

**Exploring the Use of Social Media by Female Saudi Nursing
Students for Personal and Academic Purposes**

By

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**A thesis submitted in partial fulfilment of the requirements of
Bournemouth University for the degree of Doctor of Philosophy**

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Abstract

Introduction: Social media is increasingly deployed in diverse fields, including nursing, but few studies have considered this in Saudi Arabia.

Aim: To examine the role of social media in female Saudi nursing students' lives and to explore the positive and negative influences of this from students' perspectives.

Research design: The grounded theory approach used in this research project was informed by the work of Charmaz (2014). A semi-structured interview consisting of open-ended questions was developed by the researcher for face-to-face interviews, which were digitally recorded, transcribed, translated, and then analysed using a constant comparative method, with participants' consent. Constant comparative method was used in each phase of data collection and analysis, facilitated by MAXQDA software.

Participants: 12 female undergraduate and postgraduate nursing students at King Saud University were recruited to participate in the study using purposive and theoretical sampling techniques. Ethical approval was gained from the Ethics Committees at Bournemouth University and King Saud University.

Findings: Three categories were identified as being key components of the theoretical model of the study findings regarding nursing students' usage of social media platforms: personal interests, extending knowledge, and challenges. Personal interests were identified as a core category because they are crucial in terms of understanding how nursing students connect and collaborate, extend their knowledge, and address challenges.

Conclusions and key recommendations: User personal interests shape personal and academic communication. Participants were acutely aware of the dangers posed by excessive use of social media, and the need to develop self-control to prevent this. Social media communication was perceived to have beneficial capabilities for academic organisation and planning, but to have issues related to information quality, distraction and attention loss, time consumption, and Internet connection problems. A key gap pinpointed in this research was the absence of formal guidelines on the use of social media, and strategies to develop social media learning abilities to benefit nursing students.

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Author's Declaration

I declare that, except where explicit reference is made to the contribution of others, this thesis is the result of my own work and has not been submitted for any other degree at the Bournemouth University or any other institution.

Further, I confirm that some parts of this thesis have been presented at a conference, a seminar and are under review for publication as:

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Dedication

This dissertation is dedicated to my caring parents Suda and Eidhah

To my loving husband, Naif

To my wonderful children, Othman, and Lana

For their endless love, support, and encouragement

Chapter 1

Introduction

1.1. Introduction

This chapter presents the contextual background of the study, including an overview of the Kingdom of Saudi Arabia (KSA) in terms of its religious background, geography, culture, economy, education (especially for nursing), and the use of social media platforms. This serves to contextualise the responses of the nursing students taking part in this research, and defines what is meant by “social media”; describes the different types of platforms which are referred to, used, and viewed most favourably by nursing students; and explains how social media is important in the domain of nursing education. The chapter then provides a rationale and justification for the research, states its core objective, and presents the research questions. It concludes with a short summary of the structure of the thesis. Finally, clear definitions are provided of the terms used in the research.

1.2. Overview of the Kingdom of Saudi Arabia

Situated in the south-western region of Asia, the KSA is the largest country in the Arabian Peninsula, with 13 administrative regions covering an area of 2.15 million km². Its principal cities are the capital city of Riyadh, the two holy Islamic cities of Makkah and Madinah, the second largest Saudi city and port of Jeddah, and the Eastern Province, which is the biggest region in the country and contains the largest volume of oil on the planet. The estimated population in 2020 was 35 million (including both Saudi nationals and a large expatriate population) (General Authority for Statistics 2020). The KSA is considered the home of Islam and the country in which the Holy Quran was revealed. The language of the Holy Quran is Arabic which is the official language of the KSA. However, English is an essential language which is widely used as a medium of instruction, including healthcare sciences, and it is the lingua franca of most healthcare organisations (Unified National Platform 2021). As a result of having the second largest reserves of oil on the world, the KSA has a major economy, and it is one of the leading members of the Organization of Petroleum Exporting Countries (OPEC 2021).

In terms of its culture, the KSA possesses a historical function as an ancient centre of trade, Bedouin traditions, and a rich Islamic heritage. A notable evolution has taken place in Saudi society over time, driven by a process of modernisation which has impacted aspects of society, ranging from values and customs to styles of clothing. Its traditions remain embedded in Arab customs and Islamic teachings. The most important events that take place during the year are the Hajj (pilgrimage) season and the holy month of

Ramadan, as well as the national holidays that accompany them. Among the valued Arab traditions of Saudis are hospitality and generosity (Unified National Platform 2021).

The Ministry of Education (MoE) plays an essential role in ensuring all citizens have access to education, enhancing the standard of scientific research, increasing the quality of outputs, forming community partnerships, promoting innovation and creativity, and maximising the abilities and skills of everyone undergoing education. In addition, it is responsible for supervising university education, general education, overseas study, and the provision of electronic services (Unified National Platform 2022). University education in particular has received strong support, as evidenced by enormous financial budgets and the creation of new universities along with scientific and applied colleges. Overall, there are 25 public universities, nine private universities, and 34 private colleges in the KSA, all of which offer specialist scientific and applied subjects in a variety of domains. Moreover, recent developments in scientific research and future planning have been promoted by the MoE in the field of higher education. For citizens and external scholarship students all public universities are free, and they are provided with a monthly bursaries whilst studying (MoE 2022). However, male and female students and faculty members are segregated in higher education. This means each university has separate campuses for men and women. Such segregation is a cultural norm applied in virtually every institution, public or private, and this includes all schools and universities (Alhazmi and Nyland 2010; Alasfor 2021).

The venue for this research, King Saud University (KSU), was established in 1957, and is currently the second university in the KSA. It offers undergraduate and postgraduate degrees across 21 colleges, divided into four specialist fields: health colleges, science colleges, community colleges, and humanities colleges. A report issued by the Deanship of Electronic Transactions and Communications at KSU states that there was a total of 63,891 regular students at King Saud University in the first semester of 2021, and 5060 faculty members (King Saud University 2022).

With respect to technology, the KSA is among the most technologically sophisticated nations in the Middle East, possessing the largest Information and Communication Technologies (ICT) market in the region, for which it was ranked 13th in the world in 2019. It was also the first country in the Middle East to adopt commercial 5G technology, and the third largest user of such technology globally. It also ranks fifth among the Group of Twenty (G20) countries for internet speed (Ministry of Communications and Information Technology 2022).

The long-term national development plan (Vision 2030) has resulted in social, economic, and cultural diversification. Among the projects currently being undertaken are a number of mega-projects which are being created to inspire the millennial generation to engage

in a process of productive discovery. The aim of such work is to engender extensive transformations that are now having a ripple effect on Saudi society, as reflected in the changes taking place on social media platforms (Vision 2030 2022; Global Media Insight 2022).

Out of an estimated population of 35.08 million, approximately 27.80 million people in the KSA are believed to be active users of social media, which amounts to 79.3% of the overall population. The principal driver of such high usage is the fact that most of the population now own a smartphone. Moreover, 84% of citizens live in urban areas where they have access to fast internet connections. The most popular social network platform with 30.05 million active users is YouTube (YT), followed by Instagram (25.66 m), Facebook (24.82 m), Twitter (23.98 m), LinkedIn (13.36 m), Pinterest (9.77 m), and Tumblr (5.98 m). In terms of messenger apps, WhatsApp is the most popular with 27.03 active users, followed by Facebook Messenger (17.93 m), Snapchat (17.93 m), TikTok (14.94 m), Telegram (9.74 m), Skype (8.7 m), WeChat (7.62 m), Line (6.95 m), and Twitch (6.21 m) (The Global Statistics 2022).

