Ward, Philippa ORCID logoORCID: https://orcid.org/0000-0002-4971-8908, Naeem, Muhammad and Ozuem, Wilson ORCID logoORCID: https://orcid.org/0000-0002-0337-1419 (2022) Understanding the accessibility of retail mobile banking during the COVID-19 pandemic. International Journal of Retail and Distribution Management, 50 (7). pp. 860-879. doi:10.1108/IJRDM-02-2021-0064

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

Abstract

Purpose

This study offers an understanding of 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; this mix of methods and sources was used to provide a rich and in-depth understanding.

Findings

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

Implications

It is suggested that retail bankers should improve the service quality and performance of their mobile banking 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 banking apps.

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 different 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 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 for vulnerable populations during the pandemic is an important issue. The World Health Organization (WHO) has defined high-risk groups (vulnerable populations) in terms of the pandemic as "people who are older than 60 years or who have health

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conditions like lung or heart disease, diabetes or conditions that affect their immune system" (WHO, 2021). 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 internet access 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 the risk of exposure to COVID-19. 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 of vulnerable populations' expectations of mobile banking, and their actual experiences of using 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 the 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

An impact of the COVID-19 pandemic is the increased the use of online technologies and the consequent significant changes to consumer behaviour, including rising difficultly for marketers to regain consumer loyalty lost from dissatisfaction over the inequality of accessibility of technology across different levels of customers (Mason *et al.*, 2020). Kirk and Rifkin (2020) also argued that COVID-19 and technology use have brought many changes to consumer life because of the adoption of technology to achieve different goals during the pandemic. Consumers are now more inclined to routinely work and shop remotely, but the level of adoption of different users varies, spurring marketers to try 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 accessibility of the technology through addressing consumer accessibility constraints (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 and have had to adopt these online apps to maintain social distancing (Hassounah *et al.*, 2020; Willems *et al.*, 2021). The use of mobile apps for shopping and banking have become habits for many consumers, and though there are some accessibility issues with these apps, the COVID-19 pandemic continues to compel societies to use technologies that limit exposure to possible infection (Hassounah *et al.*, 2020; Willems *et al.*, 2021). Therefore, this research considers the concept of affordance put forth by Gibson (1979), which aids understand of environments provided to social actors and how they respond accordingly. Gaver (1991) claimed that affordance of technology is about the possibilities in the environment surrounding users that would lead them to adopt the technology under specific circumstances. Consequently, these technologies can be seen as "affordances", i.e. the exploration of the possibilities of adopting technology under specific circumstances to achieve particular objectives (Gaver, 1991); the chief concern for marketers is how life can be made easier for consumers and the best shopping experience conceivable delivered (Anderson and Robey, 2017; Chen and Wu, 2021). Therefore, marketers seek to embed new technology into current social practices to

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improve the adoption of technology in people's routine lives (Naeem, 2021). During the pandemic and its consequent social isolation, this is particularly pertinent to those in vulnerable populations who may face difficulties stemming from accessibility issues of mobile banking, particularly in retail banking. Hence, the provision of quality mobile banking services in terms of ease of use and accessibility has become highly pertinent.

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 a practice (Reckwitz, 2002). Hence, by using the competence lens of SPT we explored how accessibility to competencies and competencies themselves 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 obtained from 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

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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 the 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 variability of people's views (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 the use of mobile banking. This enables the uncovering of the different social realities that underpin the same social phenomenon (i.e., the usage of mobile banking by those in vulnerable populations during a pandemic).

Data generation methods

Figure 1 provides an overview of the research conducted for this paper, from problem identification through to the development of final the framework); it briefly summarizes each section.

