

Naeem, Muhammad, Ozuem, Wilson ORCID: <https://orcid.org/0000-0002-0337-1419> , Howell, Kerry and Ranfagni, Silvia (2022) Understanding the process of meanings, materials, and competencies in adoption of mobile banking. *Electronic Markets*, 32 . pp. 2445-2469.

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Understanding the adoption process of meanings, material, and competencies of mobile banking

Muhammad Naeem, Wilson Ozuem, Kerry Howell and Silvia Ranfagni

Abstract

COVID-19 has changed the way people live, bank, shop, and work by moving them toward digitalization. It has also driven the trend toward a cashless society, and this change has taken place in an increasingly uncertain and fearful environment. This study explores the social practice of mobile banking (MB) adoption during the global COVID-19 pandemic. Data were collected from banking customers and managers using online customer reviews, semi-structured interviews, and focus groups to develop an in-depth understanding of the subjective realities of their use of MB. This approach also ensured that social distancing practices were maintained during interviews conducted during the COVID-19 outbreak. Analysis of the data suggests that social media, social circles, family members, and teams of customer service agents play an important role in developing the social practice of MB. This study culminates in the presentation of the social practice of MB adoption (SPOTA) framework. This framework is based on extended social practice theory in the context of MB adoption. The study discusses the practical implications of the findings for systems developers. The many expectations of people with or without disabilities of MB are discussed and the findings could be used to improve the accessibility and habitual practice of MB adoption.

Keywords: social media, accessibility, mobile banking, technological features, adoption, context and situation, and social practices.

Introduction

The impacts of COVID-19 on business are not easy to understand. The frequency of digital transactions has increased throughout society, business, and the economy (Verma & Gustafsson, 2020; Seetharaman, 2020), and COVID-19 prevention measures have led to an increase in routine practices being conducted online (Papadopoulos et al., 2020; Wendt et al., 2021), such as shopping, banking, and working from home. The physical threat of COVID-19 has increased social distancing and stay at home practices, which has increased the usage of mobile banking (MB) to manage routine transactions. According to a Federal Bureau of Investigation report, online banking usage was 50% greater in the USA during the first two quarters of 2020 compared to the first two quarters of 2019 (Lake, 2020); in Egypt and the Middle East, online banking usage increased by 30% and 35%, respectively, during the first two quarters of 2020 (Al-Siqilli, 2020). In the UK, it was reported that online banking transactions increased by 51.5% during March 2020 because there was panic buying in UK supermarkets (Collinson, 2020). Additionally, the use of ATMs for routine transactions decreased globally by approximately 80% during the COVID-19 pandemic (Gueriane, 2020). These statistics highlight that COVID-19 has moved our world toward a cashless society, which has various benefits such as tax transparency, lower street crime, greater convenience, and better hygiene (Gueriane, 2020). Due to the high use of interactive technologies, retail banking has been transformed over the past few years (e.g., the adoption of electronic markets), which has impacted customers' experiences and the finance industry (Alt & Puschmann, 2012; Pousttchi & Dehnert, 2018). Although the benefits of using MB have been demonstrated, some studies highlighted that the adoption of MB is lower in developing countries and its development in developing countries is a challenge for companies (Alalwan et al., 2018; Thusi & Maduku, 2020). However, COVID-19 seems to have changed this trend, accelerating the adoption of MB in developing countries (Al-Siqilli, 2020; Gueriane, 2020). This paper explores the recent increase in the social practice of MB in developing countries despite low levels of awareness of MB and strong concerns about the security and safety of MB in a developing country.

This study selected the context of Pakistan because it has a comparatively low literacy rate of 58% among developing countries (Pakistan Literacy Rate, 2022) and limited health care facilities,

which increased people's desire to adopt MB in the fearful environment of the COVID-19 pandemic. According to Hassan and Wood (2020), limited education, limited income, and changing consumer perception are common in developing countries, which can influence intention to adopt MB. The social practices of MB in developing countries differ from practices in developed countries because they are strongly linked with the language, experience, education, technological know-how, culture, and social background of the different social actors. In addition, the recent study of Jebarajakirthy and Shankar (2021) described concerns about changes in consumer behavior due to technological advances in the MB sector; therefore, findings on MB adoption behavior cannot be replicated in different cultures and contexts. For example, a lack of education, income, and limited awareness of MB are some of factors that can negatively influence the social practices of MB, even in a pandemic situation. Therefore, this study is focusing on the social practice of MB adoption during the global COVID-19 pandemic.

The low rate of MB adoption in developing countries is due to high levels of resistance (Mohammadi, 2015), perceived risk and uncertainty avoidance (Alalwan et al., 2018; Chauhan et al., 2019), a lack of self-efficacy (Roy et al., 2017), high cybercrime rates and low security (Naeem, 2020), and poor awareness (Asongu & Nwachukwu, 2018; Rahi et al., 2019). Although the adoption and use of MB can be considered to offer some protection from physical, social, and psychological threats during the COVID-19 pandemic, most existing models of technology adoption highlight that MB itself is perceived as risky in developing countries (Alalwan et al., 2018; Chauhan et al., 2019; Sharma et al., 2020; Sharma, 2019). Therefore, present study aims to develop a holistic research framework, which is based on social practice theory (SPT), and which conceptualizes the social practice of MB adoption.

Most of previous studies sought to investigate MB adoption from a positivist approach in which MB is seen as a dualistic, objectively measurable, and static process. On the other hand, Choudrie et al. (2018) suggested that qualitative methods could be useful to get an in-depth understanding of unexplored factors that can play a role in the adoption of MB. Furthermore, Tarhini et al. (2015) proposed that future studies could use a triangulation method, collecting data from different sources and from a relatively large population, to find the factors affecting MB adoption in developing countries (see Appendix 1 for a summary of a review of the literature on MB adoption).

Therefore, this study approaches MB adoption as a pluralistic, subjective, and dynamic phenomenon: different emerging related realities can clarify our understanding of the social practice of MB. More specifically, in this study, the social practice of MB adoption is explored from a subjective perspective based on a social constructivist epistemological position, whereas previous studies have mainly examined social practices from value co-creation, organic food consumption, and consumer perspectives (Dolan et al., 2019; Fifita et al., 2020; Seo & Buchanan-Oliver, 2019). The current study explores the multiple realities of the social practice of MB adoption during uncertain times that are defined by insecurity and high risk as a result of the global pandemic. This perspective allows researchers to understand how various social actors acquire knowledge, skills, and information in order to successfully adopt MB during the COVID-19 pandemic. This study is the first to offer empirical evidence about the social practices of technology adoption in the banking industry in Pakistan. So far, there has been little understanding of how the development of the social practice of MB is linked to the language, experience, education, technological know-how, culture, and social background of the different social actors. Some studies highlighted that there is resistance to the adoption of advanced technologies in developing countries (Tchamyau et al., 2019), whereas other studies (Thusi & Maduku, 2020) pointed out that there is limited research in these countries on how MB adoption varies among people of different cultures (Choi et al., 2020; Picoto & Pinto, 2021). This study intends to fill this research gap by exploring MB adoption as a social practice in a developing country.

This study aims to offer a holistic research framework, which is based on social practice theory (SPT) and the analysis of data collected from multiple sources using multiple research methods, which conceptualizes the social practice of MB adoption. The following research question was proposed for this study: In what ways has the COVID-19 outbreak encouraged the social practice of MB adoption in a developing country?

