

Evaluating the Usage of Social Medias in the Kingdom of Saudi Arabia: Methodological Limitations and Adjustments

Deena Alghamdi

degamdi@uqu.edu.sa

Umm Al-Qura University
Makkah, Kingdom of Saudi Arabia

Abstract

This research aimed to provide a profound description of the practices of social media users in the Kingdom of Saudi Arabia (KSA), specifically the users of Facebook® (FB) and Snapchat® (SC), the reasons for these practices, decisions made, and the people involved. Such research would be of significant help to designers and policymakers of social media applications in understanding user practices when using social media applications and the reasons for such practices in the KSA. This better comprehension would be of significant help in improving current applications and creating new ones. According to the data analysis, there was a clear preference for SC over FB in the KSA. Most participants with SC accounts were described as very active users, accessing their accounts at least once a day compared to FB users. The users were led by this high preference for SC to create new words derived from the name of the application and use them in daily life.

We showed our experience of carrying out a study in which the main objective was to collect factual empirical data from participants about their daily usage of social media applications while considering the unique cultural settings in the KSA. Mixed quantitative and qualitative methods were used to triangulate the data, increasing its trustworthiness and validity. Multiple perspectives were obtained using various data collection methods. Therefore, conclusions would not be confounded with limitations of any particular methodology or with conditions of any collection rounds. This research would constitute a valuable guide for researchers intending to use methods with male and female informants from different cultures, preparing them for potential challenges and suggesting possible solutions.

Keywords: KSA, mixed methods, user practices

1. Introduction

People's lives are significantly affected by social media applications, as such applications are widely and continuously used. Kietzmann and Kristopher [1] commented on how social media formed and changed the interaction and communication between organisations, communities and individuals. Interestingly, these changes were encouraged, and a new field called technoself studies (TSS) was inspired to be created. In such a field, focuses on all aspects of virtual technological society and human identity are given, concentrating on the relationships between human practices and technologies [2]. In this field,

some studies have been conducted in the healthcare area [3] [4]. In contrast, different studies have been undertaken in education and academia [5] [6] [7]. Focusing on the privacy concerns of social media users, Choi and Sung [8] found that the concerns of the user regarding privacy, along with the type of self the user wants to express, have essential roles in the choice of the user regarding which social media application to use. Meanwhile, Phua et al. [9] examined the users of different social media applications and their influence on the relationships among people who work or live in the same society.

This study aimed to study the practices of social media users in KSA, more specifically Facebook® (FB) and Snapchat® (SC). Specifically, this research was conducted to understand the reasons and aspects for the different applications adopted by users in the Kingdom of Saudi Arabia (KSA), although both applications are mainly used to publish and share photos and video streams. This study lasted for two years, from May 2019 to April 2021. Although important and substantial findings were already discussed by Alghamdi [10] [11], in this study, a complete description of the methodology used, the reasons for adopting specific methods and the adjustments made to accommodate the settings of the research context are provided.

2. Related Work

FB was launched in 2004 by Mark Zuckerberg and colleagues. This company was and continues to be the most famous social media network worldwide and the first and only to reach one billion active users in the third quarter of 2012 [12]. In 2020, FB continued to be the highest rank social media, with over 2.6 billion monthly active users [13]. On the other hand, SC was created by Evan Spiegel, Bobby Murphy and Reggie Brown and was initially released in September 2011. Although SC was released years later, its number of users in the KSA is similar to that of FB. According to [14], FB users in the KSA reached 13.30 million (40% of the population), whereas SC users reached 12.97 million (39% of the population). Therefore, SC has had faster growth in users than FB in the KSA. Additionally, in July 2018, it was reported that the KSA had the most active SC users worldwide [15].

This study was designed to understand the factors and reasons for the faster growth of SC users. Additionally, the study aimed to comprehend the practices of social media users using the two applications studied and understand the reasons and decisions made because of these practices. As this research was conducted in the KSA, it was helpful to provide a brief background account of the country and introduce the main issues relevant to this study. The KSA was founded in 1932, and 97% of its population is composed of Muslims [16]. Islam has a vital role in the cultural aspects of the country. There, Islamic principles and traditions are intertwined with Saudi culture. Saudi women are required to be draped in an abaya (a cloak covering the entire body), to cover their hair with a hijab (a piece of cloth hiding all the hair), and to veil their whole face with a niqab when they meet non-mahram¹ [17] [18]. For some women, the niqab covers the eyes, while for others, it does not. There have been recent instances of Saudi women removing the niqab. Also, Saudi jurists have interpreted some Quran warnings by tightly restricting any interaction between a woman and a non-mahram [19] and gender segregation are fundamental to Saudi society [20] [18]. Culturally, gender separation is applied in many aspects of private and public Saudi life, such as schools, universities and banks [21] [22]. These cultural and religious constraints were considered during the methodological design of this study, which helped shape the research. Moreover, understanding the different aspects of Saudi culture would allow an understanding of the practices of the users while using FB and SC applications and the reasons for adopting them.