Figure 1: Overview of the research process used for this research
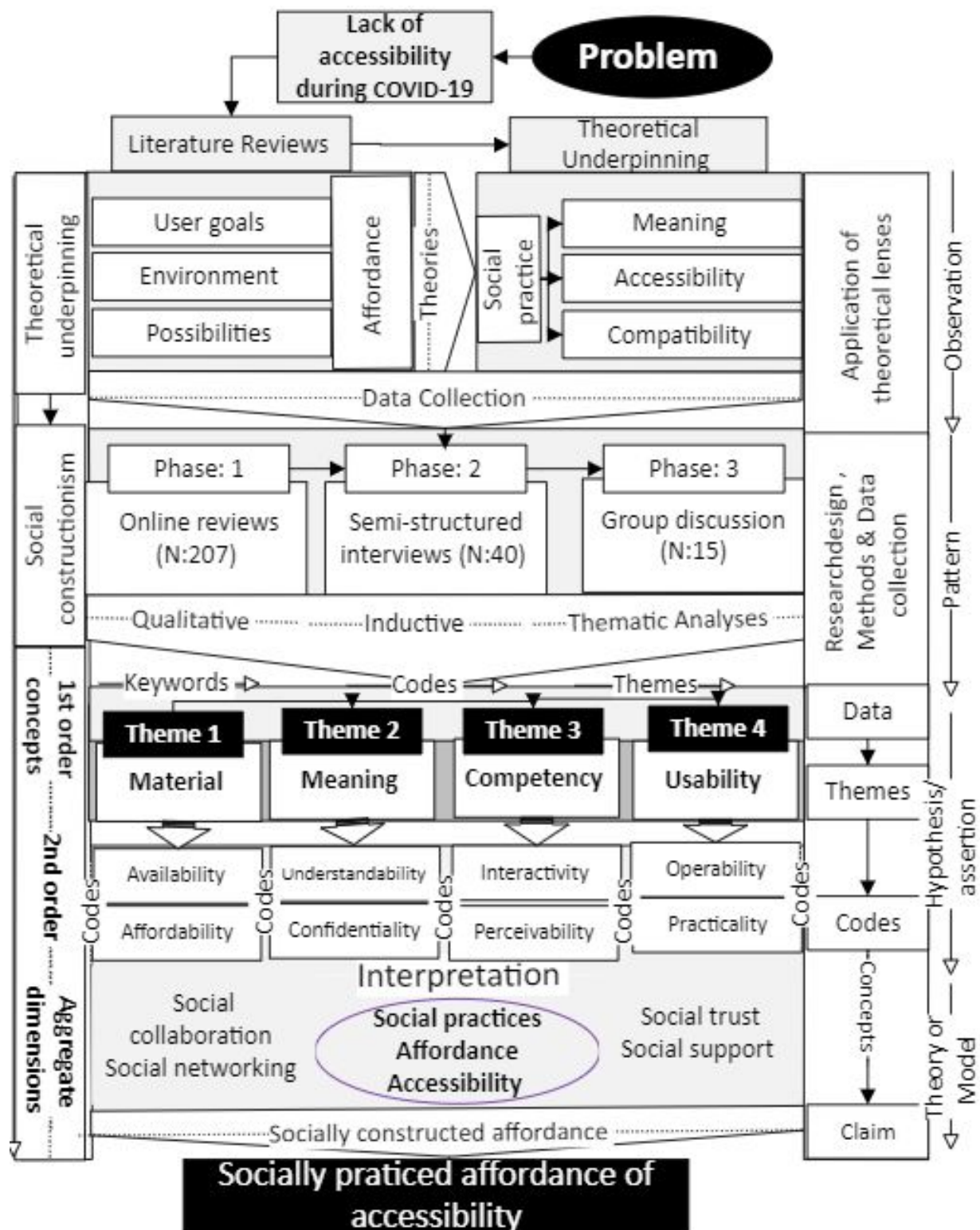
Huber and Froehlich's (2020) study highlighted that no data generation method is free from weaknesses, therefore the use of multiple methods enables the quality and validity of findings to be enhanced. According to Flick (2018), triangulation in qualitative research is a common data generation practice, as the selection of multiple methods and sources can provide thick interpretation and rich understanding; this helps when developing theoretical frameworks. Therefore, this study has used multiple data generation methods and sources to construct a theoretical framework which can guide 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 the various realities of mobile banking, customer online reviews and semi-structured interviews were conducted; 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, i.e. when 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 including the Bank of Punjab, the 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 (an open-source compiling software). The selection of these mobile banking apps was made based on their extensive online user networks, and the volume of posted reviews about the challenges and benefits of accessing and using these apps. Of the 207 online reviews, 40 were discounted because they were 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 allowed a better general understanding of customers' experiences of mobile banking and supported the development of interview questions specifically for those from vulnerable populations.

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Semi-structured interviews were conducted with customers of public and private banks; focus groups were held with the managers of public and private banks. The selected private and public banks were located in Lahore and Islamabad, and in the rural areas surrounding these cities. The people of developing countries usually belong to lower-middle income groups and thus have limited mobile banking exposure and experience; bank managers in these countries can therefore 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) from vulnerable populations took part. In line with previous qualitative studies (Naeem, 2020; Naeem and Ozuem, 2021a) data saturation occurred before the 30th interview. The social network of the lead researcher was utilized to recrui 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: customers were required to have been active mobile banking users and have used the service for the first time at least three months before being interviewed; managers were required to have had five years' work experience as a banker. These inclusion criteria are in line with those of Ringberg *et al*. (2007). Bank manager focus groups lasted about 45 minutes each. The groups were conducted remotely via Skype to comply with social distancing. The semi-structured interviews were each approximately one hour in length.

For this study, a systematic approach was used to analyze the data that were obtained from semi-structured interviews, online reviews, and focus group discussions. First order,

second order, and aggregate dimensions are generally considered to represent the three stages of this systematic approach (Gioia et al., 2013). Some recent studies have also used a similar thematic analysis process (Ozuem et al., 2021; Naeem and Ozuem, 2021b), therefore we have followed this thematic analysis approach (Gioia et al., 2013). The complete process of first order, second order, and aggregated concepts is demonstrated in appendix 4 by following the well-known studies (Gioia et al., 2013; Ozuem et al., 2021).

Findings

Figure 2 provides an overview of how the keywords, code, and major themes were extracted from the findings, and how these concepts helped to develop the final framework.