Literature review

Comparison of MB adoption in developing and developed countries

Many studies have highlighted the determinants of online banking for developing countries where the internet banking adoption rate is very low, such as perceived usefulness and compatibility (Giovanis et al., 2019), price value, hedonic motivation, effort expectancy, performance expectation (Alalwan et al., 2018), self-efficacy, ease of use, usefulness (Alalwan et al., 2016), social influence through social media (Naeem, 2020), structural assurance and perceived credibility (Priya et al., 2018), and perceived financial cost and computer self-efficacy (Singh & Srivastava, 2018). The relationship between customer expectation and actual experience varies between people as well as developed and developing countries; so, more research is required to further explore mobile banking challenges (Malaquias & Hwang, 2016). For example, it is found that loadshedding, poor internet services, expensive internet services, lack of IT infrastructure, and lack of income is common challenge of developing countries as compared to developed nations (Akhlaq & Ahmed, 2013; Tarhini et al., 2015) that can negatively influence the motivation to use MB. According to MacGregor and Kartiwi (2010), there is high negative perception in the adoption of e-commerce technologies in a developing country as compared to developed nation. The developed countries are the early adopters of electronic commerce technologies such as electronic branding, e-payment system, electronic marketplaces, supply chain transformation whereas developing countries are still struggling to get full benefits of e-commerce technologies due to personal, social, cultural, technological, and infrastructure challenges (MacGregor and Kartiwi, 2010; Travica, 2014).

Various studies have highlighted that developing countries face more challenges in the adoption of online banking compared to developed countries, such as uncertainty avoidance and power distance (Yuen et al., 2010), lack of perceived security (Susanto et al., 2013), low information and intention for use (Sharma et al., 2017; Naeem, 2020), perceived risk (Alalwan et al., 2016, 2018; Giovanis et al., 2019; Singh & Srivastava, 2018; Priya et al., 2018), privacy risk and social risk (Roy et al., 2017), lack of awareness (Shankar et al., 2020), and high cybercrime attack rate and distrust (Naeem, 2020; Shankar & Jebarajakirthy, 2019). “The differences between developed and developing countries (such as available infra-structure, social and cultural issues) invariably leads to the conclusion that findings derived from developed countries cannot be generalized to

developing countries” (MacGregor& Kartiwi, 2010; p.62). The longer waiting time during the use of online banking can negatively influence the customers expectation and decrease the motivation for future use (Demoulin & Djelassi, 2013). However, there is evidence that online banking adoption increased across developing countries during the Covid-19 pandemic (Dahl et al., 2020). Therefore, this study intends to explore in what ways has the COVID-19 outbreak encouraged the social practice of MB adoption in a developing country.

There are studies on the intention to adopt MB and what is required to increase intention to adopt MB in developing countries (Alalwan et al., 2018; Al-Siqilli, 2020; Gueriane, 2020; Geebren et al., 2021; Thusi & Maduku, 2020). Naeem and Ozuem (2021) explored how fear appeal during a crisis situation can influence online banking adoption behavior, particularly in the context of developing countries where the health crisis situation is severe. They found that few studies reported people’s actual experiences of MB, particularly in the fearful environment of COVID-19 when in-person banking posed a risk. The first stream of research used the technology acceptance model (TAM) and highlighted that perceived cost, perceived compatibility, perceived risk, and perceived usefulness can predict MB adoption intention (Ha et al., 2012; Hassan & Wood, 2020; Marakarkandy et al., 2017; Patel & Patel, 2018; Sharma, 2019; Tam et al., 2020). However, this study is not only focusing on perceptions of MB but also explores actual experiences of MB. The second stream of research used unified theory of acceptance and use of technology (UTAUT) and found that perceived risk, perceived value, hedonic motivation, effort expectancy, performance expectancy, facilitating conditions, mass media, and trust can increase MB adoption intention (Alalwan et al., 2018; Choudrie et al., 2018; Gharaibeh et al., 2018; Jadil et al., 2021; Tarhini et al., 2016). Developing countries like Pakistan have high digital illiteracy, a vulnerable population (older and illiterate people), lack of technology infrastructure, and low income (Naeem et al., 2022) that can negatively influence the social practices of MB. However, it was recently reported that the use of MB increased by 41% during the COVID-19 pandemic in Pakistan (Ahmed, 2020); therefore, it would be interesting to explore how the health crisis during the COVID-19 pandemic led to increased awareness of, and resources for performing, the social practices of MB in Pakistan.

There are many studies which have used the quantitative methods for data collection in the context of online banking adoption in developing countries (Abbasi et al., 2017; Akhlaq & Ahmed, 2013; Rahi et al., 2019; Rahi et al., 2020). However, there are some common limitations of quantitative methods such as it is unable to provide in-depth understanding about the context as well as findings cannot provide understanding about the complicated issues (Morse, 2016). Furthermore, the study of Morse (2016) highlighted those qualitative methods allow the research to develop a theory/framework using the inductive reasoning approach. Shankar et al. (2020a) advised researchers to use multiple qualitative methods to explore whether the service quality of MB influences the rate of adoption of MB. Furthermore, they highlighted that the selection of qualitative methods allows the researcher to get in-depth understanding about the features of MB and consumers' perceptions of MB vary among developing countries, which is why the results of studies of MB adoption are dependent on culture and context (Shankar et al., 2020b).

The selection of qualitative method aligned with constructivist approach as this study uses a constructivist approach that incorporates a relativist ontological and subjective epistemological position. For relativists, multiple realities exist that are constructed by human beings. Relativists argue that the different ways reality is experienced by human beings largely depends on their social existence in terms of class and ethnicity, and this defines perception and interpretation (Boghossian, 2006; Goertz & Mahoney, 2012). Howell and Sorour (2016) considered that a constructivist position identifies ideological perspectives relating to knowledge generation and accumulation about context and culture. Consequently, this study adopts a constructivist ontological position in order to better understand how people perceive and interpret information about exploring MB adoption as a social practice in a developing country.

Social practice theory (SPT)

SPT provides comprehensive descriptions about the social world. However, SPT is not a "single" theory (Schatzki, 2001; Nicolini, 2012), but a sum of accounts of how social life works, with social practice at its center (Schatzki, 2001). There are different definitions of social practice. As described by Schatzki (1996), social practice is a spatially dispersed and temporally unfolding nexus of both sayings and doings. Schatzki (1996) and Warde (2005) described the composition of social practice as something that involves not only practical activity but also representations.

Despite identifying three components of social practice (engagements, procedures, and understandings), Warde (2005) did not provide comprehensive details about the motivations behind them. Reckwitz (2002) and Shove et al. (2012) more recently proposed three key elements of a social practice: competencies, meanings, and materials. They explained materials as tangible physical bodies: things, stuff or objects, and technologies. Competencies refer to techniques, individual skills, and know-how, whereas meanings encompass aspirations, ideas, and symbolic meanings. The current study will use these three components with the objective of developing an integrated holistic framework of the social practice of MB adoption during the COVID-19 pandemic.

The study on social practices by Jin et al. (2020) is also relevant here as they stated that: materials include communications, physical body, information, and technology; competencies identify specific skills and knowledge that are useful for achieving the technology user's goals; and meanings are significances, purposes, and beliefs that can develop a user's motivation and understanding to attain specific goals. They highlighted that these three components are interconnected; the availability of mobile technology together with the skills and abilities to use it can stimulate individuals to exercise the social practice of online shopping. Furthermore, Reckwitz (2002) explained practice as "a routinized type of behavior which consists of several elements, interconnected to one another: forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge" (p. 249). Therefore, on the basis of this interconnectedness, in providing a holistic framework for conceptualizing the social practice of MB adoption, this study focuses on how material is adapted to meaning, how material is adapted to competencies, and how meaning is adapted to accessibility during a global pandemic.

Studies on information systems, such as ecosystem adoption, sustainable design, and peak electricity demand, have used SPT to examine the actual experiences, based on socially constructed knowledge, of technology users (Kuijer, 2014; Nysveen et al., 2020; Strengers, 2013). The current study used SPT to link people's actual experiences with respect to meanings (motivation to use MB and usefulness of MB during COVID-19), material (how vulnerable and

non-vulnerable people adapt MB systems during COVID-19), and competencies (how knowledge, skills, and learning are transferred during the social practice of MB during COVID-19). Furthermore, this study will explore how a crisis situation can motivate people to develop the social practices of MB, even when they do not have the resources or competency to perform MB.