1.3. Nursing education in Saudi Arabia

Nursing education began in 1948 and has undergone numerous changes (Aljohani 2020). Under the MoE, 26 out of 39 nursing schools are public sector institutions established to provide nursing education programmes leading to undergraduate and postgraduate nursing degrees (Saudi Health Council 2022). The undergraduate degree consists of four years of academic study followed by an internship year. The first year concentrates on the scientific pathway and comprises two semesters. In this year, students take courses in English language, communication and learning skills, and general science. In the second and third years, students take general courses in nursing science, while in the fourth year, more specialised courses can be taken such as geriatric nursing care and critical and emergency nursing care. Internship sites facilitate the internship training while the internship itself is arranged and monitored by the university (Aljohani 2020).

To become eligible to practise as a registered nurse, students must pass the Saudi Nursing Licensing exam during or shortly after their internship (Aljohani 2020). Postgraduate nursing degrees are full-time courses which last for two years. In the first semester, students take general courses which form the basis for more specialised nursing programmes. On these courses, nurses are taught advanced learning and education skills, biostatistics and nursing research, and nursing theories. The specialisation nurses pursue determines the clinical to theoretical ratio of the courses they undertake (Aljohani 2020).

1.4. Social media definition

Social media is undergoing constant evolution through a diverse range of applications and functions targeted at a disparate body of users, and for a range of different activities. Unsurprisingly, no single definition of social media can be found in the literature. Nevertheless, Aichner et al. (2021) identified several co-existing definitions which are broadly accepted, and noted that definitions of social media change over time. The following are influential definitions in the literature, presented in chronological order:

“Social media are web-based services that allow individuals to (a) construct a public or semi-public profile within a bounded system, (b) articulate a list of other users with whom they share a connection, and (c) view and traverse their list of connections and those made by others within the system” (Boyd and Ellison 2007).

“Social media is a group of internet-based applications that builds on the ideological and technological foundations of Web 2.0, and that allows the creation and exchange of user-generated content” (Kaplan and Haenlein 2010).

“Social media are web-based or personal device-based applications that connect users with online resources or with each other” (Evans 2014).

“Social media is made up of various user-driven platforms that facilitate diffusion of compelling content, dialogue creation, and communication to a broader audience. It is essentially a digital space created by the people and for the people, and it provides an environment that is conducive for interactions and networking to occur at different levels (for instance, personal, professional, business, marketing, political, and societal)” (Kapoor et al. 2018).

Thus, the basic elements of social media, according to these definitions, are information content, users, purpose of usage, and communication methods. This accords with the review conducted by Aichner et al. (2021), which reported that SM encompasses a wide range of platforms with particular applications and functions that vary substantially. It therefore follows that the aim and perceived value of SM also varies among different users. For the purposes of this research, “social-media” is defined as technological applications nursing students can access from mobile smartphones, tablets, and laptops for both personal and academic reasons, and which enable them to interact and share information such as voice records, texts, videos, and pictures on a multitude of platforms.

1.5. Types of social media

Social media refers to a vast array of digital applications which include social networking sites (SNSs), podcasts, blogs, webcasts, and integrated versions of these instruments (O'Connor et al. 2018). Rice et al. (2016) similarly suggest that it encompasses a variety of overlapping platforms with varying functions, including media sharing (e.g., platforms such as YT and Flickr where users can upload and share pictures and videos), and social networking (e.g., platforms such as LinkedIn and Facebook that allow users to connect

with people from similar backgrounds and with similar interests). These enable users to create a unique profile, engage with others in a variety of ways, and set up groups for those with shared interests. Blogs are online forums where users can engage in discussions on particular topics by posting and responding to messages. In microblogging (e.g., Twitter), users can post short messages for subscribers to follow.

For this research, social media refers to the different platforms cited, used, and favoured by nursing students, namely WhatsApp, YT, Twitter, Snapchat, Instagram, TikTok and Telegram. An overview of each type of platform is provided in the following sections.

1.5.1. WhatsApp

Created by Jan Koum and Brian Acton in 2009 for mobile devices, WhatsApp is an instant messaging service whereby messages are transmitted via the internet. Using this application, people can make voice calls and send and receive an array of different media such as photos, videos, text, and documents. It is free to use, and provides a straightforward and secure means of making messages and phone calls worldwide. Currently, WhatsApp is used by at least 2 billion people in more than 180 countries to contact friends and family at any time and in any location (WhatsApp 2022). It is the most popular messenger application in the world (Statista 2022d).

1.5.2. YouTube (YT)

Created in 2005 by Steve Chen, Chad Hurley, and Jawed Karim, YT is an online platform for sharing videos which is now owned by Google. The estimated number of users across the world in 2021 was approximately 2.24 billion (Statista 2022e). Platforms like YT are classified as social media because they allow users to interact and engage in dialogue. The ability to interact is embedded into the architecture of YT as users can rate and comment on videos. The number of views received by a video as a result of shares will affect its popularity and the degree to which it can easily be found (Motion et al. 2015).

1.5.3. Twitter

Developed by Jack Dorsey, Noah Glass, Biz Stone, and Evan Williams in March 2006, Twitter is a platform designed to support microblogging. Its basic purpose is to enable users to engage with each other by posting 280-character messages called “tweets”. To index keywords or topics, an easy access feature known as a “hashtag” (any word preceded by a #) is used. These were created on Twitter and enable users to follow the topics in which they have an interest, whether they are related to breaking news, sports, politics, or entertainment. All they need to do is click on the hashtag to access relevant Tweets (Twitter 2022). There were 206 million active users of Twitter across the world in the second quarter of 2021 (Statista 2022f).

1.5.4. Snapchat

Founded in September 2011 by Evan Spiegel, Bobby Murphy, and Reggie Brown, Snapchat is an instant messaging application. It was originally designed to allow users to share pictures using private message “snaps” that are viewable for a certain period of time (determined by the user), after which they are no longer accessible. The snaps that comprise the central feature of the Snapchat are short videos and photos which can be edited with stickers, filters, and text. It has since become a major feature of social media marketing targeted at teenagers. Leading the field in the adoption of Snapchat are visually powerful brands in the fields of fashion, beauty, and sportswear. It is now one of the most frequently used photo sharing and social messaging apps. There were an estimated 319 million people actively using Snapchat on a daily basis in the fourth quarter of 2021 (Statista 2022b).

1.5.5. Instagram

Created by Kevin Systrom and Mike Krieger in 2010, and now owned by Facebook, Instagram is a social media application designed for photo and video sharing. Users of the platform are able to take pictures and then use an array of digital filters to edit them. Because users can easily share their content on social networks such as Twitter, Facebook, Tumblr, and Flickr, Instagram has the advantage of facilitating a high level of social integration, helping it to become one of the most popular mobile social apps in the world. Amongst users younger than 35, Instagram ranks as the third most favoured network, behind Snapchat and TikTok. As of December 2021 it had 2 billion active users worldwide (Statista 2022a).

1.5.6. TikTok

Originally known as Musical.ly, TikTok was founded in September 2016 by Zhang Yiming as a platform for sharing short videos, and its more familiar current name was applied when it was acquired by ByteDance in November 2017 (Montag et al. 2021). It is a platform that enables users to create, edit, and share brief video clips embellished with the use of filters and the accompaniment of up-to-date music. It is especially attractive to younger users, as it enables them to take part in dances and challenges with the aim of becoming well known on this platform. This enables them to develop a novel portfolio of online content and potentially generate their own network of teenage celebrities. In September 2021 there were 1 billion monthly active users on the platform, making it one of the largest social networks in the world (Statista 2022a).