Figure 2: A visual overview of the inductive thematic analysis process used in this study
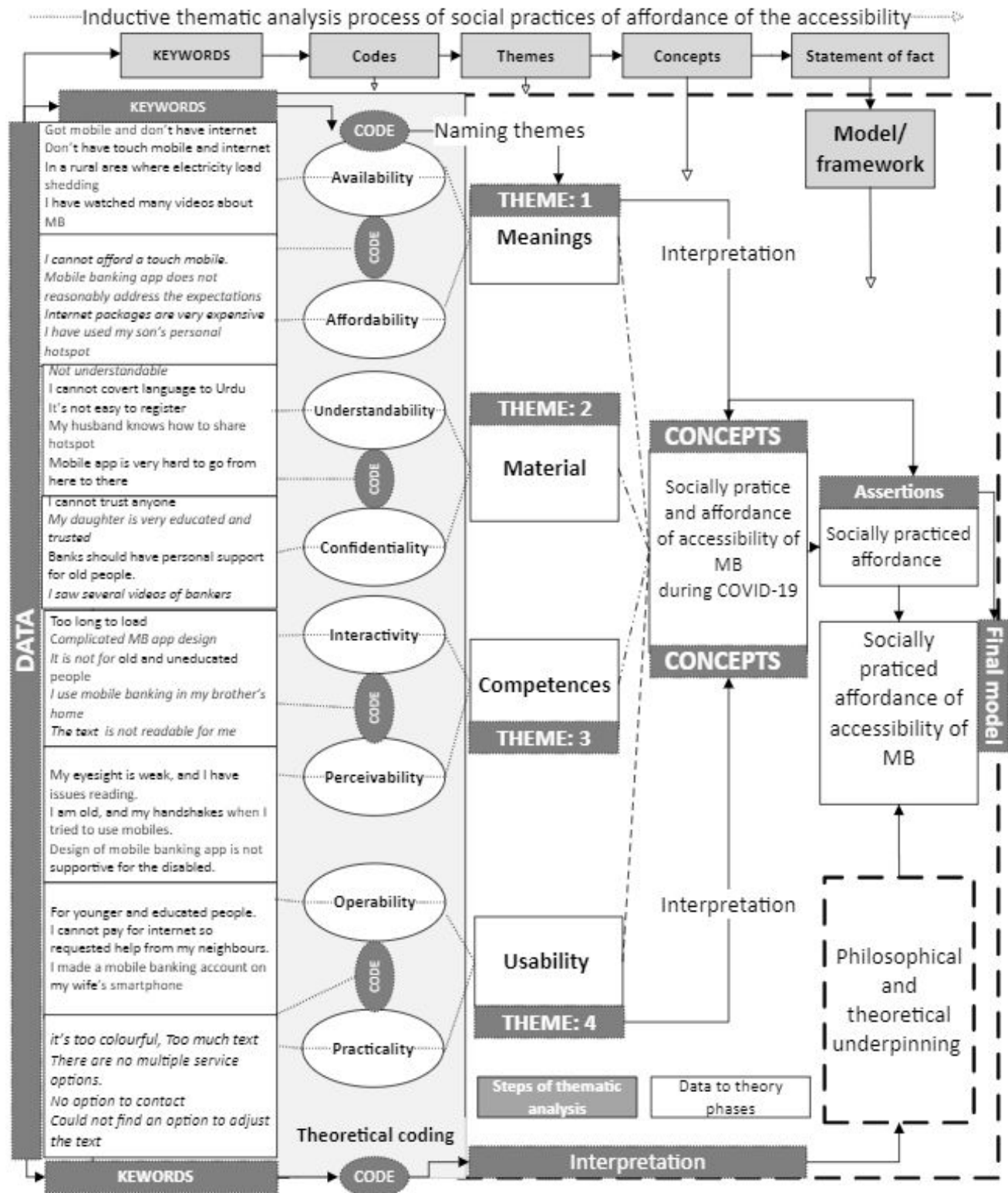
Table 1 provides the definitions and descriptions of major codes which are discussed in findings section.

Table 1: Definitions and descriptions of emergent themes

Availability	The possibility of being able to use material and competencies of mobile banking. For example, the existence of the required material and competencies, such as availability of the internet, a mobile, and the skills required 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 private financial and personal information, 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 users must be understandable, for example, information about the materials 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 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), practicality can be derived after applying practical knowledge, and gaining actual experience. These real time experiences greatly help to improve the service quality of MB.

Theme 1: Material

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, the availability of touch mobiles, smartphones, the internet, electricity, and videos about mobile banking. During COVID-19 lockdowns, 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 the unavailability of the internet; consequently, people used different banking methods such as ATMs, in-person banking, and carrying cash, which are not risk-free options during the pandemic. For example, Customer 6 stated, *"I have a touch mobile, but [the internet is unavailable] in our area. So, most of the time I have to travel some distance from my home [to] where [the] internet is available"*. Online review 19 highlighted, *"we live in a rural area where electricity load shedding is high, [so] we have to travel to [the] 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 encompasses the inexpensive solutions utilized when customers need access to a technology; this includes 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 packages for mobile banking use. It became apparent that the use of mobile banking is a strong need during the COVID-19 pandemic; consequently, people (especially vulnerable people) 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 [from] 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 [the] 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, [because of the added] 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 prevented them from using it independently. For example, Customer 38 stated *"mobile banking is useful, but not for [the elderly or] disabled people, even when they can afford the technology".*

Theme 2: Meanings

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

The information available to the user must be understandable. This includes information about all the material that 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; consequently, some vulnerable people required the help of educated people due to the lack of service customization. For example, Banker 10 said, *"there are multiple languages, but we do not have a service customization option [for] 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 translate English into my native language, especially [as I have] many health issues".* Furthermore, often few people in a family are employed, and it is a social norm that most female members are dependent on the earnings of their male family members; therefore, a family cannot necessarily afford for all members to have access to expensive technology. For example, Customer 36 stated, *"my husband knows how to share [the] internet through personal hotspots; that's helped 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 private, 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 classified as 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*

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trusted, so she opened my mobile banking account with the motive that I should not go outside as I [am elderly,] and many of [our] older relatives [have been infected with] COVID-19". 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 videos of bankers in which they explained two-step verification, strong passwords, and activation of text messages to ensure the confidentiality of financial and personal information related to mobile banking.