The factors utilized in the current research – material, meaning, and competence – were influenced by the research conducted by Ropke (2009) and Shove and Pantzar (2012). For example, the material element of SPT provides understanding about customers who have physical disabilities explained how they had taken help from their social sources to use MB. The exchange of meanings refers to individuals sharing their knowledge, beliefs and values, which motivates others to learn and use MB during Covid-19 outbreak. People pursue different activities and concerns and thereby they become aware of different possibilities about arrangements and actions concerning different practices (Dreier, 2008), such as the social practice of mobile banking during a pandemic. This research utilizes SPT in the context of the social practice of mobile banking by those in vulnerable populations to gain insight into the accessibility of mobile banking. The underlying assumption, in line with SPT, is that diverse structures of different practices provide both hurdles and opportunities to people in relation to the adoption of such practices (Morck and Huniche, 2006). Applying a social practice approach, we investigate the conditions peculiar to the life and situation of those in vulnerable populations, who form the subject of the study in the context of the use of mobile banking during a pandemic.

The involvement of an individual in a social practice for a particular time period yields practice traces, such as the social acquisition of skills, knowledge, and materials (artefacts). Alignment between the components of materials, competencies, and meanings determines the seamlessness of MB adoption behavior during the COVID-19 pandemic. Therefore, we build on and extend extant studies by examining how these three elements cohere when materials are scarce and some people may not have the necessary skills to adopt MB during a global pandemic. If there is high coherence in an individual's behavior, then it is likely that they will continue to reproduce the behavior as a MB user in future. We also extend the literature by examining how streams of social media interactions during the COVID-19 pandemic led to the transfer of knowledge and skills that could enhance the social practice of MB during the pandemic.

Methodology

Constructivist epistemology incorporates “relativist realism,” by which multiple realities are constructed through shared understandings and interpretations of social and cultural factors. Reality depends on constructions which “are not more or less true in any absolute sense but simply more or less informed or more sophisticated. Constructions are alterable, as are their associated realities” (Guba & Lincoln, 1994, p. 111). Knowledge is constructed through “continual interaction and modification of constructions in a social environment (Howell, 2013, p. 91). In this way, constructivist knowledge generation occurs when researchers interact with respondents, and outcomes are produced through individual perceptions, experiences, and consensus. Reality is not only locally constructed but is also based on shared experiences. Furthermore, a constructivist epistemology focuses on understanding the meanings that language and discourse embody in terms of social existence, and knowledge is considered to be socially created in specific social contexts (Griffith, 2018).

According to Guba and Lincoln (1994), the constructivist approach highlights the dialogical and multi-voiced nature of “final interpretive theory,” which is developed through native and local interpretations. It articulates what these native interpretations contain (Guba & Lincoln, 1994). In addition to providing in-depth insights about the social interpretations of people, the constructivist approach offers a better understanding of cultural and social contexts. Since this paper aims to understand the social practices involved in MB, a social constructivist approach provides a compatible philosophical position and a viable methodological approach to pursue.

Methods of data collection

Recent studies have explained the importance of multiple qualitative methods that allow the researcher to gather rich insights from different sources that increase the overall trustworthiness of the results of qualitative studies (Boujena et al., 2021; Lim et al., 2021; Naeem & Ozuem, 2021; Naeem et al., 2022). On the basis of the constructivist approach and to enable triangulation, this study uses three methods to collect data from different sources. These are: 1) online reviews, 2) semi-structured interviews (with customers of private banks and public banks), and 3) focus groups (with public bank and private bank managers). Using these three data collection methods, data

were obtained across seven months. These methods were used to generate in-depth insights into MB as a social practice, so that attitudes toward MB can be improved.

To obtain online reviews, the banking apps of the Bank of Punjab, the National Bank of Pakistan, Habib Bank Limited, and United Bank Limited were selected, as these are well-recognized banks in Pakistan that provide online banking. The selection criteria for online reviews were seen as very important. These MB apps were selected due to their substantial online customer bases and the volume of reviews posted about both the benefits and issues of MB. A total of 247 online reviews were downloaded from four MB apps of public and private sector banks using Heedzy. Saunders et al. (2018) proposed that researchers should stop collecting data when repetition of experiences and thoughts starts to occur; in other words, when researchers reach the point of data saturation. Among the 247 available online reviews, 114 reviews were excluded due to their irrelevance to the topic. In addition, 40 online reviews were discounted because they were in neither Urdu nor English. The remaining 93 online reviews that met the criteria of being understandable, relevant to the objectives, unique, and that avoided repetition were selected. These online reviews are discussed in the Results section. The content of more than 50% of the remaining online reviews described social experiences or improvements (such as accessibility, competencies, material, and meaning) that were sought by MB customers.

The use of online reviews as data meant that the researcher played the role of an outsider. However, the researcher can also be seen as an insider when conducting focus groups and interviews with bank managers and customers. This combination of roles allowed a better understanding of the experiences and expectations of customers in relation to MB during the COVID-19 pandemic. Online reviews were used with the aim of understanding customers' experiences with online banking in order to develop appropriate interview questions.

Semi-structured interviews were undertaken with bank customers, since interviews not only facilitate discussion, but also encourage participants' engagement with the research process. This study attaches value to the real experiences of customers as a reflection of the different realities around MB. The interviews were designed taking into account the extensive literature on MB adoption in developing countries (Alalwan et al., 2018; Al-Siqilli, 2020; Gueriane, 2020; Geebren

et al., 2021; Thusi & Maduku, 2020). The reviewed literature on developing countries provided understanding of what would be suitable interview questions that could help to achieve the proposed aim of this study. Furthermore, data from the online reviews also provided information about the social practices of MB and what topics needed further exploration.

According to Nuttavuthisit (2019), researchers should conduct focus group interviews to get easy access to opinions and the life stories of people in a particular situation. Focus group interviews are useful when there is a need to handle any discourse in which images are reproduced continuously as “Other” (Madriz, 2000). Therefore, the present study conducted focus group interviews with public and private bank managers. Focus group interviews with managers were also seen as a key means of conceptualizing and verifying these realities.

The study sample comprised 40 MB customers and 15 bank managers (see Appendices 2 and 3 for interview questions). The size of the sample was consistent with previous qualitative studies, which have reported that data saturation can be achieved before 30 interviews are undertaken (Holloway & Beatty, 2003; Ringberg et al., 2007). One member of the research team has a very strong social network which was harnessed to conduct focus group interviews with managers within the targeted banks. These managers then provided help to engage banking customers who volunteered to participate in interviews. This is a form of snowball sampling. Initially, social media were harnessed to approach participants, then reminder emails were sent to confirm interview schedules; the interviews took place either over Skype or by telephone. Skype and telephone interviews ensured the maintenance of social distancing during the COVID-19 pandemic, and ensured respondents felt comfortable during the interviews. The inclusion criteria for this study were that customers had to have been using MB actively for up to three months prior to the interview, and the banking executives had to have five years of experience. These criteria align with a previous study by Ringberg et al. (2007). Figure 1 illustrates an overview of this study, from problem identification to the development of a framework that shows how MB has been adopted during the COVID-19 crisis.