3. Research Design

The study aimed 1) to describe the practices of FB and SC users in the KSA, 2) to identify the reasons behind these practices and 3) determine the reasons for the fast adoption and usage of SC over FB. Several issues were first considered when designing a suitable methodology for this research to achieve these objectives. These were i) that the collected data needed to provide a detailed description of practices, reasons and attitudes and ii) that data collection methods needed to be matched to the unique Saudi settings. Significant effort was spent designing suitable methods to address the issues that fulfilled the objectives. The research context regarding the quantity and quality of mixed methods [22] was considered. The benefit of using different methods is to exploit the strengths of each method while accommodating any weaknesses and enhancing the credibility of the evaluated findings. The quantity method was used to provide statistical findings in this study, answering questions about what application is

preferable in KSA: FB or SC. It also evaluated how this preference was represented and the factors and reasons that determined it. For that, the practices of using such applications, motivations and decisions made by their users were thoroughly described. The use of each method will be described in detail in the following sections.

3.1 Quantitative Part

Previous work aimed to elicit data on the practices of users has used questionnaires to collect data from participants [23] [24] [25] [26] [27] [28]. While critical findings were provided using this approach, there were known issues reported in this approach and the recruitment of participants due to the sensitive nature of the topic. The phenomenon was not fully covered by the responses in this study, and in particular, the researchers did not address all the related factors. Depending upon the approach taken, determining the study-specific factors influencing the practices of users made it less likely that other emergent factors would be identified. Also, it does not make it possible to determine how specific practices are caused by different interacting factors. Therefore, other methods were used to overcome this limitation in this study.

In the quantitative part of the study, the following questions were addressed:

RQ1: Which social media application is most preferred in the KSA: FB or SC? How is this preference represented?

RQ2: What factors determine the lower preference of users for other social media applications?

An online questionnaire was built using Google Forms, and it was designed to answer these questions. The random target subjects of the questionnaire were Saudi social media users over 18 years of age by the time of the research. The questionnaire took 10–15 minutes to complete and was composed of 12 closed questions: two questions about age and gender, five questions about FB usage and five questions about SC usage. After the questionnaire was published, responses from 915 people were received. The data were then entered into the computer and processed using the Statistical Package for the Social Sciences (SPSS V.20). SPSS is a widely used programme for statistical analysis in the social sciences. It is also used by market researchers, health researchers, survey companies, government, education researchers, marketing organisations, data miners and others.

3.2 Qualitative Part

uncle or nephew) or because of a marriage relationship (e.g. her father-in-law, son-in-law, stepfather or stepson).

¹ A mahram (pl. maharim) is the husband of a woman or a man to whom she cannot be married, either because of a blood relationship (e.g. her father, brother, grandfather, son,

During the investigations regarding collecting data from participants, some were identified as unsuitable for this study. For example, a certain amount of foreknowledge of the problem domain was required for exploratory workshops [29], and we had enough information to adopt this method. Moreover, researchers emphasise the importance of directly observing actual and potential users [30] [31]. However, observation is impractical or too invasive in daily life for various reasons, as in our case. Therefore, as far as possible, the approach used in this research captured the contextuality of the ethnographic approach within the practical limitations of the resources and access to participants available to us.

After studying different methods carefully, it was decided to collect data in two rounds and use different techniques in each round: semi-structured interviews in the first round and diaries and interviews in the second one. Because of the balance between the structure and flexibility of data obtained from a semi-structured interview, Gillham [32] argued that this technique is “the most important way of conducting a research interview”. Interviews are helpful for investigating a given topic in depth, both eliciting the opinions of the participants about a topic and discovering why they hold these opinions. In semi-structured interviews, the questions are open, and the interviewer directs the interviewee to the research topic without guiding the answers to match the expectations of the researcher.