Theme 3: Competencies
Interactivity
Keywords: weak internet signals, readable, complicated design, older people, difficulties, social distancing.

Interactivity is about the strengths and weakness of the technology to react and respond to the physical traits of users. It is a derivation of the potency and intensity of people's physical interaction with technologies. This study characterizes it as the extent to which the social collaboration and networking of an actor overcomes their lack of material and competencies in order to achieve the required objectives responsively and speedily through the minimization of the user/system interaction issues such as eyesight issues, low specification devices, etc. For example, Customer 22 stated, *"I pay a higher cost for [my] 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 [my] 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, which created barriers to mobile banking use. For example, Online review 11 highlighted, *"complicated mobile banking app design limits access and use for older people"* (date of post 26/08/2020). Some bankers shared that interactivity issues are more prominent due to the lack of service performance standards, as well as the 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 [do not have] the standards to check [the] service performance and interactivity of mobile banking apps; as a result,*

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many people [who are elderly or have special needs] are experiencing difficulties, especially [during the] 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, text should be readable, visuals should be clear, and it should be possible to interact easily with electronic devices. For example, Customer 24 said, *"my eyesight is weak, and I have issues [to read], but there is no option to convert text into [an] audio format. So, my daughter [must] help me".* Customer 34 argued, *"I am old, and my hands shake when I try to use mobiles, so it is not possible for me to read text on mobile banking app, but if banks provided customers with audio [and] voice selection options, then it would be comfortable for people like me".* Some customers highlighted that mobile banking apps are more accessible and useable for normal individuals than for vulnerable people and people with disabilities. For example, Online review 17 highlighted, *"I noticed that the design of mobile banking apps 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 designed our apps to address the user's needs; as a result, many disabled people complained that they could not use it without family support".*

Theme 4: Usability

Operability

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

Ability encompasses the skills required 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*

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skilful" (date of post 19/06/2020). Some people shared that although they have the digital competencies 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, [older], [a] and private business owner. Before COVID-19 I was using ATMs regularly as I am educated, but I do not like smartphones as [they are] a time killer. Now I [have] a mobile banking account on my wife's smartphone, as during [the] global pandemic, going outside and touching ATMs is not risk-free anymore".* Some members of vulnerable populations shared that despite having the skills to use MB, they are elderly and face severe health issues, and therefore need support from their family. For example, Customer 24 *"I am [old and infirm], so [despite having the] skills to operate MB, [I cannot] as my hands and eyesight [preclude me from doing so]".*