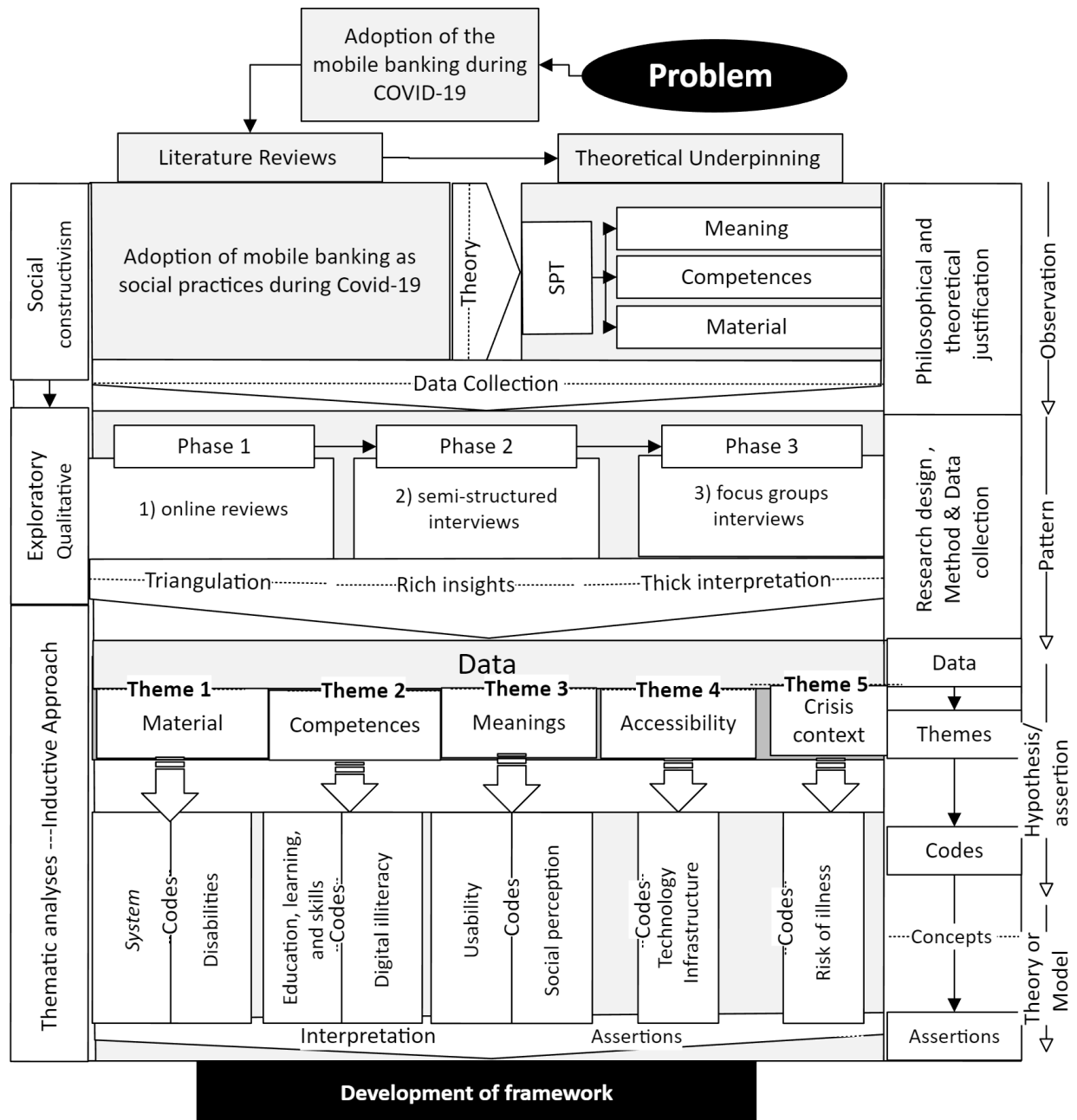


Figure 1: Overview of the research process

Focus group interviews with bank managers took 45 minutes for each session, whereas interviews with MB customers lasted about 60 minutes. Robson (2002) suggested this timeframe was reasonable for interviews. The managers of the targeted banks were interviewed over Skype, given that they were based in remote offices. The questions included in the interviews were developed

taking into account the experiences and expectations of customers which were shared through online reviews. Maxwell (2012) highlighted this as a way of inducing complementary insights and reaching into periodic memory and suggested using the past tense if there was a requirement to recall past experiences. Tulving and Thomson (1973) conducted a study to identify the activation of periodic memory within neurocognitive memory systems, stating that periodic memory can be stimulated by asking about specific and ordered occasions (Maxwell, 2012). Consequently, the past tense was used to construct interview questions to collect complete data, and tactical questions were also used as per requirements, as they are useful for managing the participants (Diefenbach, 2009). The rewording of questions was not difficult for the researchers as they had rich experiential knowledge about bank managers and online banking customers and shared a common culture with the participants (see Appendices 4 and 5 for banking customers' and bank executives' demographic information).

The internal generalizability of the customers' interview data was enhanced because the interviewers' asked different types of interview questions (Howell, 2013). The present study recognizes internal generalizability as collecting data from different respondents in relation to gender, occupation, and age (Felix et al., 2017; Quach & Thaichon, 2017). There were 24 male and 16 female interviewees; they had dissimilar backgrounds and were all within the age bracket of 19 to 50 years. Regardless of sample composition (i.e., more male participants and less female participants), this study did not use screening questions, since these might have intentionally influenced the diversity of the sample. This meant that the sampled participants were more representative of the population. Verbatim transcripts were provided to participants for cross-examination. This improved data validity and supported internal generalizability. The public and private banks were selected because they were located in Islamabad and Lahore, as well as in rural areas around these cities. This meant it was possible to obtain an in-depth understanding of the social practices associated with MB. In a developing country, some people have lower-middle incomes and limited experience with MB; bank managers can pursue this technology to optimize open market opportunities and improve the lifestyles of members of the public.

Thematic analysis

While synthesizing the study data, thematic analysis was used to analyze the data. Well-reputed studies were used as a baseline of best thematic analysis practice (Ozuem et al., 2022; Naeem & Ozuem, 2021). These studies highlighted that thematic analysis allows researchers to find keywords, codes, themes, and rich insights that can help to develop an inductive research framework (Ozuem et al., 2022; Naeem & Ozuem, 2021); therefore, this study used thematic analysis as it allowed the extraction of subjective realities and the development of a research framework on social practices of MB adoption during the fearful environment of COVID-19 pandemic. Other studies that applied a social constructivist approach were also consulted (Azemi et al., 2019, 2020).

After organizing the study data into 191 pages of verbatim transcripts, the data were analyzed in three phases (Gioia et al., 2013; Saldaña, 2012). First-order, second-order, and aggregate dimensions are generally considered to represent the three stages of Gioia et al.'s (2013) systematic approach to thematic analysis. Some recent studies used a similar thematic analysis process in their studies (Ozuem et al., 2021; Naeem et al., 2022).

The first phase involved an analysis of data obtained from online reviews, semi-structured interviews and focus group interviews; primary codes were identified during this analysis. Coding provides a theoretical understanding in which implicit ideas can be generated from transcribed data. The software NVivo was used in this study to keep all emerging codes in an organized form. The second phase involved further analysis in light of variations in customers' responses to practicing MB. It included combining participants' responses into second-order themes and culminated in the generation of eight different conceptual categories. The third phase involved the integration of the experiences of participants so that a holistic overview of technology adoption as a social practice could be arrived at as a joint experience between service providers and service users. During the third phase, all related patterns that emerged from second-order themes were aggregated to generate a final set of central concepts about the social practice of MB during the COVID-19 pandemic. The five central concepts were: material, competencies, meanings, accessibility, and crisis context and situation.

Saldaña (2016) highlighted that a researcher can reflect dynamically throughout the coding process, which allows refinement of the interconnectivity of codes and understanding of information. A comprehensive supportive summary of the thematic analysis process is presented in Appendix 6, including the complete process of first-order, second-order, and aggregated concepts following the approach of well-known studies (Gioia et al., 2013; Ozuem et al., 2021).

Results

Appendix 6 as well as Figure 2 give an overview of the results. They illustrate how keywords and theoretical coding were used to build codes, themes and the final framework.