On the other hand, a diary is a document written by an author to record personal events and ideas related to their personal lives, which can be helpful in research, providing data relevant to the topic. Researchers using this method usually ask participants to keep a diary for a specific time and guide them regarding events and ideas that need to be included [33]. Recording these events and ideas daily is vital to providing rich data relevant to the research topic. One advantage is that the data may be more objective and generalisable, as they reflect actual everyday events, in contrast to other methods in which the data are collected in contrived situations. Rieman [34] and Zimmerman and Wieder [35] argue for a method of data collection from a combination of diaries and interviews in situations where participant observation is difficult or impossible. For instance, this method would be helpful due to unconventional activities, unsociable hours or diffuse behaviour within a social scene or space, as was the case in their study of a counter-culture community. The written diary has been used efficiently to capture factual data in many Human-Computer Interaction (HCI) studies [36] [37] [38] [39] [40] [41].

In this study, data were collected from 53 participants, and a snowballing technique was used to recruit them. In the first round, telephone interviews were conducted with four females and two males. In the second round of data

collection, a combination of diary use and telephone interviews was used with 33 females and 14 males, as suggested by Bogdanovic et al. [39]. The purpose was to gather factual data, such as a log of the practices of the participants when using FB, SC or both, the decisions made, and the people involved. The participants were asked to write a diary for a week in this study, recording brief notes on their practices every time they accessed FB or SC accounts. The diaries were sent to the researcher for analysis. Then, each participant took part in a semi-structured telephone interview. Before starting the diary period, the participants were shown examples of diaries written by the researcher to clarify what they were being asked to write. Some participants used the “Notes” application on their smartphones to write a diary, while others used pen and paper. The participants prepared the diaries daily and sent them to the researcher by the end of the day via the cross-platform WhatsApp® mobile application. After the diary period finished, the researcher analysed the diaries of each participant. By assessing the diaries of each participant, the researcher was helped to shape the interview questions for the participant. After that, WhatsApp was used again to set dates and times for telephone interviews. Five females and three males submitted their diaries for analysis, but dropped out of the study before the interviews. Therefore, the findings are based on 47 diaries and 39 interviews. All diaries were written in Arabic, and the interviews were conducted and transcribed into Arabic. Thematic analysis [42] [43] was applied to identify repeated patterns in the usage of FB and SC by the participants and to analyse interview transcripts. ATLAS.ti, a computer-aided qualitative data analysis software, was used during this stage.

4. Overcoming Methodological Issues

Collecting data for this study using a questionnaire ran as expected. However, during the conduction of the qualitative methods, some challenges were noticed. The interview method was adopted because it is helpful to investigate a given topic in depth, eliciting the opinions of the participants about the topic and unveiling the reasons they hold these opinions. On the other hand, the use of diaries and interviews was essential to reflect actual everyday practices by the participants, along with their motivations. Each method was adjusted in a certain way in response to the difficulties of collecting data from participants of both genders and considering the research context.

4.1 Gender Segregation

One of the challenges noticed was related to the context

of the conservative and religious Saudi culture. Specifically, because of the gender segregation practiced in the KSA, it would be difficult for a female researcher to collect data directly from male participants, ruling out methods such as face-to-face interviews. Many studies conducted in the KSA have been affected by these constraints. For instance, when Alashban and Burney [24] conducted their study in the KSA, they chose to collect data from male respondents only. Other studies in which the number of female participants was significantly limited include those by [23] [25] [44] [27].

In the studies reviewed previously, researchers were mostly men, although there was a female researcher in one of the studies carried in the KSA [26] was a Saudi female. Having male and female researchers on the research team might help explain the relatively good gender balance among the respondents. This solution to overcome these constraints in collecting data from both male and female participants was suggested by Cole [45]. As a male ethnographer, this researcher could not collect data from female participants. He concluded that a solution “must necessarily await a male-female team” (p. 80), where male researchers collect data from male participants and female researchers collect data from female participants. However, a foreseeable feature of such an arrangement is that the research team members must agree on a specific protocol for collecting and analysing the data to avoid any differences that would introduce gender bias into the results. Based on this and previous experience by Alghamdi et al. [46], telephone interviews were chosen to obtain data from the participants. With telephone interviews, the response rates increased by improving the availability of participants [47]. With this method, the need for travel was removed, reducing both time and cost and allowing participants to remain anonymous if desired. Interviewees might have felt that the process was less emotionally intrusive. Finally, there might exist advantages to physical safety for both researchers and participants [48]. However, the difference in the number of male participants compared to female ones was still noticed in this study, as there were 37 female participants and only 16 male participants.