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

According to Tran et al. (2016), practically can be derived from applying practical knowledge and getting direct experience. This experience greatly helps to improve the service 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 of increasing engagement with mobile banking apps. For example, Customer 34 said, *"I am aged, and I could not find [an] option where I can adjust text and colour [to suit] 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 service option that can give me access to my native language [or a] comfortable text format".* Some customers shared that they have faced issues of both poor internet speed and slow reaction time of commands on mobile banking apps; 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".*
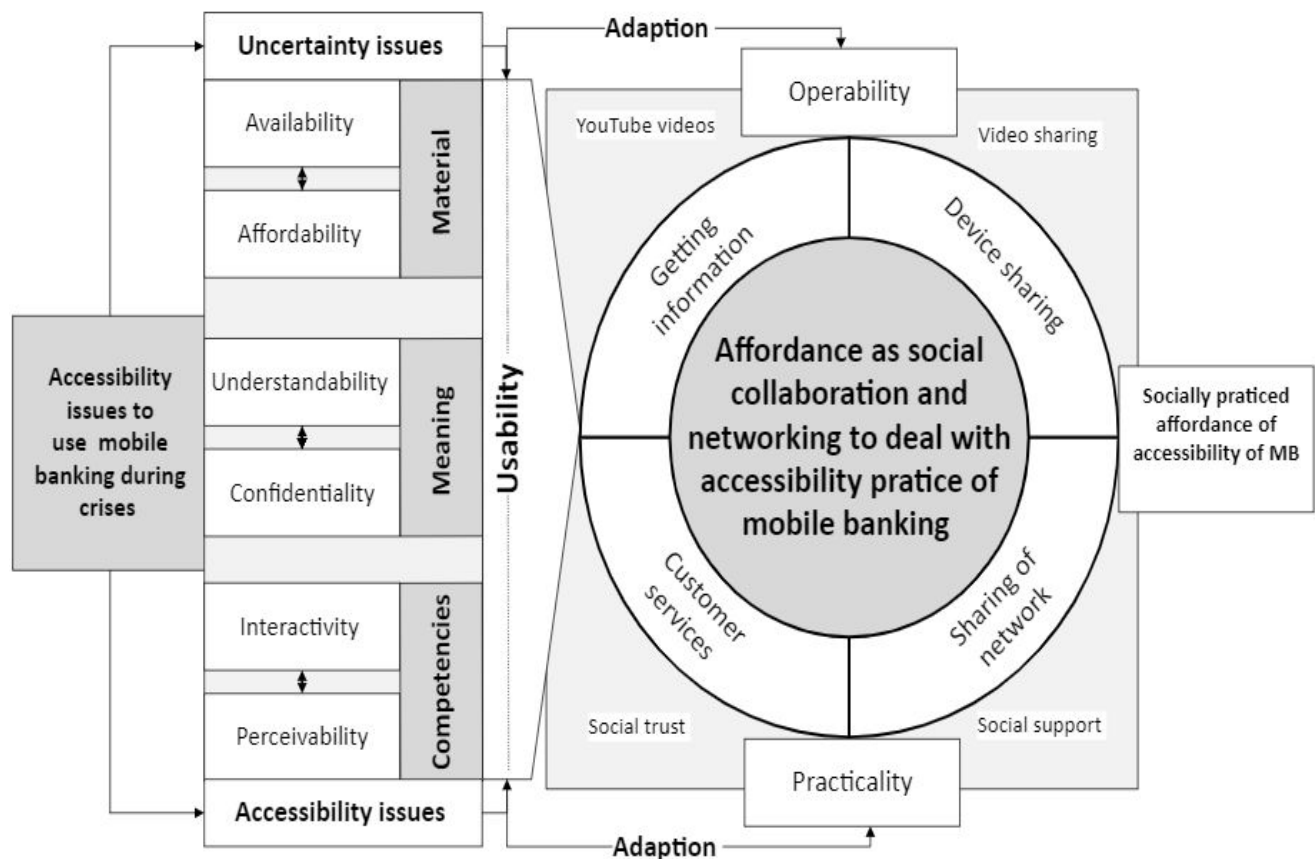
Discussion and theoretical contribution

We answered Jebarajakirthy and Shankar's (2020) call for the inclusion of people from younger and older age groups, men and women, educated and uneducated, and rural and urban areas to provide an in-depth and rich understanding of the adoption of mobile banking. The results reveal that some vulnerable people have competencies, 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 competencies, adapt to material. For example, people shared that although they have the skills to use mobile banking, they either cannot afford a smartphone or think that smartphones lead to time wasting; however, the fearful environment created by the COVID-19 pandemic forced them to avoid using ATMs as they are not a risk-free social practice during this outbreak. Therefore, they used their close friends' and partner's material (e.g., smartphones) 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 created by the 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 competencies. 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 cultivate an understanding among targeted populations of how they can use mobile banking, which is the best and safest banking option for vulnerable populations. 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 has highlighted that the education and awareness levels of different people in developing countries differ; therefore, their experiences are useful for developing

mobile banking culture (Shaikh and Karjaluoto, 2015). The uniqueness of this study is that it provides an understanding of 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 a canonical definition of affordance of accessibility issues of mobile banking as social collaboration and networking involve essential elements of social practices (e.g. device sharing, internet sharing, co-operation, sharing knowledge through videos, and helping the disabled) as committed parties; though there are limits to collaboration, for example with confidentiality issues, both the collective efforts to keep safe, and the differences and mutual benefits of families and friends facilitate mobile banking as a social affordance practice. The findings indicate that

social collaboration and networking towards associated with mobile banking use involves the practices of expanding knowledge, sharing devices, and networking by making connections with customers that have similar interests. Both the lenses of social practices and affordance interpretations imply the socialization process of the adoption of mobile banking involving participating parties, competency building, material sharing, and building new meanings of mobile banking through socially 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 social collaboration and networking) is exemplified by the social bonding among mobile banking users, which is named as social affordance building of individuals through the sharing of material and competencies which develop new meanings. The physical periphery of accessibility of mobile banking includes the threshold of existing material and competencies that leads to social collaboration, which is based on social trust and a socially supportive environment. This research restricts the definition of accessibility to users' competencies and the required material to afford mobile banking, where users develop their own sense of mobile banking meanings. The social collaboration and networking move beyond the limit of existing material and competencies and reach out to the larger ulterior role of social affordance to develop new meanings 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 circles about the material required for mobile banking use as they wanted to protect their working environment and customers, as well as cultivate understanding among targeted population regarding how they can use mobile banking, which is the best and safest banking option for vulnerable populations. 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.

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Despite vulnerable populations of developing countries facing issues that include poor eyesight, literacy, internet connections, 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), and 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 helps users to attain their MB banking goals. Furthermore, the addition of audio speaking functions, translation of English into native local languages, and better visualization (e.g., more easily readable text) are some of the aspects that can enhance the affordance of MB banking, especially for vulnerable populations. On the other hand, major constraints include the lack of internet speed, loadshedding, and lower levels of awareness and skills, all of which can negatively influence the engagement of MB users.