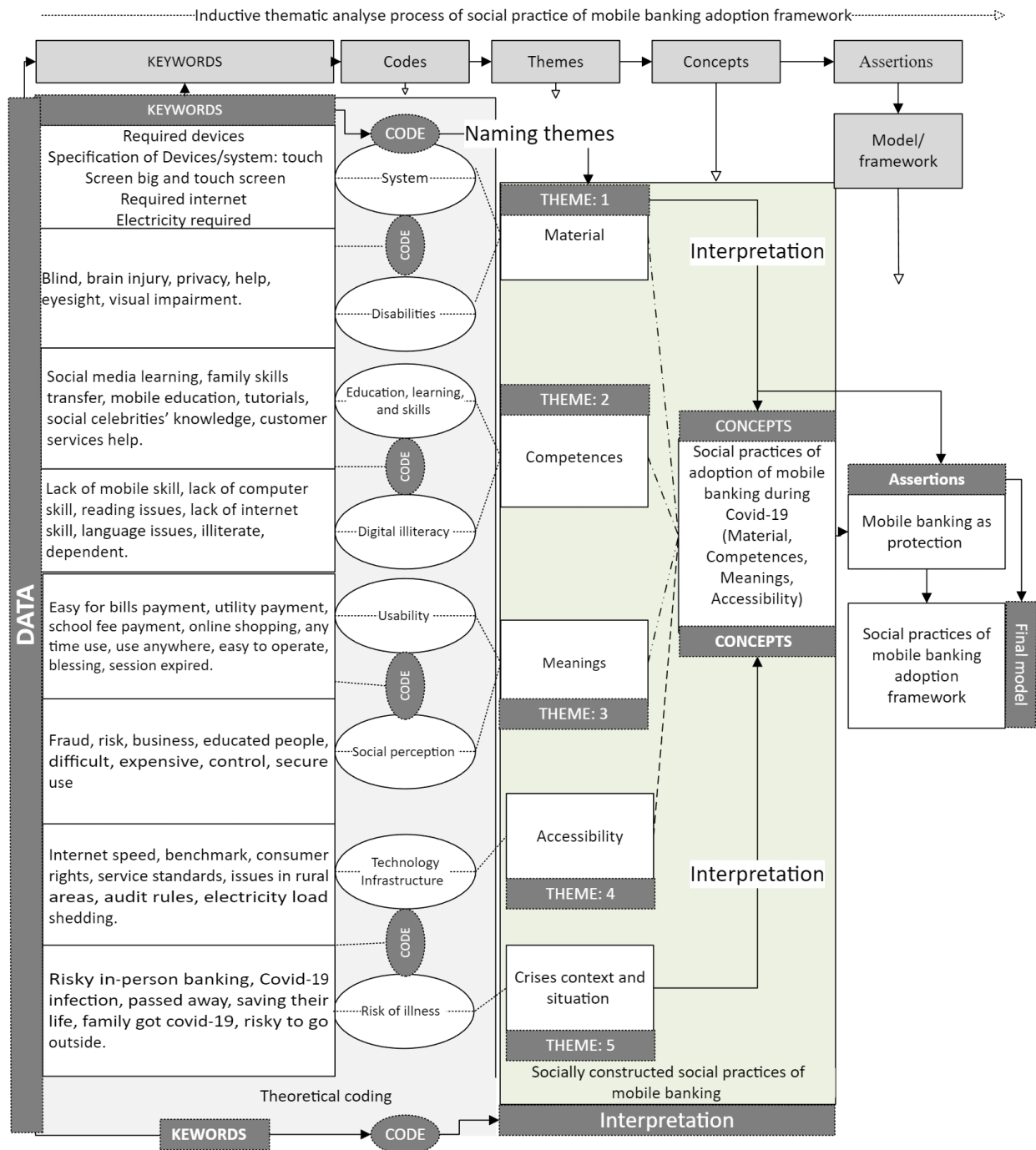


Figure 2: Inductive thematic analysis process

Theme 1: Material

Code 1: System

Keywords: screen size, smartphone, computer, office use, friend's mobile, system-related facilities, password error.

Material covers all systems-related aspects that help users to practice MB. For example, the findings revealed that screen size, smartphone, computer, internet, and electricity availability are the specific physical aspects that facilitate MB use. Most customers had practiced traditional banking, but COVID-19 changed these practices, and many had started to use MB. However, they had encountered various issues. The following is an example of material adapted to meaning: an individual who could not access the internet at home fulfilled their need by using resources at their work location. For example, Online reviewer (OR) 1 highlighted, "in our rural area, [the] internet is not available, that's why I used online banking on the computer of my office only" (date of post 06/05/2020). Adapting material refers to individuals seeing others' artefacts and activities, which can help them to learn how to operate MB. For example, OR 65 revealed, "my friend demonstrated to me how easy it is to use a smartphone for MB; then he shared his smartphone with me for practicing MB. It really increased my intention to buy a smartphone for MB during COVID-19" (date of post 09/08/2020). Although the participants had started using MB, they had faced issues with respect to internet and mobile phone availability. As a result, they expected the government to provide system-related facilities with the purpose of helping them avoid the risk of COVID-19. For example, Customer 5 noted, "there are many rural areas where internet facility is not fully available; so, many people from our town travelled to nearest town for mobile banking. I think [the] government should help us." An increase in the number of people using apps and customer services driven by COVID-19 led to delays in resolving systems-related issues. For example, OR 33 highlighted, "although I have been using a mobile banking app for many years, it is now more complicated due to low staff [levels] and more load on the system. Like I forgot my password and it gave a password error, then it took many hours to access the customer service department and resolve this issue" (date of post 03/29/2020).

Code 2: Disabilities

Keywords: blind, brain injury, privacy, help, eyesight, visual impairment.

Material refers to a range of human-related aspects such as disabilities that can influence social practices of MB. Customers who have physical disabilities explained how they had taken help from their family to use MB. Some people living with disabilities were considered a vulnerable population during the COVID-19 pandemic; therefore, they needed to use MB. Although they did not want to share their financial information with their family members, they had no alternative. For example, Customer 32 noted, “I am legally blind and old, but I always want to retain privacy whenever I use my banking account through a branch. Unfortunately, my banker cannot provide an app for special people. As a result, I have to share information with my wife for mobile banking use during COVID-19.” Customer 40 said, “Recently I suffered a traumatic brain injury, so I cannot drive a car because I am unable to move my arms. Now I take help from my family to use mobile banking.” Some customers had weak eyesight and wanted to avoid physically entering banks during the pandemic; they did not want to ask for help from their family, but they managed online banking with the help of close friends. Customer 38 noted, “my eyesight is really weak now and I do not want to use mobile banking through my family; so, my childhood friend helps me during this critical time.” Some interviewees had disability issues but said that their family had supported them with MB during the COVID-19 pandemic. For example, Customer 29 noted, “I have visual impairment and my banking app is not easy for me to use, so I took help from my sister to use it.”

Theme 2: Competencies

Code 1: Education, learning, and skills

Keywords: social media learning, family skills transfer, mobile education, tutorials, social celebrities’ knowledge, customer services help.

Competencies in this sense refers to education, skills, and learning from others that help people to use MB during the COVID-19 pandemic. The exchange of meanings refers to individuals sharing their knowledge, beliefs and values, which motivates others to learn MB. For example, OR 5 highlighted, “I recognize that social media helps me to learn how to use mobile banking, especially when I cannot visit a bank in person due to an increase in COVID-19 cases” (date of post

05/01/2020). Customers noted how their close friends helped them to bank online during the COVID-19 pandemic. For example, Customer 4 said in an interview, “my family really helps me to learn the use of mobile banking as I used to do traditional banking before COVID-19.” Analysis also suggested that banks played a part in educating and guiding their customers with the purpose of protecting their employees and communities from COVID-19. For example, Bank executive 12 noted, “many old people visit our branch, and our customer services shared material on their mobiles so that they should not visit again and start mobile banking in the future.” Furthermore, bank executives motivated people to use MB through social media platforms. They suggested that there are many social actors on social media who could influence others to change from traditional banking to MB. For example, Bank executive 1 noted, “we shared tutorials and involved social celebrities through social media for educating and motivating people toward mobile banking.”

Code 2: Digital illiteracy

Keywords: language issues, illiterate, dependent, lack of internet skill, lack of mobile skill, lack of computer skill, reading issues.