4.2 Challenges in the Diary and Interview Method

We encountered some challenges in shaping and conducting the diaries and interview methods. After consulting the literature on the use of diaries in research, it was initially concluded that audio diaries would be more suitable than written diaries in the present context. The idea

was that each participant would use a smartphone to record a diary. Then, the participant would send it to the researcher via email. The purpose of the diary was to capture actual and empirical data on the practices of the participants each time they used their accounts on FB or SC. Based on a study by Palen and Salzman [49], there were three main reasons why the most appropriate way to do this would be for participants to record their diaries in spoken form using smartphones. First, they were more likely to carry a smartphone in the ordinary course of events. Second, recording their thoughts on a mobile device suited the nature of the data, which concerned their use of social media accounts. Finally, smartphone technology would allow each diary entry to be sent to the researcher by email immediately after recording, giving the researcher the advantage of monitoring the participation of participants and analysing their diaries daily.

However, the researcher discussed this unique method with the participants in the first qualitative part of the data collection before adopting it. The aim was to introduce it to them personally to avoid any misunderstandings. Two unexpected challenges were raised during the discussions. First, participants warned that aged participants were likely to use older phones, which could not connect to the internet or send emails. Even if they had smartphones, they might find it challenging to use the functions necessary to record a diary and send it via email. More importantly, some participants objected to recording the voices of women, which could then be heard by men, such as a transcriber, asserting that it is forbidden in Islam for the voice of a woman to be heard by a man other than the non-mahram. There was significant disagreement on this second point among the participants, as there was more wide disagreement among religious authorities. There is no clear rule on the female voice in the Holy Qur'an or the Prophet's Hadith². Therefore, the beliefs of people are based on the juristic reasoning of Islamic scholars. Reflecting this uncertainty, no female participants had any objection to recording their voices for this research during the first round of data collection. All of them gave their explicit consent for the recordings. Still, three female participants objected to recording their voices during the second round of data collection. The researcher decided that written diaries would be used to respect this objection and maintain consistency in collecting all data despite the advantages of the recorded diaries noted above. Additionally, as a special arrangement for the three female participants who objected to recording their voices, the researcher undertook to take notes during their interviews instead of making audio recordings, as was done with all other interviews.

² The Hadith is a collection of traditions containing sayings of the prophet Muhammad that, with accounts of his daily practice (the Sunna), constitute the major source of

guidance for Muslims, apart from the Qur'an (Oxford English Dictionary).

5. How Our Results were Informed by the Study

The main objective of this study was to evaluate the practices of social media users in the KSA. More specifically, FB and SC. This study would be helpful for social media designers and policymakers when designing new applications or improving existing ones. The conclusions were shaped by the analysis of both quantitative and qualitative data. It was noticed that many participants had FB accounts and were aware of and familiar with the application. Still, according to them, they are not using their accounts consistently. One of the reasons provided was the unclear security and privacy policies used in the application. This reason is essential for all users, but, in particular, it is crucial for female users, as they appear from the data. In public, women wore hijab or niqab, they were worried about posting photos online without them. On the other hand, SC is considered the central part of daily activity for many participants, allowing them to socialise with family and friends while simultaneously providing an adequate level of privacy and security for accounts and information. According to the participants, being secure in a social media application has the evident ability to control who would follow their accounts, check their profile and information, see and comment on posts or share them with others. According to the analysis of the quantity data, a relatively close percentage of participants owned accounts in the two applications. However, the popularity of SC over FB became apparent on the application daily usage and in the creation and use of non-Arabic words, which are from any other language and are derived from the application name "Snapchat". Interestingly, according to the data, there were clear indications that, specifically for female users, family relatives such as parents or brothers could be involved in their social media usage and the decisions they made. Other factors mentioned affecting the popularity of social media applications in the KSA were the possibility of following celebrities, connecting the application with video games and using it to do homework with classmates.