1.5.7. Telegram

Created in 2013 by Nikolai and Pavel Durov, Telegram is a cloud-based messaging platform that enables users to send photos, videos, messages, and files of any type

(PDFs, Word documents, mp3s, PowerPoint presentations etc.) and set up channels for unlimited audiences or groups as many as 200,000 people. Along with voice chats in groups comprising thousands of participants, Telegram also permits end-to-end encrypted video and voice calls (Telegram 2022). In 2021, there were an estimated 550 million monthly active users of Telegram (Statista 2022a).

A summary of the social media platforms favoured by the nursing students in the current research is presented in Figure 1.

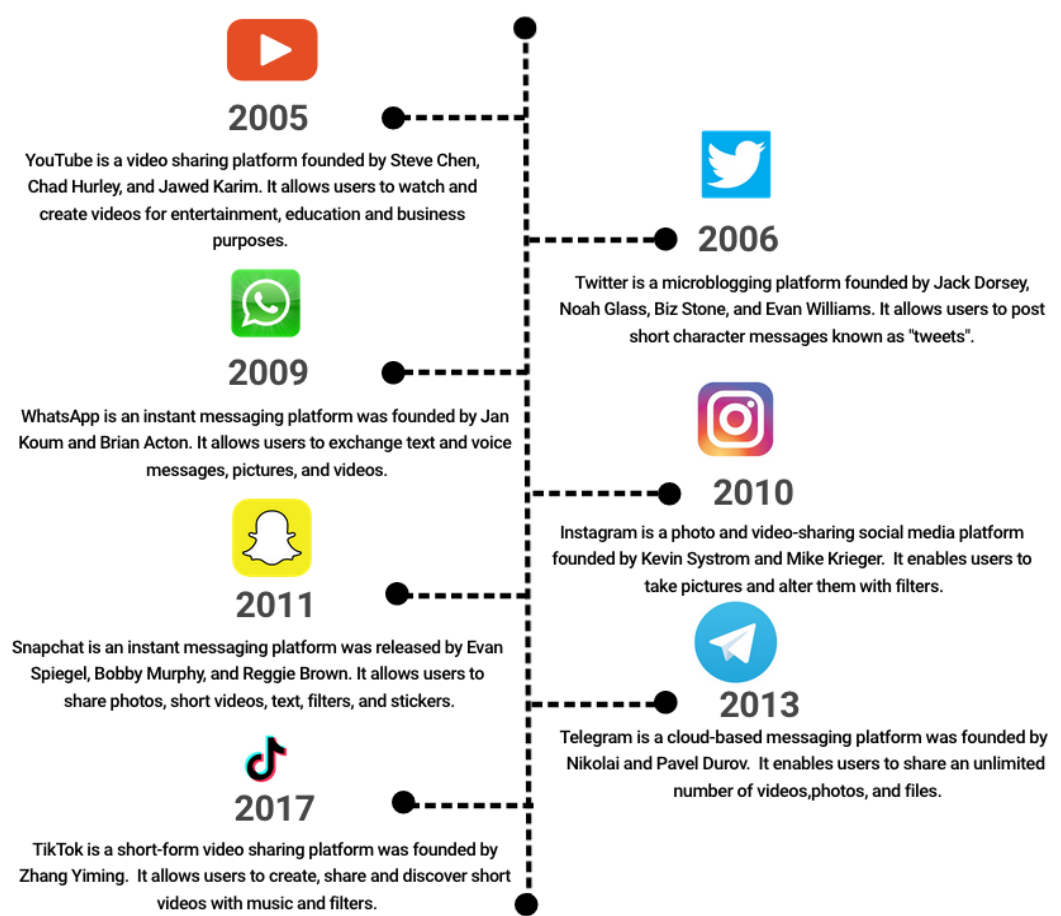


Figure 1. Overview of social media platforms favoured by the participants in the current study

1.6. Social media in nursing education

Social media provides those who use it with a means of interacting, communicating, and sharing information. It has executed a remarkable transformation in the domain of communication over the past two decades, and aroused intense scholarly interest in various aspects of how social media can be used, including in nursing education. Multiple studies have revealed the many benefits nursing students derive from such platforms.

Tuominen et al. (2014) found that nursing students viewed social media as engaging and essential for nursing education. They believed that it enables these students to communicate and exchange information in multiple ways. They argued that social media is perceived as helping to generate radical solutions that can substantially change traditional methods and modes of thought, and they called for teachers to be original in their approach and adopt new methods of supporting their teaching. They considered that the free and easy-to-use nature of social media has made it ubiquitous, offering great scope and tools to improve learning, communication, participation, and engagement.

O'Connor et al. (2018) conducted a systematic review on the use of social media in midwifery and nursing education, and found that it has a beneficial effect in enabling students to acquire new skills and knowledge. In addition, it also assisted in establishing professional and personal networks, and increasing confidence levels amongst these students. More recently, Hayward (2022) found that social media can help student nurses make decisions pertaining to their studies, as well as increasing their involvement in and enjoyment of their work. For instance, social media was used by nursing students to identify, construct, and control their "own space", providing them with a "whole new world" of social connections from which they could benefit personally and professionally. Nursing students viewed these as "opening doors" with respect to their development and learning that will help both themselves and their colleagues on their "journey to be nurses".

Jackson et al. (2014) pinpointed four key areas in which the use of social media could potentially benefit the professional development of nurses: academia, clinical practice, research, and administration. In academic settings, social media can provide a valuable tool to support nurses and assist them in developing the competencies needed to enhance patient outcomes. With respect to clinical practice, social media enables nurses to disseminate their knowledge and skills to others and enhance societies of practice and local support networks. In terms of research, social media provides a useful medium through which nurse researchers can gather data and disseminate their findings. Finally, in terms of administration, social media provides a means for nurses to engage with local and international organisations and share information and ideas in a manner that would not have been conceivable until relatively recently. All four of these areas can potentially have a positive impact on the standard of nursing care and nurses, and the outcomes for service users and patients.

With respect to the potential difficulties that arise when using social media for nursing education, most studies have primarily concentrated on areas of misuse such as a failure to respect the privacy and confidentiality of patients. Indeed, Westrick (2016) found that

the possible misuse of social media platforms by nursing students is becoming an increasingly salient issue in nursing education. The consequences of this are multiple, and include potential lawsuits from patients and service users whose confidentiality has been breached, also diminished programme integrity, and problems maintaining professional boundaries, all of which are issues that may negatively impact students, staff, and programmes. This can result in academic or disciplinary actions being taken against students which may result in them being ejected from a programme or failing a clinical course.

Westrick (2016) explained that nursing students may not be fully cognisant of their professional responsibilities regarding the use of social media platforms, particularly with respect to nurse-patient relationships. Nursing students need to be aware that once they become members of the professional healthcare community, they must adhere to specific guidelines and abide by certain restrictions when sharing information and photos relating to their personal lives on the internet. This led Daigle (2020) to emphasise the importance of nursing students learning how to use social media for both personal and educational purposes while fulfilling professional responsibilities and meeting their ethical and legal obligations, which entails some kind of instruction and teaching in order to integrate social media into nursing education and practice effectively.

1.7. Personal motivation

In my current position as a lecturer at the College of Nursing in King Saud University (KSU), I am responsible for teaching community health nursing courses. A number of factors inspired me to undertake this research project. First, I noticed that when nursing students were performing different tasks on the course, they preferred to communicate and work with each other, and also with faculty staff, by using social media platforms such as WhatsApp rather than official forms of media such as blackboard and email. I therefore wished to explore how nursing students use such platforms for both academic and personal reasons.