The digital literacy rate is very low in developing countries. As a result, many people have low internet, mobile, and computer skills which means it is not easy for them to use MB. For example, Bank executive 15 said, “most of our colleges and universities do not offer digital literacy skills, that’s why we have low numbers of users of mobile banking.” Some individuals needed the help of family members and close friends to bank online during the pandemic and avoid physically attending a bank. Customers also encountered language issues as they could not use apps presented in the English language; however, they were still able to get help from within their social circle to bank online. For example, OR 33 highlighted, “I have language issues as I only know the Punjabi language, so my close friend always helps me when I need to either transfer or receive cash using online banking” (date of post 06/12/2020). Some customers were illiterate and were thus unable to use mobile phones and computers. Some had family members who were educated and who helped them bank online. For example, Customer 5 said, “I am illiterate, so I cannot use mobiles and computers. As a result, I am dependent on my daughter for mobile banking who completed her MBBS recently.” Some bank executives also noted that limited awareness of online banking created challenges, but family members and social circles were supportive during the COVID-19

outbreak. Bank executive 15 reflected, “unfortunately, we have many customers who have either reading issues or lack of awareness about mobile banking. So, we encourage them to take help from their family for online banking as we do not have a lot of health facilities as a developing nation.”

Theme 3: Meanings

Code 1: Usability

Keywords: easy for bills payment, utility payment, school fee payment, online shopping, any time use, use anywhere, easy to operate, blessing, session expired.

Meanings in this sense refers to motivation, understanding the usefulness of MB, and the confidence of people in the benefits of MB during the COVID-19 pandemic. Usability refers to how easy MB is to understand and use so that it can fulfil the needs of customers. For example, some customers used traditional banking methods to pay utility and mobile phone bills as well as school fees, but COVID-19 and the requirements of social isolation meant they were compelled to bank online to fulfil their needs. An example of “meaning is adapted to material” occurred when a friend shared their knowledge and skills for creating a MB account and how to easily operate it for routine social practices. For example, OR 63 highlighted, “I am thankful to my close friends who shared knowledge to create my online banking account. Now I can pay children’s school fees and do online shopping which made my life easy during COVID-19” (date of post 06/04/2020). Some customers regretted their decision to bank in person, as they felt that they had wasted their time. For example, Customer 5 said, “I was frustrated that I wasted a lot of time in traditional banking as many people said that mobile banking is full of risk. But now all these people are using mobile banking due to COVID-19, and I also found it very beneficial and easy to operate.” The banks also spoke of the ease of use of MB during COVID-19. For example, Bank executive 10 noted, “we shared the benefits of mobile banking through mass media and social media. We shared how people can use online banking services 24 hours a day and 7 days a week anywhere in the world, which is a blessing during COVID-19.” Some online reviews highlighted certain factors which create negative impressions about the usefulness of MB system. For example, OR 33 highlighted that, “I started to use mobile banking, but I found it took a lot of time to reload, move forward and backward, so, many times my session expired” (date of post 03/29/2020).

Code 2: Social perception

Keywords: fraud, risk, business, educated people, difficult, expensive, control, secure use.

Social perception refers to receiving help via social cues when deciding about the context, roles, relationships, or the use of anything. For example, many studies and online reviews speak of the risk of scams and fraud with MB and note that people who are less educated should avoid banking online as they are at risk of fraud. For example, OR 41 highlighted, “I heard stories from my social circle about online banking fraud but now all are using it. So, I learnt how to secure it and then started to use it” (date of post 04/13/2020). In another example, OR 28 highlighted, “I used to think that online banking was complicated and only for educated people, so my daughter guided me about it” (date of post 05/21/2020). Many people had been influenced by negative online reviews and stories about cybercrime attacks, scammers, and fraud activities associated with banking online. However, when MB clearly became more popular during the COVID-19 outbreak, those who were more apprehensive began to bank online. For example, Customer 15 said, “I thought mobile banking was expensive and difficult, but when my friends shared a video with me, then I found it very easy and useful,” and Customer 12 reflected “I think if people learn the secure use of mobile banking, then it is easy, controllable, free from risk, and enjoyable for all.”

Theme 4: Accessibility

Code 1: Technology infrastructure

Keywords: internet speed, benchmark, consumer rights, service standards, issues in rural areas, audit rules, electricity load shedding.

Technology infrastructure refers to hardware, software, services, resources, and the IT environment that can help to make MB accessible to people. For example, many customers complained of low internet speeds and therefore problems and issues with MB. For example, Bank executive 15 stated, “we do not have 4G standards of speed, that’s why there is no benchmark to check the speed of the internet. As a result, many people in rural areas have issues with mobile banking.” In addition, developing countries have no specific standards and rights that protect the interests of customers and bankers to ensure a reliable standard of digital infrastructure. For example, Bank executive 1 stated, “consumer rights, service standards, consumer rights law, accessibility standards, and accessibility audit rules are things of the developed world only.” Some

customers suggested that companies which offer fast internet speeds also charge a premium, and this means their services are not affordable. However, they still use their close connections to bank online. For example, Customer 27 said, “fast internet is very expensive and out of my price range, so I go to my brother’s home for mobile banking.” People in some remote areas experienced complications because of severe weather and power outages, but they still received help with MB. For example, Customer 5 said, “the duration of the electricity load shedding is sometimes 10 hours in a day due to bad weather. Many times, my close friend gave me his smartphone so I could use mobile banking.”

Theme 5: Crisis context and situation

Code 1: risk of illness

Keywords: risky in-person banking, COVID-19 infection, passed away, saving their life, family got COVID-19, risky to go outside.

The COVID-19 crisis increased people’s fear of infection; therefore, many people felt compelled to use MB to avoid the physical contact inherent in traditional banking. For example, Customer 3 shared in an interview, “now, in-person banking is full of risk, so I started mobile banking use on my friend’s mobile [cell phone] because I do not have a smartphone.” Other people shared that they started to use MB for routine social practices, such as paying bills, to avoid the risk of COVID-19 infection. For example, OR 55 highlighted, “I recently started using mobile banking for paying bills as it saves my time and travelling and saves me from COVID-19 infection” (date of post 07/01/2020). Some people recounted that their close friends had died from COVID-19 infection, which increased their fear of illness and their motivation to use MB. For example, Customer 40 said, “many of my old friends passed away during COVID-19 as they are old and illiterate so could not use technology for saving their life during COVID-19.” Some people shared stories of how their friend’s family were infected with COVID-19, which increased their motivation to use technology for shopping and banking purposes. For example, OR 64 stated, “my friend’s whole family got COVID-19 when they visited a shopping store and nearest bank branch. It really creates more fear among us to use technology to avoid visiting outside and getting COVID-19 infection.”

Discussion

There is strong evidence that the social practice of MB increased across the world during the pandemic (Blackburn et al., 2020; Dahl et al., 2020). Despite banks and other businesses taking many measures to combat the pandemic, such as reducing operational hours, mounting social distancing signs (i.e., to prompt keeping a distance of two meters from others), offering hand sanitizer, insisting on the wearing of masks, and other measures, the number of COVID-19 cases continued to increase all over the world (Adarkar et al., 2020; Dahl et al., 2020). As a result, banks started to increase awareness of online banking through traditional channels and social media to protect their customers and employees during the COVID-19 pandemic. Furthermore, many supporting actors, such as social media users, social circles, and families, built awareness of the benefits of MB during the COVID-19 pandemic. This study explored the social practice of MB during the COVID-19 pandemic. Furthermore, it explored users' negative experiences of MB, which has generated useful information for stakeholders to grow the rate of satisfied MB users in developing countries.