6. Reflections on the Effectiveness and Limitations of the Study

6.1 Reflections on using telephone interviews

The drawback of using telephone interviews is that the researcher could not see the nonverbal responses of the interviewees, which could help direct the interviews. Also, telephone interviews could be intrusive, as calls are usually made at random times and may interrupt the interviewee during a meal. This drawback made it difficult for the researcher, a female, to interview male participants, while she was allowed to interview only females. We could not interview female participants face-to-face and males by

telephone to preserve the consistency of the research method and, thus, the data. The consistent approach that we devised was to interview all participants by telephone, thereby remaining sensitive to the constraints of the research context. The using of video calls could be a good alternative. Another solution would be to use a male moderator or co-researcher to solve the opposite-sex restrictions and conduct face-to-face interviews.

6.2 Reflections on using diaries

The drawback of using diaries is that a considerable investment of time, resources and effort was required by this method from participants and researchers to ensure that the prepared diaries were fit for purpose and met the research aims. This method required the participants to be given training before keeping their diaries and ongoing support while filling them. The researcher was very sensitive to the diversity of the participants and to the type of information that needed to be elicited. As explained before, it became clear that audio diaries would not be recorded on smartphones because of the relatively low IT skills of some of the participants, especially the older ones. Additionally, such a process would not be possible because of the religious objections of some of the participants. Therefore, it was decided to revert to the use of written diaries. As the interviews followed the writing of the diary, the researcher took the opportunity to ask each participant at the end of the interview about writing the diary. The questions were about the diary period, the method and the use of WhatsApp to remind and support the participants. According to the response analysis, it was revealed that although none of the participants had kept a diary before, either for personal or research purposes, they did not find it difficult or inconvenient to do so. They found that a week was an acceptable duration for the exercise. Additionally, some participants kept both pen and paper in a drawer near their bed or used the "Notes" application on their phones and recorded the access and use of their accounts on FB, SC or both they had carried out that day. Participants also reported that the WhatsApp messages reminding them to keep recording made them feel they were in touch with the researcher and not isolated.

6.3 Reflections on using multiple methods

As mentioned before, in the qualitative part, two different methods were used to collect data from participants: telephone interviews in the first round, then the combination of diary and interviews in the second one. The questions in the first round were almost the same for all participants. These questions focused on describing their practice first, and then the reasons and the motivations to adopt that practice. Meanwhile, the questions in the second round were composed after the analysis of the diary of each participant. Therefore, the questions were more focused on the specific practices of the participants that appeared in

their diaries. The advantage of this is that the researcher had the time to know the practice first and shape the questions to understand the reasons for picking a specific practice in depth. Also, the interview time would be shorter, as the practice would be known in advance.

Acknowledgement

The author would like to thank the Deanship of Scientific Research at Umm Al-Qura University for supporting this work by Grant Code:19-COM-1-02-0003.