Implications for retail bankers
From in-depth discussion and the arising theoretical implications, this study has identified various implications for retail bankers that can help to improve MB services, especially during public crisis situations. 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 relatively new in Pakistan, retail bankers should focus on improving the customization of services and personalization options for vulnerable people to reduce operational costs. It is suggested that retail bankers should provide more options for the elderly to be able to adjust the app to the requirements of their eyesight and for ease of reading. Furthermore, it is suggested that retail bankers should improve the service quality and performance of mobile banking apps by considering the recommendations of disability experts and elderly people's experiences. English is not the native language of many vulnerable people; therefore, retail bankers should also provide options to translate text into local languages. There is a need to develop standards to check service performance and accessibility of mobile

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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 populations.

Mobile bankers should create pressure on governments and consult with telecommunications companies with the purpose of creating 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 test how fear appeals through the health sector influence consumer behaviour towards technology adoption for various sectors, such as retail banking, supermarkets, tourism, and the fashion industry. Furthermore, a combination of both qualitative and quantitative methods could be used, as this can offer thicker interpretations, and the results can be generalized to larger populations. Future studies could collect data from experts in the fields of disability and gerontology 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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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
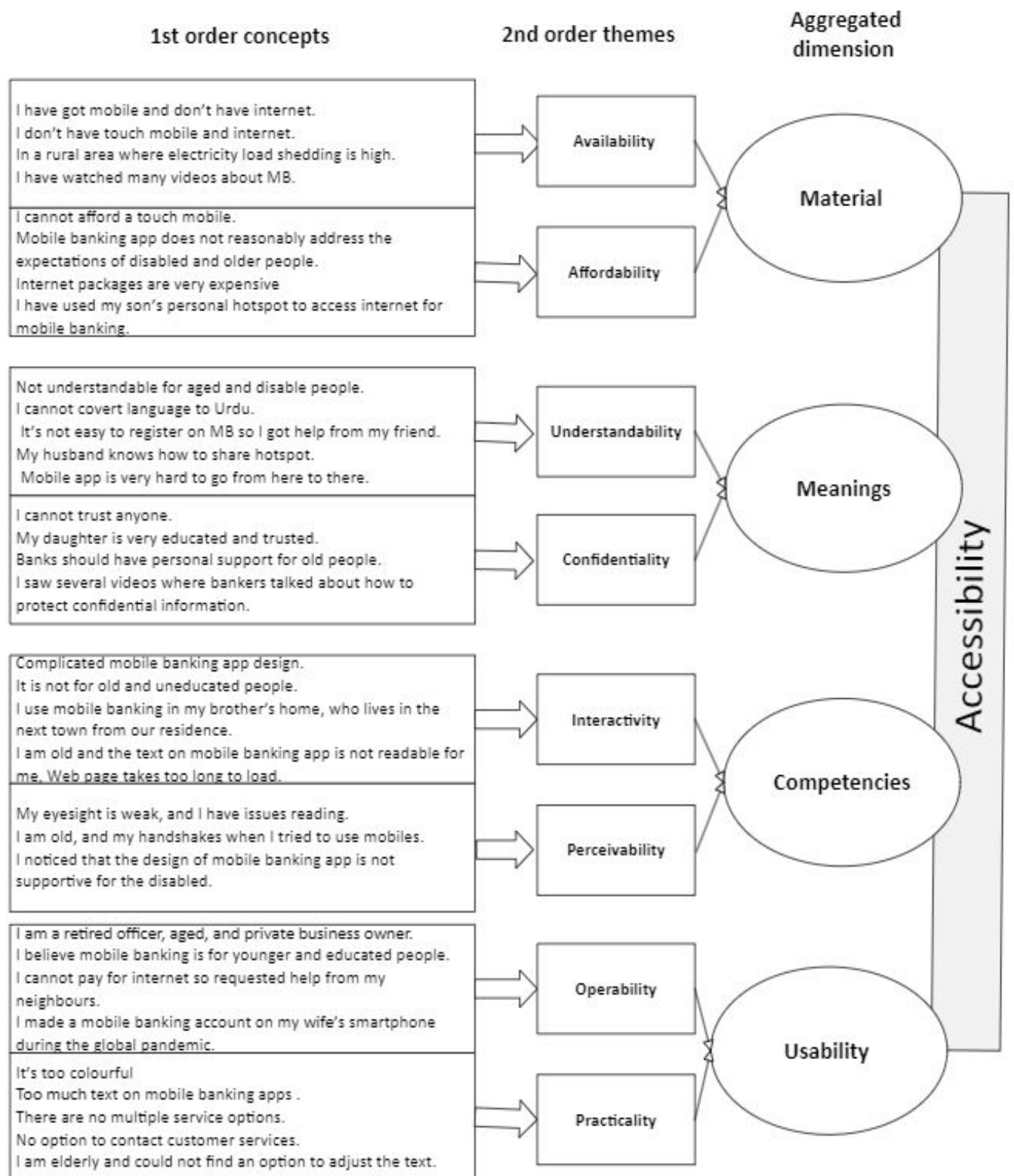
Reviewer: 1

Comments:
- The questions that I had in mind (knowing that there are 5 previous versions of the paper) as I was reviewing the paper are: did the authors achieve the aim that they set for their research" and "does this research contribute to the advancement of the discipline". Unfortunately, my conclusion is that the authors fell short both theoretically and empirically of achieving my concerns, although the subject is interesting. The research is not original.