Second, having worked in the domain of nursing education for a substantial number of years, I have observed a major shift away from traditional forms of teaching and learning (e.g., textbooks, printed materials, and lecture notes) towards greater utilisation of social media platforms and technological devices such as iPads, tablets, and smartphones. Consequently, I desired to examine what students saw as the pros and cons of using social media for both academic and personal reasons.

Third, having decided upon the topic, I reviewed the relevant literature, and discovered that even though research has been conducted worldwide, and there has been

considerable emphasis on the importance of doing so, few studies have been undertaken in the field of nursing education in Saudi Arabia. Furthermore, as explained in Section 2.3, most research on the use of social media has adopted a quantitative approach and concentrated on theory-testing instead of generating in-depth explanations. I was inspired to address this gap in the literature by adopting a qualitative approach to examine nursing students' use of social media platforms. Having established a background in quantitative research during my master's degree, I was aware this was my first experience into performing qualitative research; thus, I ensured that I read widely and engaged in as much relevant training as possible. Frequent discussions with my supervisors also provided invaluable support as they had accrued substantive experience in the use of grounded theory. The latter was important because constructivist grounded theory was the methodological framework I had chosen to address my research questions. I selected this approach because it enables rich qualitative data to be collected and analysed from a wide range of participants. Additionally, as well as allowing participants to speak for themselves, it also facilitates exploration of the researcher's own experiences. Implementing this approach not only increased my knowledge of the topic, but also enhanced my ability to implement methodologically rigorous and productive research. Inspired by the topic and the research experience accrued, I now feel sufficiently confident to undertake a doctoral research programme.

I am convinced that my research will be of immense practical and scientific value to nursing education, particularly in the Kingdom of Saudi Arabia. For example, it will inspire a greater number of nursing students in the KSA to use social media whose relevance will assist the Vision 2030 initiative in fulfilling its declared objectives. Beyond this, I will strive to disseminate my findings through presentations at national and international seminars and conferences, and through peer-reviewed articles. In addition, based on the findings, I aim to develop national guidelines to ensure social media are used appropriately, safely, and advantageously by nursing students in the KSA.

1.8. Significance of the study

The significance of the current research is that it makes a general contribution to existing literature on the use of social media in nursing education, particularly with respect to its usage in higher educational institutions in the KSA. Even though a number of studies have explored social media usage across a range of disciplines, there has been little focus on the domain of nursing education in Saudi Arabia (Alsaqri et al. 2018; Alharbi et al. 2021). The current study fundamentally seeks to address this research gap by exploring social media role among nursing students in the KSA.

In terms of scientific understanding, this study contributes in four main areas: theoretical, methodological, practical, and the professional goals of the researcher. On a theoretical level, this study was among the first to explore the use of social media for personal and academic purposes among both undergraduate and postgraduate nursing students. It therefore fills an existing gap in empirical knowledge that will enhance understanding of the role played by social media in the lives of these students. Moreover, the theoretical model developed in this research can be used by other researchers to extend work in this area.

In terms of methodology, this was one of the first studies to utilise the Charmaz (2000) version of constructivist grounded theory as part of a qualitative exploration of the usage of social media in nursing education in the KSA. It therefore generated crucial and novel insights into this issue while providing a valuable qualitative database which can form the basis of subsequent research in nursing education.

In terms of practical contributions, the findings will assist decision makers in the Saudi MoE in devising and constructing nursing programmes which embed social media into the curriculum, in order to increase and improve the practical and theoretical knowledge acquired by nursing students. It will also enhance and extend learning opportunities within nursing education by motivating staff to explore the potential value offered by social media. Moreover, for the researchers, the experiences and opinions of the nursing students who took part in this study will help inspire other health professionals to examine the role played by social media in education.

In terms of the professional goals of the researcher, this study will enhance her knowledge and research skills and enable her to disseminate her findings through presentations at conferences and seminars, and the publication of peer-reviewed articles. A key issue highlighted in this research is the absence of any formal guidelines for Saudi nursing students on social media usage. The researcher therefore aims to use the findings to help create national guidelines on the use of social media by nursing students to ensure such media is used appropriately, safely, and effectively.

In addition, the researcher also has an initiative plan to develop an innovative social media platform for nursing students. The purpose will be to help integrate social media into nursing education through the provision of educational materials on nursing procedures, nursing care plans, patient health education, and preparation for the National Council Licensure Examination (NCLEX) exam. This will facilitate collaboration between nursing researchers, provide trustworthy resources for nursing education, and offer a useful channel of communication through which nursing students and professional nurses can share information services. This research is also highly relevant

to the Vision 2030 (2022) national development strategy, as it will assist in achieving its aims and increase the usage of social media by nursing students in the KSA.

Finally, the present study highlights the need to conduct further research in this area in order to understand how nursing students are using social media. This will enable them to maximise the personal and professional benefits of social media, not only for themselves but also for their patients. This is an essential task given the increasingly significant role of social media worldwide. As the effect of the COVID-19 pandemic has demonstrated, massive changes in approaches to learning and teaching worldwide underscore the need to develop new strategies for learning remotely that enable students to remain connected with fellow learners, educators, and the wider profession (Alharbi et al. 2021; Wallace et al. 2021).

1.9. Research aim, questions, and objectives

This study aims to examine the role of social media in female Saudi nursing students' lives and to explore the positive and negative influences of this from the students' perspective. This was achieved by answering the following research questions:

- (1) How do female Saudi nursing students use social media in their daily lives for personal and academic reasons, and are these uses connected?
- (2) What do female Saudi nursing students identify as the advantages and disadvantages of using social media for personal and academic purposes?

The core objectives of the research to achieve the above aims are to:

- (1) Explore the daily use of social media for personal and academic reasons by female Saudi nursing students.
- (2) Describe how they use social media.
- (3) Identify the ways in which social media is used in the academic and practical environment within their university.
- (4) Explore female nursing students' interest and perceived level of skill in the usage of social media platforms.
- (5) Identify what female Saudi nursing students perceive as the advantages and disadvantages of using social media in their personal and academic lives.

These questions are revisited in the final chapter (section 6.3) to assess the extent to which they were addressed and the aims of the study were met.

1.10. Definition of terms

The following key terms used in the current study are operationally defined as follows:

Social media: refer to technological applications that allow nursing students to easily interact and exchange information such as text, voice records, pictures, and videos, through multiple platforms, which can be accessed from mobile smartphones, tablets and laptops for personal and academic purposes.

Nursing students: those enrolled on an undergraduate or postgraduate nursing education programmes.

Personal purposes: activities engaged in by students for personal enjoyment, such as listening to music, watching movies, and browsing the news.

Academic purposes: activities relating to education such as studying, preparing for examinations, undertaking course projects, and completing assignments.

1.11. Thesis structure

This thesis comprises six chapters, each of which is summarised below:

Chapter 1: Introduction – This chapter provides a synopsis of existing research relevant to the topic area, the justification for the research, its primary aim, the research questions, and an outline of the structure of the research.

Chapter 2: Literature Review – This chapter presents a broad ranging review of existing literature and establishes the background to the study.

Chapter 3: Methodology and Methods – This chapter explains the research design and the decisions made regarding the chosen research paradigm and methodology. Various approaches to grounded theory are described and an explanation provided for choosing constructivist grounded theory. The process of constructivist grounded theory is articulated and practical details presented regarding the different phases of data collection. Finally, the process of data analysis is described and the different coding phases explained.

Chapter 4: Findings – This chapter presents the findings of the research. Firstly, an explanation is provided of categories and subcategories of meaning derived from the data. Illustrative quotes are used throughout to support the analytical interpretations made. A conceptual model of students' use of social media based on the findings is then described.