References

- [1] J. Kietzmann and H. Kristopher, "Social media? Get serious! Understanding the functional building blocks of social media," *Business Horizons*, 54(3), p. 241–251, 2011.
- [2] R. Luppigini, *Handbook of Research on Technoself: Identity in a Technological Society*, IGI Global, 2013.
- [3] A. Moreno, C. Navarro, R. Tench and A. Zerfass, "Does social media usage matter? An analysis of online practices and digital media perceptions of communication practitioners in Europe," *Public Relations Review*, (41)2,, pp. 242-253, 2015.
- [4] H. Al Onezi, M. Khalifa, A. El-Metwally and M. Househ, "The impact of social media-based support groups on smoking relapse prevention in Saudi Arabia," *Computer Methods and Programs in Biomedicine (194)*, pp. 135-143, 2018.
- [5] W. W. Lau, "Effects of social media usage and social media multitasking on the academic performance of university students," *Computers in Human Behavior, Volume 68,*, pp. 286-291, 2017.
- [6] E. Alwagait, S. Alim and B. Shahzad, "Impact of social media usage on students academic performance in Saudi Arabia," *Computers in Human Behavior, Volume 51, Part B,* pp. 1092-1097, 2015.
- [7] S. Alabdulkareem, "Exploring the Use and the Impacts of Social Media on Teaching and Learning Science in Saudi," *Social and Behavioral Sciences (182)*, pp. 213-224, 2015.
- [8] T. R. Choi and Y. Sung, "Instagram versus Snapchat: Self-expression and privacy concern on social media," *Telematics and Informatics (35)8*, pp. 2289-2298, 2018.
- [9] J. Phua, S. V. Jin and J. (. Kim, "Uses and gratifications of social networking sites for bridging and bonding social capital: A comparison of Facebook, Twitter, Instagram, and Snapchat," *Computers in Human Behavior (72)*, pp. 115-122, 2017.
- [10] D. E. Alghamdi, "On the Scale in the Kingdom of Saudi Arabia: Facebook vs. Snapchat," *IJCSNS International Journal of Computer Science and Network Security, Vol. 21 No. 12*, pp. 131-136, Dec 2021.
- [11] D. E. Alghamdi, "'How can you live without using Snapchat?' Practical Study for the Usage of Facebook and Snapchat in the Kingdom of Saudi Arabia," *IJCSNS International Journal of Computer Science and Network Security, VOL.21 No.12,* pp. 579-585, December 2021.
- [12] Bartleby, "Privacy And Security Issues On Facebook Essay," 2010. [Online]. Available: <https://www.bartleby.com/writing/document/F36629ZTC>.
- [13] Statista, "Facebook: Active Users Worldwide," 2020. [Online]. Available: <https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/>.
- [14] GMI, "Saudi Arabia Social Media Statistics 2021," October 2021. [Online]. Available: <https://www.globalmediainsight.com/blog/saudi-arabia-social-media-statistics/>
- [15] "Lovin Saudi," July 2018. [Online]. Available: 1) <https://lovinsaudi.com/news/saudi-arabia-has-the-most-active-snapchat-users-in-the-world-and-no-country-even-comes-close-1>.
- [16] NationMaster, "Saudi Arabia Religion Stats," [Online]. Available: <https://www.nationmaster.com/country-info/profiles/Saudi-Arabia/Religion>. [Accessed October 2021].
- [17] M. AlMunajjed, *Women in Saudi Arabia today*, London: Macmillan, 1997.
- [18] A. Mirza , "Students' perceived barriers to in-class participation in a distributed and gender segregated educational environment," *The Electronic Journal of Information Systems in Developing Countries*. 35(7), p. 1–17, 2008.
- [19] D. Del Castillo, "Teaching through an electronic veil," *The Chronicle of Higher Education* 49(29), 2003.
- [20] S. Deave, "The contemporary Saudi women," in *A world of women: anthropological studies of women in the societies of the world*, New York, Praeger, 1980.
- [21] R. Baki, "Gender-segregated Education in Saudi Arabia: Its Impact on Social Norms the Saudi Labor Market," *Education Policy Analysis Archives* 12, 2004.
- [22] S. Al-Turki, *Al-Mar'ah fi al-Saudiyah The woman in Saudi Arabia*, London: Highlight Publications, 1987.
- [23] A. G. Abdulmuhmin, "Demographic differences in usage and attitudes toward the saudi arabian EFTPoS system," *International Journal of Bank Marketing* 16(3), pp. 117-128, 1998.
- [24] A. Alashban and M. Burney , "Customer adoption of tele-banking technology: the case of Saudi Arabia," *International Journal of Bank Marketing* 19(5), pp. 191-200, 2001.
- [25] A. Abdulmuhmin and Y. Umar, "Credit card ownership and usage behaviour in Saudi Arabia: The impact of demographics and attitudes toward debt," *Journal of Financial Services Marketing* 12(3), p. 219 – 234, 2007.
- [26] S. Al-Somali, B. Ghlami and B. Clegg, "An investigation into the acceptance of online banking in Saudi Arabia," *Technovation* 29, p. 130–141, 2009.
- [27] M. Eid, "Determinants of E-Commerce Customer Satisfaction, Trust, and Loyalty in Saudi Arabia," *Journal of Electronic Commerce Research* 12(1), 2011.
- [28] J. Kaye, "Self-reported Password Sharing Strategies," in *the SIGCHI Conference on Human Factors in Computing Systems, CHI '11*, Vancouver, BC, Canada, 2011.
- [29] N. Mathiasen and S. Bodker, "Experiencing Security in Interaction DesignExperiencing Security in Interaction Design," in *SIGCHI Conference on Human Factors in Computing Systems, CHI '11*, Vancouver, BC, Canada, 2011.

