Office worker	BA
7	M	Office worker	BCS
8	M	Business owner	MA
9	F	Unemployed	Intermediate
10	F	Homemaker	Grade 10
11	M	Marketing consultant	MBA
12	M	Unemployed	BA
13	M	Unemployed	Grade 10
14	F	Lecturer	MSBA
15	F	Homemaker	Grade 10
16	M	Business owner	MA
17	M	Student	LLB
18	M	Marketing consultant	MBA
19	M	Unemployed	Grade 10
20	F	Unemployed	Grade 10
21	F	Homemaker	MSc in leadership
22	M	Office worker	LLB
23	M	Unemployed	Master's degree
24	F	Homemaker	Grade 10
25	M	Office worker	BA
26	M	Marketing professional	MBA
27	M	Unemployed	Grade 10
28	F	Unemployed	Grade 10
29	F	Homemaker	Grade 10
30	M	Office worker	Intermediate
31	M	IT manager	MCS
32	M	Office worker	BA
33	M	Unemployed	Grade 10
34	M	Unemployed	Grade 10
35	F	Homemaker	Intermediate
36	F	Homemaker	Intermediate
37	F	Homemaker	Grade 10
38	F	Unemployed	Intermediate
39	F	Homemaker	Intermediate
40	F	Homemaker	Grade 10

Appendix 4: thematic analysis process



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