Chapter 5: Discussion – This chapter presents a critical reflection on the findings with respect to previous research. It concentrates on categories and subcategories deemed vitally important in interpreting the data and developing the theoretical model.

Chapter 6: Conclusion and Recommendations – This chapter provides an overview of the main findings, assesses the strengths and limitations of the work, its various contributions, and makes recommendations for future research.

1.12. Chapter summary

This chapter has provided background information to the study, offered a rationale for the research, presented the core objective and research questions, and concluded with a synopsis of the structure of the thesis.

**Chapter 2 has been redacted as it contains information about research in progress where there may be an intention to publish at a later date

See <https://eprints.bournemouth.ac.uk/38108/>

Chapter 3

Methodology and Methods

3.1. Introduction

In this chapter, the methodological approach and methods utilised for this research are presented. The principal objective was to examine the perceptions and experiences of female Saudi nursing students using social media for personal and academic reasons, and to examine the perceived advantages and disadvantages of doing so. To achieve the objectives for this research, Grounded Theory was adopted as the methodological approach. This research will be informed by the work of Charmaz (2014).

Importantly, the chapter demonstrates how the methods employed align with the selected methodology. The issues covered include the techniques of purposive sampling and theoretical sampling, concepts such as theoretical sensitivity, constant comparison, and theoretical saturation, data analysis, the use of memos, and approaches to refining and expanding the categories, including the use of theoretical diagrams and memos proposed by Charmaz (2014). An in-depth description of the methodological procedures employed when gathering and analysing the data also ensures that the research process is transparent. Careful steps were also followed to ensure the findings were trustworthy, which enhances the quality of the data. Furthermore, consideration is given to the need for reflexivity within such research, which demands that attention be paid to the personal history, motives, and assumptions of the researcher. To end the chapter, other measures to increase the research quality are also discussed and, in accordance with the requirements of a doctoral thesis and constructivist research, an in-depth exploration of ethical issues is presented.

Extensive supplementary data relating to the discussion presented in this chapter can be found in the appendices, including the interview schedule (Appendix 4), ethical approval (Appendix 5, Appendix 6), risk assessment (Appendix 7), certified translation office documentation (Appendix 8), and the participant information sheet (Appendix 9) and consent form (Appendix 10).

3.2. Research aim

To examine the role of social media in the lives of female Saudi nursing students and explore its positive and negative effects from the students' perspective.

3.3. Research questions

- (1) How do female Saudi nursing students use social media in their daily lives for personal and academic purposes, and are these uses connected?
- (2) What are the advantages and disadvantages of social media use by female Saudi nursing students for personal and academic purposes from the student perspective?

After developing these questions, it is important to determine the most efficient methodological approach for answering them.

3.4. Three components involved in a research approach

It is critical for researchers to understand research approaches and assumptions to ensure that the methodology and methods chosen effectively answer the research questions. Creswell and Creswell (2018) describe a research approach as a plan for conducting research that combines philosophical assumptions, research designs, and specific methods into an overall interconnected framework. Figure 2 presents the research framework for this study.

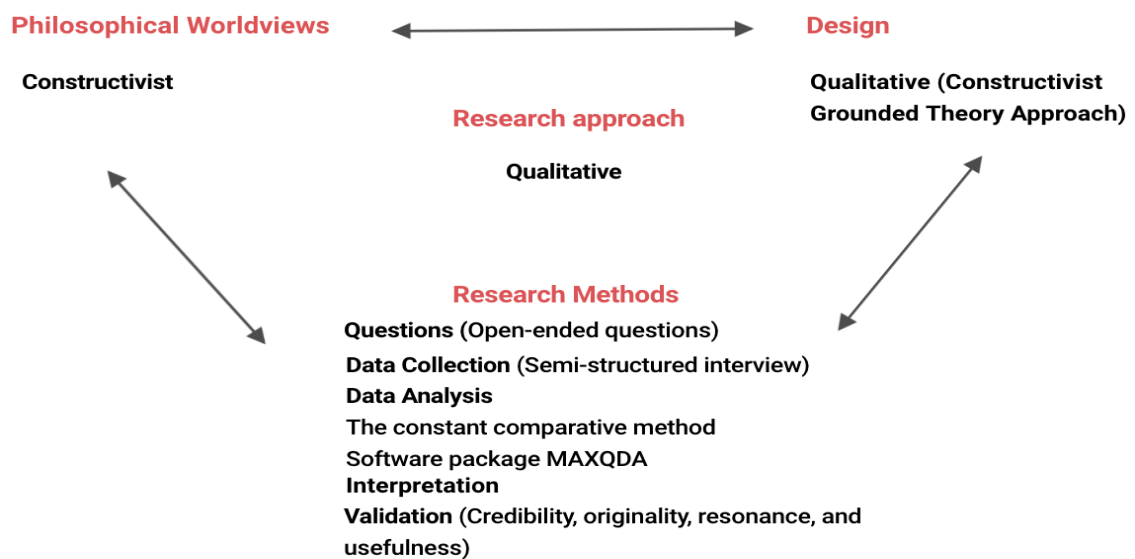


Figure 2. Research framework for this study

Source: adapted from Creswell and Creswell (2018)

3.4.1. Philosophical worldviews

3.4.1.1. Worldview dimensions

Creswell and Creswell (2018) and Guba (1990, p.17) claim that the concept of “worldview” denotes a fundamental set of beliefs that guide people’s actions and behaviours. Polit and Beck (2018) employ the term “paradigm” to describe a worldview, which they characterise as an overarching perspective on the inherent complexities of

the world people inhabit. Guba (1990) asserts that paradigms comprise a group of beliefs held by the researcher that shapes their subsequent actions. There are three principal aspects of a paradigm (Guba 1990):

- Ontology – the way in which reality is perceived and understood.
- Epistemology – the nature of the relationship between the research and the knowledge to be revealed or discovered.
- Methodology – the approach adopted by the researcher to acquire the knowledge they seek.

According to Polit and Beck (2018), two diverse paradigms can be identified:

- The positivist paradigm – principally linked with the traditional quantitative approach to research
- The constructivist paradigm – primarily associated with the use of qualitative research methods

The primary concepts of each paradigm are presented in Table 3 (Polit and Beck 2018, p.40). This table compares the key assumptions underlying both approaches, and explains how the core assumptions of the constructivist paradigm formed the basis of the current study.

Types of assumption	Positivist paradigm	Constructivist paradigm	Assumptions of the constructivist paradigm used in the current study
Ontological	Existence of a real world driven by real, natural causes	Reality is multiple and subjective, as it is mentally constructed by individuals	The researcher believes that nursing students' perceptions of reality vary, and that multiple realities therefore exist regarding their use of social media
Epistemological	Researchers and subjects are independent of each other	Researchers and subjects interact; findings are the outcome of this interactive process	As a university lecturer, the researcher believes interaction with nursing students is essential; the position is that of an insider-outsider
Axiological	Values and biases are to be minimised or eradicated; objectivity is the aim	Subjectivity and the presence of values are both inevitable and desirable	The researcher adopted a reflexive stance to examine and assess impacts on the research, and to explain and justify all decisions made
Methodological	Deductive process	Inductive process	An abductive process was employed (Charmaz 2006), whereby the researcher examines experiences, constructs theoretical links and inferences, and then engages in rechecking through comparison with additional data on experiences

Table 3. Major assumptions

Source: adapted from Polit and Beck (2018)

The core assumptions aligned most closely with the researcher's worldview are enshrined in the constructivist paradigm. Creswell and Creswell (2018) contend that research conducted within this paradigm principally employs a qualitative approach. However, considerable debate exists within the literature regarding the specific worldviews or beliefs researchers bring to their investigations. In this chapter, the four approaches most prevalent in the existing literature are considered: postpositivism, transformative, pragmatism, and constructivism.