- [30] J. Karat, "Software evaluation Methodologies," in *Handbook of human computer interaction*, Amsterdam, North-Holland, 1988, pp. 891-903.
- [31] W. J. Clancey, "Observation of Work Practices in Natural Settings," in *Ch. 8 in The Cambridge Handbook of Expertise and Expert Performance*, New York, NY, USA, Cambridge University Press, 2006, pp. 127-146.
- [32] B. Gillham, *Research interviewing: the range of techniques*, New York: Open University Press, 2005.
- [33] J. Scott, "DIARY," in *The SAGE Dictionary of Social Research Methods*, London, SAGE, 2006 .
- [34] J. Rieman, "The Diary Study: A Workplace-Oriented Research Tool to Guide Laboratory Efforts," in *INTERACT '93 and CHI '93 Conference on Human Factors in Computing Systems*, New York, 1993.
- [35] D. Zimmerman and D. Wieder, "The diary: diary-interview method," *Urban Life* 5(4), pp. 479-498, 1977.
- [36] A. Adler and et al, "A Diary Study of Work-Related Reading: Design Implications for Digital Reading Devices," in *ACM CHI 98 Conference on Human Factors in Computing Systems*, 1998.
- [37] B. Brown, A. Sellen and K. O'Hara., "A Diary Study of Information Capture in Working Life," in *ACM CHI 2000 Conference on Human Factors in Computing Systems*, 2000.
- [38] A. Sellen and R. Harper, "Paper as an Analytic Resource for the Design of New Technologies," in *ACM CHI 97 Conference on Human Factors in Computing Systems*, 1997.
- [39] D. Bogdanovic and et al, "Contesting Methodologies: evaluating focus group and privacy diary methods in a study of on-line privacy," *Journal of Information, Communication and Ethics in Society*. 10(4), pp. 208-221, 2010.
- [40] P. Inglesant and M. A. Sasse, "The True Cost of Unusable Password Policies: Password Use in the Wild," in *CHI 2010*, Atlanta, Georgia, USA., 2010.
- [41] P. Dourish, E. Grinter, J. Delgado de la Flor and M. Joseph, "Security in the Wild: User Strategies for Managing Security As an Everyday, Practical Problem.," *Personal Ubiquitous Computer* 8(6), pp. 391-401, 2004.
- [42] V. Braun and V. Clarke, "Using thematic analysis in psychology," *Qualitative Research in Psychology*, 3, pp. 77-101, 2006.
- [43] V. Clarke and V. Braun, "Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning," *The Psychologist*, 26(2), pp. 120-123, 2013.
- [44] A. Abdulmuhmin and O. AlAbdali, "Adoption of Online Purchase by Consumers in Saudi Arabia: An Exploratory Study," in *Second Conference on Administrative Sciences*, Dhahran, Saudi Arabia, 2004.
- [45] D. Cole, *Nomad of the Nomads: The Al Murrah Bedouin of the Empty Quarte*, Chicago: Aldine Publishing Co, 1975.
- [46] D. Alghamdi, I. Flechais and M. Jirotko, "Security Practices for Households Bank Customers in the Kingdom of Saudi Arabia," in *Symposium on Usable Privacy and Security (SOUPS)*, Ottawa, Canada, 2015.
- [47] A. Holt, "Using the telephone for narrative interviewing: a research note," *Qualitative Research* 10(1), pp. 113-121, 2010.
- [48] A. Irvine, "Using phone interviews," 2010. [Online]. Available: <http://www.socialsciences.manchester.ac.uk/morgancentre/realties/toolkits/phone-interviews/14-toolkit-phone-interviews.pdf>.
- [49] L. Palen and M. Salzman, "Voice-mail diary studies for naturalistic data capture under mobile conditions," in *ACM conference on Computer supported cooperative work*, New Orleans, USA, 2002.
- [50] J. Creswell and V. Plano Clark, *Designing and conducting mixed methods research*. 2nd ed., SAGE Publications, Inc, 2011.

Deena Alghamdi received her B.Sc. Degree in Computer Science from King Abdulaziz University (KSA) in 2004, her M.Sc. Degree in Computer Security from Birmingham University (UK) in 2010, and the Dphil. Degree in Computer Security and Human-Computer Interaction from Oxford University (UK) in 2018. She is currently an Assistant Professor at Umm Al-Qura University (UQU-KSA). Her research interests include studying computer users' practices, computer security and privacy. She was the Banking and Financial Markets Department deputy at UQU from 2019 to 2021. Currently, she is the general supervisor of the Documents and Archives Centre with UQU.