The study of Bhatiasavi (2016) highlighted that there are many hidden factors or causes that can enhance the adoption of mobile banking; therefore, more research is required to explore these factors. Hanafizadeh et al. (2014) stated that the use of mobile banking is not very common in developing countries, and reported that perceived cost and perceived risks are the two main factors that can negatively influence the intention to use a mobile banking app. The relationship between customer expectation and actual experience varies between people as well as developed and developing countries; so, more research is required to further explore mobile banking challenges (Malaquias & Hwang, 2016). Inactivity is one of the major challenges to the successful use of mobile banking in Pakistan (Afshan & Sharif, 2016), but vulnerable people and people with disabilities during a global pandemic have many reasons to practice mobile banking, especially when the death rate is high among these groups. This study provided understanding about the accessibility of mobile banking for disable and vulnerable customers during Covid-19 pandemic based on qualitative insights from a developing country. For example, the messages shared through government, bankers, social networks, and family members that going outside and touching things is not risk free encouraged vulnerable people to adopt the social practice of mobile banking. People

shared that the banker cannot provide an app for special people. As a result, they have to share information with their trustworthy people for mobile banking use during COVID-19. The unique findings of this study are how the vulnerable people socially practiced the MB such as some customers had weak eyesight and wanted to avoid physically entering banks during the pandemic; they did not want to ask for help from their family, but they managed MB with the help of close friends.

The findings showed that some customers believed that in-person banking was risky because it increased the probability of transmitting COVID-19 to vulnerable people; to combat this, some people took help from their social circle, such as asking their friends to show them how to use MB, which they considered to be comparatively risk free, or they visited relatives who were able to access MB. Other participants who did not have the skills to use MB learned how to use MB through social media. Some bankers discussed the severity of issues stemming from electricity load shedding in rural areas. Some bankers described the role their customer services facilities played in helping older people and other vulnerable groups reduce their chances of contracting COVID-19 by delivering material about how to use MB to their homes. Customer services greatly aided in the distribution of these materials in local languages, so that people could develop their MB skills and reduce their number of visits to local bank branches during the pandemic.

Based on the findings of this study, we find that there are two processes (i.e., adapting material and exchanging meanings) that are strongly linked with these social practices. Adapting material refers to individuals seeing the artefacts and activities of each other. If a person has material that is easy to use and they are motivated to use that material, then there is a strong chance that using this material will become a habit. For example, if someone starts to use MB on their office system or on a friend's mobile, then it can become a routine social practice during the global pandemic. The second general process is exchanging meanings, which occurs when individuals share their beliefs and values with each other (McPherson & McCormick, 2006). For example, discussions between friends or a group sharing a common trait, such as a disability, are sometimes based on communicating and sharing practices with each other. If people lack the skills to bank online, then they can seek help from within their social circle, from customer services, or from family members, so that they can bank online during the COVID-19 pandemic.

This study has extracted five particular processes (i.e. material, meaning, competencies, accessibility, context and situation) based on the social practice of MB during the pandemic. This study has developed a research framework which considers that “material is adapted to meaning” and “meaning is adapted to material” (see Figure 3). This framework follows the recommendations of Steg and Tertoolen (1999). An example of “material is adapted to meaning” from the data of our study is a customer who banked online on his office computer because his home was located in a rural area where the internet is not available. Another example is a customer who did not have a smartphone, so he used his friend’s smartphone to bank online. Another example of “material is adapted to meaning” is a customer who got help from a friend to create an online bank account. She is now able to pay her children’s school fees and shop online to mitigate the risk of contracting COVID-19. Another example is that some customers regretted not banking online earlier because some within their social circle had said that MB was risky. Many had begun to bank online since they perceived the financial risk to be lower than the health risk.

The second process is “adapt competence to material,” which means developing new material and routines through learning and awareness. For example, people have learned through social media, friends, family members, and customer services how to bank online. As a result, they have started to arrange materials so as to purchase smartphones or use a friend’s mobile to bank online. People have learned through social actors and social media that they require mobiles/computers as well as the internet and electricity to bank online, so they have arranged these directly or indirectly to carry out routine transactions. Some people thought that purchasing new mobiles or paying for the internet was not affordable, so they arranged materials, such as a friend’s mobile phone or an office computer to bank online. The term “meaning is adapted to competency” refers to reactions to scams and fraud stories about MB. Some who encountered stories about fraud sought help from their social circle and customer service teams at their banks to ensure the safety and security of their bank account. In other words, to deal with the uncertain threat, individuals built competencies with respect to the safety and security of their bank accounts.

It is an important to understand the user behavior, which occurs when people repeat their behavior continually so that it becomes routine (Jager, 2003). This occurs when an individual identifies their goals and finds the best way to achieve these efficiently and effectively. For example, when

customers who previously used traditional banking services shifted to MB, they expressed regret for not having used it sooner. They thought that it was easy to use and time saving, and it offered them the opportunity to make transactions at any time and on any day. Therefore, their habits in terms of MB use became stronger for the future. There are many possibilities that can help such customers use the internet after the COVID-19 pandemic has run its course.

Theoretical contribution

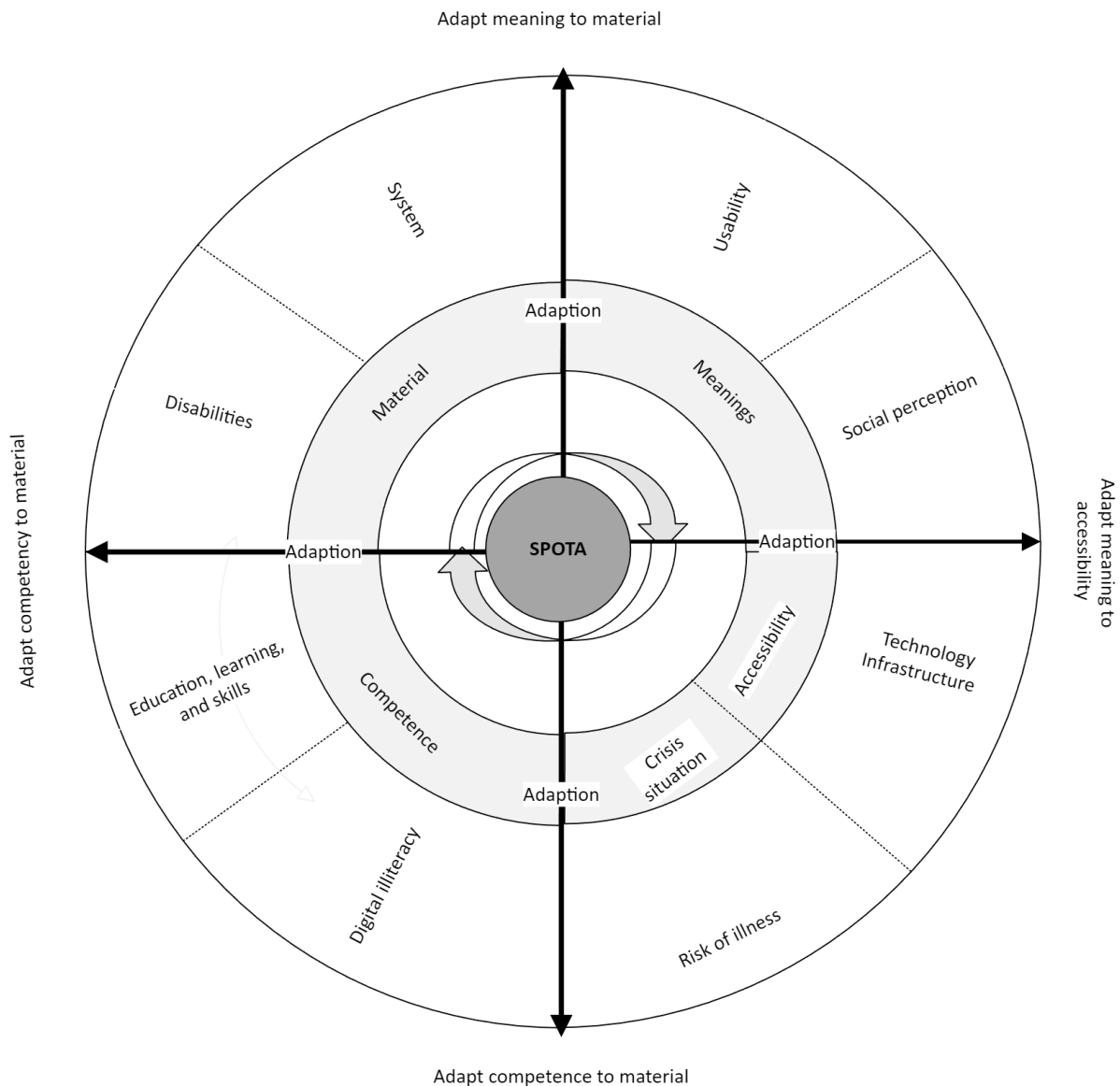


Figure 3: Social practice of mobile banking adoption framework (SPOTA)