3.4.1.2. Postpositivist worldview

Postpositivist assumptions are closely associated with a more traditional approach to research and are based on ensuring accuracy. It is a worldview that is also described as "the scientific method" or conducting "science research". According to Creswell and Creswell (2018), researchers using this paradigm begin with a theory (existing or newly posited), collect data that either support or reject that theory, and then make the requisite adjustments (if needed) to the theory prior to conducting further investigation. Because theory verification was not the aim of the current study, this worldview was considered inappropriate for this research.

3.4.1.3. Transformative worldview

A transformative worldview focuses on the needs of groups or individuals who potentially face marginalisation or disenfranchisement. It adopts theoretical perspectives concerned with addressing salient issues, the individuals whose lives are to be explored, and the changes that are deemed necessary. Creswell and Creswell (2018) state that such perspectives include critical theory, feminist critiques, queer theory, disability theory, and debates on race. However, issues of power or justice were not the concern of the current study, and this worldview was therefore considered inappropriate.

3.4.1.4. Pragmatist worldview

A pragmatist worldview, by contrast, focuses on the immediate research problem. To fully understand the issue, a variety of approaches and techniques can be utilised by the researcher. Thus, to acquire in-depth insights, it frequently draws on a mixture of qualitative and quantitative data, and is therefore aligned with a mixed-methods approach (Creswell and Creswell 2018). However, quantitative data were not required for the current study, as the focus was on developing an in-depth understanding of nursing students' experiences.

3.4.1.5. Constructivist worldview

The constructivist worldview is one that seeks to uncover and understand the meanings others ascribe to a particular phenomenon and then inductively create a pattern of meaning or theory to explain these. Social constructivism is predicated on the assumption that people seek to understand their environment or world by creating and ascribing subjective meanings to their experiences, often focusing on specific objects or items (Creswell and Creswell 2018). Because such meanings are both diverse and numerous, the researcher aims to capture the complexity of differing views, rather than distil meanings into a small number of categories or concepts.

In the current study, the aim was to elicit the perspectives of student nurses on the use of social media and "enable them to create their own meaning out of a particular situation". Such meanings are usually constructed through interactions or discussions with others. Thus, open-ended questions were preferred as these enabled the researcher to hear and understand what individuals are doing or saying in their daily lives (Creswell and Creswell 2018). Because constructivists generally consider a qualitative approach aimed at eliciting subjective meanings to be an optimal mode of enquiry, this worldview was considered appropriate for this research.

3.4.1.6. Selection of constructivist worldview

Creswell and Creswell (2018) argued that a good research project will include a section that addresses three key elements: the philosophical worldview adopted; the

fundamental concepts underpinning that worldview; and a description of how the approach taken by the researcher was influenced by that worldview. Regarding this worldview, social constructivists contend that people strive to pinpoint the subjective meanings underpinning their experiences of specific objects or entities. In relation to the current study, the researcher focused on the subjective and hence unique experiences and perspectives of student nurses. The fundamental concept underlying the constructivist worldview is that people construct meanings in relation to their environment and the wider world (Creswell and Creswell 2018). Each person experiences the world in a unique way; hence, such meanings are highly subjective. The questions included in this study were therefore designed to be as open-ended as possible, so that participants were able to express their views. However, although participants' perspectives are unique, social constructivists also assert that they are substantially influenced by background and culture; understanding and addressing these contextual aspects is therefore a key focus of research. In line with this, the researcher must also recognise that their interpretation of the data is influenced by their background (Creswell and Creswell 2018); hence, their personal, cultural, and historical experiences are attended to throughout the analysis.

In line with these aims, the current study examined the perspectives of student nurses in relation to both their subjectivity and the underlying context. Furthermore, given its emphasis on preserving the disparate nature of such perspectives and the overall complexity of the data, a qualitative approach based on a constructivist worldview was the most eminently suitable approach for this study.

3.4.2. Research approach

Approaches to research comprise plans and procedures for carrying out research. They encompass everything from underlying assumptions to the collection, analysis, and interpretation of data. There are three primary approaches: qualitative, quantitative, and mixed-methods. The particular approach chosen is based on the personal experiences of the researcher, the study aim, and the nature of the problem being investigated (Creswell and Creswell 2018). Because the aim of this study was to examine the role of social media in the lives of female Saudi nursing students, and to explore positive and negative aspects of this, a qualitative approach was adopted for this research.

To justify the selection of a qualitative approach, all three approaches are assessed in this section. The first of these, qualitative research, aims to examine, reveal, and understand the meanings individuals or groups ascribe to particular social phenomena. The chief concern of qualitative researchers lies in exploring the ways in which people think and act in the context of their daily lives (Taylor et al. 2016; Creswell and Creswell 2018). The focus of qualitative researchers is therefore on individuals or groups within

specific social contexts; it is thus concerned with naturalistic exploration and discovery, rather than testing hypotheses in support of a particular theory (Engel and Schutt 2017). The process typically involves formulating questions and developing procedures, gathering data in naturalistic settings, inductively analysing the data by building specific features into general themes, and offering interpretations as to the meaning of the data. Rather than ascribing their own meanings, researchers ensure their interpretations are grounded in the meanings that participants themselves ascribe to the phenomena they describe (Creswell and Creswell 2018).

There were two principal reasons for adopting a qualitative exploratory approach in this research. Firstly, the lack of a qualitative approach to understand the use of social media by female Saudi nursing students within research to date on this area. This aligns with Strauss and Corbin's (1990, p.19) assertion that "qualitative methods can be used to uncover and understand what lies behind any phenomenon about which little is known". Moreover, Creswell and Creswell (2018) argue that a qualitative approach is appropriate if the sample is one that has rarely been included in research. Secondly, a qualitative exploratory design is the best approach to adopt if the researcher wishes to obtain rich, narrative information and a detailed understanding of a particular phenomenon and/or group under investigation. Polit and Beck (2018) contend that a more flexible research design is required to meet these aims and generate a holistic understanding of a specific topic.

The second type of research approach, quantitative research, aims to objectively test theories by identifying the relationship between different variables. Specific instruments are employed to measure these variables, and the data generated are typically analysed using statistical tests (Creswell and Creswell 2018). In general, quantitative researchers begin by developing or modifying a theory and then testing this by formulating questions or hypotheses postulating the existence of relationships between specific variables (Phillips et al. 2000). The underlying assumptions of quantitative researchers are the need to test theories in a deductive fashion, minimising bias, excluding competing explanations, and generating findings that are both generalisable and replicable (Creswell and Creswell 2018). However, the data produced do not provide in-depth information on the perceptions, beliefs, or experiences of individuals, and for that reason this approach was rejected for the current study.

The third type of research approach, mixed-methods, was described by Creswell and Creswell (2018) as one that involves collecting and combining both qualitative and quantitative data. This necessitates the creation of unique research designs based on various philosophical assumptions and theoretical frameworks. The core assumption that underpins mixed-methods research is that a far greater insight is obtained by

combining both quantitative and qualitative data. However, this approach was considered unsuitable for this study, given its nature and underlying characteristics, as it is heavily reliant on rich data exploring participants' perceptions of social media usage.

3.4.3. Research design

Creswell and Creswell (2018) note that qualitative research comprises five different approaches: narrative research, phenomenology, ethnography, case study, and grounded theory. This section gives a brief overview of each, along with a justification for the research design used in this study.