Response:

Many thanks for your time and valuable feedback that really helped us to further improve this study. First, we want to address your concern regarding five revisions for this paper. Out of five revisions, four revisions are initiated for basic changes (given by editorial office) such as using of &, or highlighting the text, or greater number of words. Although we have already published in this journal and other two and three-star ABS listed journals of emerald, but we are still at learning phase and not fully well aware about these editorial changes which are different for different journals. Therefore, you have seen number of revisions. Until now, we received only one revision from respected reviewers. In that revision, one reviewer accepted the paper while other one suggested the revision which we submitted accordingly. Please review the highlighted text, we have tried our best to address each concern.

We have given most of data in response of your comments as the editorial office may did not allow us to highlight the addition which can raise challenge to search and read for you. Thank you.

Comment 1:
- In the purpose (abstract) "This study offers an understanding vulnerable populations' experiences of actual use of mobile banking and their expectations of mobile banking" which is not true based on what is written in the paper.

Response:

Thank you. Initially we submitted this paper above 10000 words but as this journal word count did not allow us therefore, we have omitted enough data from findings section and only provided very essential and different quotes.

There are many participants in this study who showed us medical report and their national IDs where we found that they are included in vulnerable population, and we followed the following definition of WHO to conduct this study. "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 (WHO, 2021)". We cannot reveal their personal medical histories or other important information that can help to trace vulnerable population identities as we followed the given guidelines of anonymity and confidentiality (Wiles et al., 2008).

Please see page number 13 to 18 where you specifically find the direct and indirect quotes related to vulnerable populations' experiences of actual use of mobile banking and their expectations of mobile banking. Also, please see page number 22 and 23 where specially the expectations of vulnerable people for MB use are discussed. Some of the quotes, we have given here as editorial office may not allow us to highlight the data:

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.

Customer 38 stated "although mobile banking is useful but not useful for aged and disable people even when they can afford the technology".

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".

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".

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".

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".

Comment 2:
- English proof editing is needed (specifically for the translation of respondent's answers).

Response:

Thank you. We have taken the services of native language expert of UK who has reputation and good experience. We have proof readied again the whole manuscript and respondents' answers.

Comment 3:
- The paper demonstrates an adequate understanding of the theory of affordance. Affordance of mobile banking is not the theory of affordance

Response:

Please see the page number 22 where the support of theory of affordance is justified in the context of this study. We did not allow to highlight any text in main document therefore we are pasting all the data here for your ease. Please see the below given paragraph for your review:

The findings of the research tried to develop a canonical definition of affordance of accessibility issues of mobile banking as social collaboration and networking involve essential elements of social practices (e.g. device sharing, internet sharing, co-operation, sharing knowledge through videos, and helping the disabled) as committed parties; though there are limits to collaboration, for example with confidentiality issues, both the collective efforts to keep safe, and the differences and mutual benefits of families and friends facilitate

mobile banking as a social affordance practice. The findings indicate that social collaboration and networking towards associated with mobile banking use involves the practices of expanding knowledge, sharing devices, and networking by making connections with customers that have similar interests. Both the lenses of social practices and affordance interpretations imply the socialization process of the adoption of mobile banking involving participating parties, competency building, material sharing, and building new meanings of mobile banking through socially 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 social collaboration and networking) is exemplified by the social bonding among mobile banking users, which is named as social affordance building of individuals through the sharing of material and competencies which develop new meanings. The physical periphery of accessibility of mobile banking includes the threshold of existing material and competencies that leads to social collaboration, which is based on social trust and a socially supportive environment. This research restricts the definition of accessibility to users' competencies and the required material to afford mobile banking, where users develop their own sense of mobile banking meanings. The social collaboration and networking move beyond the limit of existing material and competencies and reach out to the larger ulterior role of social affordance to develop new meanings as social practices.

Comment   4:
- The authors should choose one concept because the concept of "Availability" = "interactivity" = "Affordance".

Response:

Thank you. we strongly believe after reviewing the in-depth literature and findings of this study, there is no need to choose to one concept when there are significant differences among it. For example:

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.

Affordance is all about the inexpensive ways that create technology fit for customers when they really need it. Affordance can be attainted through social sources, such as family and friends, who help to create the affordance of mobile banking. For example, "I cannot afford smart phone as it is very expensive for me, so I take help of my trusted close friend for mobile banking".

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.

Comment 5:
- The concept of "understandability" = all information is redundant. For example, the problem of the English language is present also in the concept of "operability" and internet availability in the concepts of "interactivity" and "availability" and "affordance".

Response:

Many thanks. Thank you. We have taken the services of native language expert of UK who has reputation and good experience. We have proof readied again the whole manuscript and respondents' answers.

Comment 6:

- The definition of "Practicality" is not true.

Response:

Please review the definition in the light of existing literature:

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. For example, 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.

Comment 7:
- The word ability in figure 1 is upside down.
- Some of the concepts lack either definition or further elaboration.

Response:

The word "operability" in figure 1 is now corrected.

Please revisit the findings and definition from page 13 to 18. We have thoroughly improved the understanding of this section. Thank you.