This paper applies SPT to MB adoption during a global pandemic. The social practice of MB adoption (SPOTA) framework (see Figure 3) is based on an extended version of SPT and applies it to MB adoption. There is no literature available that elucidates how social distancing practices due to a global pandemic enhance the intention of people to stay at home and use technology to avoid social, physical, and psychological risks. The SPOTA framework extends our understanding of the social practice of MB; the social practice of MB made MB more accessible. This study extends our understanding of the three elements (i.e., meaning, material, and competence) of SPT. It adds a fourth and fifth element, which are accessibility and crisis context. Accessibility refers to individuals gaining access to MB during the COVID-19 pandemic by seeking help from their social circles, including their family, and banking professionals. For example, individuals with disabilities or individuals with a low level of education sought help from close friends and family to bank online. In other words, the social practice of MB made MB more accessible to them. Most previous studies have discussed accessibility in the context of systems only (Amin, 2016; Boateng et al., 2016; Patel & Patel, 2018). This study explores accessibility in the context of the social practice of MB. The fifth element is crisis context in which the risk of illness increased people's motivation to learn and use MB banking.

This study has brought to light the different subjective realities of social practices with respect to meaning, material, competence, accessibility, and crisis context and situation. The identification of, and justification for, the subjective realities of the social practices of MB link back to relativism, because relativists believe that there are different realities within the same context. Furthermore, this study also explored socially practiced technology adoption through using and extending SPT, which is linked with the social constructivist epistemological position.

SPT helps us understand how technological transitions can take place due to an uncertain global environment during the COVID-19 pandemic. This is ultimately beneficial as this technological transition can help customers, employees, and communities to maintain social distancing practices as well as reduce the risk of contracting COVID-19. Technological transitions help bankers to protect their working environment as well as save operational costs by reducing the number of

operational hours and number of staff members in branches. The social practice of MB also indicates the types of initiatives required from bankers and from the governments of developing countries to enhance transparency in taxes and improve the lifestyles of their customers and citizens. The many expectations of individuals with disabilities and without disabilities of MB were discussed; bankers could improve their service quality and user satisfaction by learning from users' experiences and expectations, which would improve long-term adoption rates of MB.

Practical contribution

On the practical side, bank managers suggested that service standards, consumer rights laws, accessibility standards, accessibility rules, electricity issues, the speed of the internet, and the lack of supportive functions for people with disabilities are some of the major issues that, if addressed, could motivate people to use MB after the pandemic. Accessibility can improve brand image and can extend the reach of brands to new markets to drive innovation in MB. Accessibility refers to the provision of social support to those with disabilities, residents of rural areas, residents of developing countries, and the elderly. Accessibility is about more than putting things online. It involves social practices that can help make MB more accessible for people. There are visually impaired individuals who cannot use MB, but who might enlist the help of trusted close friends or family members to access these services during the COVID-19 pandemic. The results reveal that customers encounter a range of common issues that make MB services less accessible. For example, it is difficult to use MB apps on mobile devices and to navigate them using a keyboard. PDF forms are not accessible, and it is difficult for some people to read these, especially on mobile screens. Similarly, inappropriate color contrasts make it difficult for both the visually impaired and those without visual impairments to read text. Some people complain that the infrastructure for MB is poor due to slow speeds and load shedding of electricity. This has created extra problems for MB in developing countries during the COVID-19 epidemic. Therefore, there is a strong need for bank managers in Pakistan to consider these issues, to expand the supportiveness of mobile apps and to make web networking easier to better serve groups with special needs.

This study has provided unique insights into how bank managers can engage social circles, social media users, customers, opinion leaders, and customer service teams, all of which can play a role in enhancing the accessibility of MB. This study reveals ways in which managers can improve the

competencies of people for MB adoption. For example, the study discussed how materials shared through social media can educate people about the different MB functions that can fulfil their needs during uncertain times. Bank managers can improve the accessibility of MB, which is a major challenge to MB usage as a habitual practice. Bank managers can develop strategies to spread positive meanings, such as 24-hour access to banking, among people as well as counter negative meanings, such as cybercrime, with the aim to enhance the social practice of MB. For example, some people were negative about the safety and security of MB; however, when they realized that their trusted social circle started to use MB, then they followed suit. In addition, some people did not have sufficient materials and competencies to use MB, which led to the development of social practices that facilitated MB adoption in an uncertain environment.

Conclusion

This study summarized ways in which the COVID-19 outbreak encouraged social practices for the adoption of MB in developing countries. Although accessibility is one of the most prominent issues both in developed and developing countries, developing countries have more issues of interactivity due to internet issues, lack of customer experience, complicated mobile design, and a lack of service performance and services standards. Pakistan is a developing country that has approximately 27 million people who are struggling with disabilities, low levels of education, lack of employment opportunities, and high poverty. During the COVID-19 pandemic, the government of Pakistan distributed US\$760 million among lower income and vulnerable families. These lower income and vulnerable families were either directly, or indirectly, required to use MB to receive government aid during the COVID-19 outbreak. The State Bank of Pakistan waived digital transaction charges to encourage digital banking and help reduce the spread of COVID-19 infections; unsurprisingly, the adoption rate of digital banking significantly increased. Although everyone has the right to access MB services, those in vulnerable populations, especially those residing in rural areas or living in developing countries, may face serious issues of accessibility to retail MB during the pandemic.

Some people were afraid to use MB because of privacy concerns, but social distancing and lockdown practices forced them to adopt MB with help from their close social circle, which increased the availability of relevant material for MB use. This study used the three elements of

SPT: material, meaning, and competence. The usage of MB involves a person using a mobile phone through mobile internet or Wi-Fi. The material element includes all MB activities, such as accessing and using others' mobiles, internet, videos, and MB app. Therefore, we tried to explore issues of accessibility to the material and how the accessibility of the required material being social practiced to use MB during pandemic. For example, in the context of MB the element of meaning comprises the usability of banking through a mobile phone, inserting passwords to deal with privacy issues, the hassle-free nature of MB, price factor, and the convenience which motivates a person to use MB. Examples of competence include skills related to using the internet, general understanding about using mobile phones, and the ability to use mobile phones for different tasks, such as paying bills, operating different applications, and using a mobile phone for online banking. This study has offered SPOTA with the purpose to improve the social practice of MB adoption, which can help to improve the accessibility and habitual practice of MB.

Limitations and future research avenues

The generalizability and affordance of the MB adoption model can be extended if future researchers test the model by collecting data from both developed and developing countries. Future studies can explore which specific social media are extensively used by customers to exchange information, and which social media influence customer behavior toward MB adoption. Future studies could also test how fear appeals through the health sector influence consumer behavior toward technology adoption for various sectors such as retail banking, supermarkets, tourism, and the fashion industry. Future studies could use a combination of both qualitative and quantitative methods, as this can offer richer interpretations and the results could be generalized to a larger population. Future studies could collect data from banking experts in the field of disability so that they can provide more information to create compatibility and MB affordance for vulnerable populations during and after the pandemic. Future studies can specifically add the lower income groups, older and vulnerable people, customers of rural areas, and those who have limited education so that managers can understand the issues and design more usable MB apps to deal with crisis situations in the future. There is a need to conduct research on interactivity,

compatibility, and credibility issues of MB especially in developing countries to further improve the usability of MB for a crisis context and situation.

Conflict of interest

There's no financial/personal interest or belief that could affect the objectives of this research.

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