- Narrative research involves examining the stories people tell of their individual experiences. Such information is frequently presented in the form of a narrative chronology (Creswell and Creswell 2018). However, because the narrative approach concentrates on collecting data via storytelling, it was considered inappropriate for this research.
- Phenomenological research combines both philosophical and psychological investigations. The research aims to detail individuals' experiences of a phenomenon based on their own descriptions (Creswell and Creswell 2018). It is also an approach concerned with the internal (cognitive) representations of such phenomena (Percy et al. 2015). However, because the current study aimed to understand the external contexts surrounding participants' experience of a particular situation, this approach was considered unsuitable.
- Ethnography focuses on describing and analysing the contextually embedded social-cultural experiences of a particular social group (Percy et al. 2015). This involves an examination of routine patterns of actions, speech, and behaviours within a cultural/social group in their natural environment over a long period of time. Data are usually collected through interviews and observations (Creswell and Creswell 2018). However, because the current research was not concerned with the culture or norms of a specific group, an ethnographic approach was considered unsuitable.
- Case study aims to provide a thorough overview and analysis of an individual, group, or multiple cases over time (Percy et al. 2015; Creswell and Creswell 2018). Because the aim of this research was to elicit a broad array of views rather than focus on a particular case, this approach was considered inappropriate.
- Grounded theory is primarily based on sociological investigations. It is one in which the perspectives of participants are used to develop a general, abstract theory that explains a particular process, action, or interaction (Creswell and

Creswell 2018). Grounded theory encompasses multiple stages of data collection, a process that is followed by multiple enhancements and adjustments to define the interrelationships between different categories (Charmaz 2006; Corbin and Strauss 2014). Given that the aims of the current study were to explore and understand Saudi female nursing students' perspectives on social media usage, this approach was most closely aligned with these aims and was therefore selected.

3.5. Grounded theory

3.5.1. Overview

Through the provision of specific procedures for data collection and analysis, grounded theory represents a highly systematic approach to research. Its principal objective is to develop a theory that explains in an abstract method key issues in the domain under investigation (Charmaz and Thornberg 2020). Whilst conducting social science research in the 1960s into hospital patients close to death, Glaser and Strauss (1967) developed the Grounded Theory approach. Later, they went their separate ways and developed distinct approaches to grounded theory, commonly referred to as the "Glaserian" and "Straussian" approaches. A third analytic approach named "constructivist" grounded theory was subsequently developed by Charmaz (2000).

Glaser's initial approach is usually described as "classic" grounded theory. An innovator in this field, Glaser adhered to a post-positivist paradigm and focused on the emergence and discovery of data. He believed that adherence to a systematic set of methodological procedures would reveal the objective theory hidden in the data, and that this theory would therefore be the same irrespective of who performs the analysis (Glaser and Holton 2004). To avoid introducing biases and preconceived beliefs, Glaser contended that an objective stance should be adopted and maintained by the researcher (Alemu et al. 2017).

A number of scholars, particularly those working within the constructivist paradigm, have criticised Glaser's approach for being incompatible with the underlying assumptions of qualitative research, such as the belief in multiple realities and the interaction that takes place between the researcher and the data when constructing their findings (Bryant and Charmaz 2010). Another notable feature of the Glaserian approach is its emphasis on avoiding any consultation with existing literature prior to performing the analysis and developing a theory (Alemu et al. 2017). This was not a realistic goal for the current study, as the PhD requirements include the submission of a research proposal including a comprehensive literature review, as well as complying with requisite ethical standards. Therefore, Glaser's approach was not chosen for this study.

A second approach to grounded theory was developed by Strauss and Corbin (1998), who created a new step-by-step coding procedure. However, critics have argued that this approach is overly prescriptive, moving away from an inductive approach to a model that might be described as deductive, inflexible, and excessively rigid (Willig 2013). Charmaz (2000) also complained that the Straussian approach was too positivist in its stance and unnecessarily complicated. Because it is situated within a post-positivist paradigm, it was rejected for this study.

The constructivist grounded theory of Charmaz (2000) was developed in response to the earlier models. It emphasises interpretation, and the rationale underpinning this methodological approach is that shared experiences and interactions between researchers and participants are the key means by which a grounded theory is constructed (Polit and Beck 2018). Given its concern with the construction and interpretation of data through dialectic processes involving participants and data, the core principles of the model are arguably the recognition of the researcher's active role and an acknowledgement of its inherently subjective nature; in short, researchers and participants work together to co-construct meaning (Charmaz 2006). In Charmaz's (2000) approach, researchers are encouraged to consider multiple interpretations of phenomena, and to explore how participants understand their own views as well as those of the researcher (Singh and Estefan 2018). This is driven by Charmaz's (2014) belief that reality is continually in flux, and that people therefore construct local meanings so that they can understand and act upon this reality within the parameters of their immediate context. In so doing, researchers acquire deeper insights into phenomena in both local and contextual settings.

By taking account of the researcher's personal and professional experiences, as well as existing knowledge, researchers are able to acquire a new understanding of a phenomenon or challenge existing viewpoints. This may also help to provide a more nuanced understanding of local issues as they evolve in line with changing conditions (Singh and Estefan 2018). When applying Charmaz's (2006) version of constructivist grounded theory, researchers are concerned not with emergent theory but constructing categories of data. Furthermore, instead of contextual explanations and generalisations, constructivist theory aims to generate an interpretative understanding of phenomena that takes account of the context. Additionally, rather than foregrounding the researcher's view, the perspectives and voices of participants are deemed central to the analysis (Charmaz 2006). For these reasons, the constructivist grounded theory approach developed by Charmaz (2000) was selected as the most suitable approach for this research, as discussed in the next section.

The key considerations to make when selecting an appropriate approach to grounded theory are summarised in Table 4 (Singh and Estefan 2018). They include a comparison of the different approaches developed by Glaser, Strauss and Corbin, and Charmaz with respect to their philosophical positions, primary focus, objectives, distinctive analytical styles, and usage of the grounded theory approach.

Areas of Choice	Glaser (1978)	Strauss and Corbin (1998)	Charmaz (2000)
Philosophy	Denies the influence and values of researchers. Researchers should remain objective.	Recognises researchers' influence and values. Researchers remain distant from data and analysis.	Acknowledges researchers' influence and values. Researchers are passionately engaged.
Focus	To create a grounded theory that accounts for all data.	To develop a detailed and well-organised grounded theory.	To co-construct a theoretical understanding of people's experiences and their interpretations.
Aim	To explore data that are context-independent and can be generalised to a wider context.	To explore local issues and generalise them to a wider context.	To explore local issues relevant to a local context.
Analytic style	Attending passively to emerging data. Constant comparison for a core category; inductive approach; open and selective coding.	Structured procedures forming part of an action-oriented microanalysis. Constant comparison to select a central category; inductive and deductive approaches; open, axial, and selective coding.	Active use of creative interpretation by researcher. Constant comparison for relevant categories. Inductive, deductive, and abductive approaches. Initial and focused coding.
Utility	Appropriate for developing a broader theory across substantive areas.	Appropriate to account for a wide range of variables, this will increase the theory's predictive power and generalisability.	Appropriate for developing a theory that offers breadth and depth in its understanding of a phenomenon in its local context.

Table 4. Considerations when choosing an appropriate grounded theory approach

Source: Singh and Estefan (2018)

3.5.2. Timing of literature review

For grounded theory researchers, a key task is to decide when to conduct the literature review. Glaser and Strauss (1967) argue that to prevent the development of theory being influenced and contaminated by pre-existing concepts and ideas, the literature review should take place after the analysis. However, to ensure the proposed design for the current study could be scrutinised by the ethics committees, an initial review of the

literature was needed to formulate suitable research questions. Moreover, in doctoral research, students need to demonstrate that they have identified a gap in knowledge that they will then aim to address. This aligns with Charmaz (2006), who argued that a review of literature is needed to clarify the domain of enquiry and construct research questions prior to the collection of data.