Comment 8:

- I did not see enough theoretical use within the literature review section. They have superficially mentioned social practice theory and affordance of technology theory (knowing that the latter is not appropriate as mentioned above) which were not delved deeper.

Response:

Although we have only 8000 words limit for this journal, therefore we have summarized both theories in table so that you can find the crux of both theories easily. Please see appendix 3 or below given table. Please also see the page number 04 and 05 where there is further elaboration of major theoretical concepts are discussed in the context of this study. Thank you for your time and feedback.

Appendix 3: Social practice theory (SPT) 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.

Comment 9:

- The use of internet banking is very confusing since the focus is on mobile banking.
- The theoretical and managerial implications of the study need to be highlighted.

Response:

Thank you, although there are few references from internet banking which provides relevant understanding, but we are strongly focused on MB and you will not find anything on internet banking.

We did not allow to highlight any text in main document therefore we are pasting all the data here for your ease. Please find the theoretical and managerial implications:

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 circles about the material required for mobile banking use as they wanted to protect their working environment and customers, as well as cultivate

understanding among targeted population regarding how they can use mobile banking, which is the best and safest banking option for vulnerable populations. 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, accessibility 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.

Reviewer 2:

Comments:
Dear authors, thank you so much for your effort to write this paper. I really hope my suggestion could be fine for you in order to improve your work. Good Luck! The paper is very interesting and the argument quite new. moreover the paper contain new and significant information

Response:

Many thanks for your appreciation and the feedback given for improvement. We are thankful to all anonymous reviewers and editor of this journal as their expertise really helped us to improve this study. The highlighted green text is for your review.

Comment:

But could be a good idea when mentioned the augmented reality to put a reference about if. For example by using a reference from this journal such as: Caboni, F. and Hagberg, J. (2019), "Augmented reality in retailing: a review of features, applications and value", International Journal of Retail & Distribution Management, Vol. 47 No. 11, pp. 1125-1140. https://doi.org/10.1108/IJRDM-12-2018-0263
Then another suggestion is to introduce two different sub paragraphs related to the covid- 19 and mobile

banking; and a second one to the vulnerable populations' experiences of actual use of mobile banking and their expectations of mobile banking

Response:

Thank you, we have followed your given recommendations. We are facing limit of 8000 words therefore we have extracted lot of data from this manuscript.

Please see page number 04 and 05 for suggested study. We are pasting some text here as we are not allowed to highlight the text which may create difficulty for your to search and read.

However, this can also create more opportunities for marketers to use advanced marketing techniques by deploying interactive technologies to increase awareness and address consumer needs and wants (Caboni & Hagberg; 2019; Nabity-Grover *et al.*, 2020).

A there is limited literature with respect to Covid-19 and mobile banking. Therefore we have provide in-depth understanding how the presence of Covid-19 increased the use of interactive technologies. We did not allow to highlight any text in main document therefore we are pasting all the data here for your ease. Please read the below given paragraphs.

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.

There is limited studies available on vulnerable population and mobile banking that's why this is the pure contribution of this study. However, please find some of understanding which is disused in introduction section.

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.

Comment:

The methodology is really reach. But sometimes it is a little be difficult to understand. So, my suggestion is to write again the methodology in the best possible way by paying attention to the readability. In that way readers have high possibilities to understand exactly what you did. In some parts of the description is really difficult to clear understand the focus of the methodology and consequently understanding its meaning.

Response:

Thank you. As we are facing word count limit. However, we have provided the research process figure in which we tried to summarize the whole research process of this study. We are hopeful that these new addition of figures really help the read to get crux of this study.

Comment:

My suggestion is suggestion is to introduce a brief introduction to the results before the table 1. Otherwise it is difficult to understand the real focus of the result section

Response:

Thank you. We are facing word count limit therefore we have provided the thematic analysis process figure in which we have provided the crux regarding the overall findings of this study. Please review the figure.

Comment:
The implications for retailers bankers is interesting and clearly identified. could be a good idea to connect with conclusion in the previous section.

Response:

Thank you. We did not allow to highlight any text in main document therefore we are pasting all the data here for your ease. Please revisit it as we have improved it again.

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 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.

Comment:
My suggestion is to revise the English in order to perform the work and improve its readability.

Response:

Thank you. We have taken the services of native language expert of UK who has reputation and good experience. We have proof readied again the whole manuscript and respondents' answers. Thank you for your valuable time and feedback.

Reviewer: 1

Comment 1:
please see the attached document.
This is a terrific topic. Mobile banking is important to almost (if not all) countries.

Response:

Many thanks for your appreciation and the feedback given for improvement. We are thankful to all anonymous reviewers and editor of this journal as their expertise really helped us to improve this study. The highlighted green text is for your review.

Comment 2:
The authors do a very nice job at the review of literature. I particularly like the introduction.

Response:

Thank you for your appreciation.

Comment 3:
They didn't take the "easy" route for data collection. The methodology was well thought out.

Response:

Thank you for your appreciation.

Comment 4:

Do the conclusions adequately tie together the other elements of the paper? The results are clearly presented.

Response:

Thank you.

Comment 5:

The implications can be used for any bank. This manuscript is very good.

Response:

Thank you.

Comment 6:

Very good.

Response:

Thank you. Many thanks for your time and appreciation.