Therefore, an initial and wide-ranging review of the literature was undertaken by the researcher to ensure understanding of the background of the research and a clear and defensible rationale for conducting the research. In accordance with the methodology of grounded theory, once the data analysis was complete, a second literature review was carried out to increase the researcher's awareness of the key emerging ideas and enhance theoretical sensitivity.

In line with the suggestions made by Charmaz (2006), the researcher ensured that after the initial literature review, a sufficient period of time elapsed before the interviews so that the researcher was not unduly influenced by what they had read. To further support this process, the development of open codes and categories was based upon the actual words of the participants.

As discussed in Chapter 5, the categories and subcategories developed during the analysis formed the focus of the second literature review. In particular, the researcher concentrated on categories and subcategories deemed vitally important in interpreting the data and developing the grounded theory. This also helped ensure the categories developed were sufficiently embedded in theory. The relationship between the literature, the data, and subsequent grounded theory are considered in more detail in Chapter 5.

3.5.3. Logical reasoning in grounded theory analysis

An emergent logic underpins grounded theory. To acquire new knowledge, inferences are made by researchers using inductive, deductive, and abductive reasoning. To generate theoretical analyses, a systematic, inductive approach is initially employed for gathering and analysing data. Emergent grounded theory analyses are rendered focused and incisive by the use of an inductive, iterative process that involves going back and forth between data collection and analysis. Hypothetical and deductive reasoning is also used to check categories as they emerge from sequential levels of analysis (Charmaz 2008). However, such an inductive approach means that the findings are rarely tested. The strength of qualitative research findings can therefore be enhanced through the introduction of deductive procedures (Hyde 2000). Thus, as the researcher strives to understand emergent findings, they move from an inductive logic to abductive reasoning, which serves to account for unexpected findings, anomalies, or puzzles in the data (Charmaz 2008). This facilitates a process of interaction between the researcher, the

data, and the emerging analysis. This ensures that data that do not fit with the interpretive rules of earlier inductive generalisations are attended to (Charmaz 2014).

Reichertz (2019) asserted that the value of abduction lies in the fact it simultaneously offers both a (logical) scientific inference and profound insights. As such, it enables researchers to make new discoveries logically and systematically whilst encouraging innovation and creativity.

In the current study, inductive reasoning was used to begin coding; deductive reasoning to alter questions and refine categories; and abductive reasoning to reach theoretical saturation through the use of memos and diagrams during the analysis (sections 3.8.9.6-3.8.9.7).

3.5.4. Rationale for constructivist grounded theory

The first important reason was to review the literature in order to identify topics relevant to the use of social media by female Saudi nursing students. Charmaz (2006) argues that this strengthens the theoretical argument whilst allowing the researcher the freedom to be creative. It is also useful in developing research questions and specific fields of inquiry. However, Charmaz (2006) advises that to give the researcher room to develop their own ideas, the literature should be allowed to “lie fallow” until later stages of the research. For the same reason, Kenny and Fourie (2015) also advise avoiding total immersion in the literature until the study is near completion.

Charmaz’s (2006) constructivist stance holds that research is influenced and shaped by the context in which it is conducted (Kenny and Fourie 2015). In the current study, the researcher undertook a deliberately wide-ranging literature review before the project to develop understanding of the surrounding context and explain the study rationale to major review examiners. To increase theoretical sensitivity and enhance awareness of the key emerging ideas, a second literature review was undertaken once the data analysis was complete (the timing of the literature review is discussed in section 3.5.2).

A second reason for adopting a constructivist grounded theory approach is that the researcher believed nursing students’ perceptions of reality would vary, and that multiple realities would be perceived when using social media. Thus, there is no single truth to be objectively measured and understood. This aligns with the constructivist approach, which accepts various realities in the process of knowledge construction, and acknowledges subjectivity throughout the research process (Guba 1990). The researcher also believes that nursing students’ understandings of how they use social media platforms vary over time, and are shaped by context as well as by social interactions. As noted by Singh and Estefan (2018), Charmaz’s (2014) grounded theory

approach can be useful in acquiring clearer knowledge of local issues that evolve over time as conditions change.

The third reason is flexibility, Charmaz's (2014) constructivist grounded theory approach recognises that researchers and participants co-create theoretical explanations of a phenomenon. It is an approach that contains flexible guidelines, based on researchers' perspectives and the ways in which they learn about experiences from within embedded, hidden networks, conditions, and associations, placing a clear emphasis on hierarchies of power, communication, and opportunity (Creswell and Creswell 2018). Likewise, a constructivist approach prioritises the phenomena under investigation, and perceives data analysis as involving the development of shared experiences and connections with participants and other data sources. Moreover, the clearly defined nature of Charmaz's (2014) approach enabled the current researcher to follow clear and flexible paths without feeling limited.

The fourth reason is reflexivity, which is expressly promoted in constructivist grounded theory, whereby the researcher is engaged in co-constructing meaning with participants (Charmaz 2014). Good qualitative research therefore includes deliberations by the researchers on how their gender, culture, history, and socioeconomic background shape their interpretation of the findings (Creswell and Creswell 2018). Indeed, Charmaz (2017) viewed reflexivity as a fundamental component of research focusing on co-constructed social realities. Ruminating on their own position and perspectives enables researchers to decentre and remain open to identifying and recognising otherness (Mruck and Mey 2019). In the current study, reflexivity was utilised to examine and assess the impact of the researcher on the research, and to justify all the decisions that were made. This was supported through regular discussions with supervisors and the use of a research diary in which the researcher recorded thoughts and decisions.

For these four reasons, Charmaz's (2014) methodological procedures and the philosophical basis of the constructivist grounded theory approach align with the stated research aims, research questions, and personal worldviews of the researcher.

3.5.5. Theoretical positioning of the researcher

It is acknowledged by constructivist researchers that the outcomes of their research will be influenced by their backgrounds and the particular interpretations they bring to bear on the research process, including study design and (more particularly) the analysis and interpretation of data. It is therefore essential for researchers to explicate their stance in the research and the influences that have helped mould the direction of the study (Creswell and Creswell 2018). To avoid personal bias, a reflexive approach is often adopted by qualitative researchers.

This involves engaging in critical self-reflection and scrutinising personal values that could impact the collection and interpretation of data. This requires the researcher to be cognisant of the fact that they bring a personal set of values, background, and professional identity to the research that will affect the way in which it is conducted (Polit and Beck 2018). Charmaz (2014) described reflexivity as “the researcher’s scrutiny of the research experience, decisions, and interpretations in ways that bring him or her into the process”. Reflexivity was therefore employed during this study by the researcher to explore and evaluate their effect on the research and to identify and justify all decisions that were made. For instance, before recruiting any participants, the researcher reflected on her role in this process as a lecturer at a college of nursing. This was essential to avoid any possibility of bias in the relationship between herself and the participants.

Saidin (2017) addressed the issue of potential bias arising in data collection and analysis as a result of the relationship between researchers and organisations they are investigating. To prevent this, a number of measures were implemented by the current researcher. First, to avoid any unethical power imbalance in the relationship with participants, the researcher did not recruit her own students. To that end, the exclusion criteria were nursing students currently taking, or about to take, modules on which teaching, assessment, or tutorial support is provided by the researcher. However, the chances of this were lessened by the fact that the teaching load of the researcher was reduced so that she could work on her PhD studies. Additional safeguards were provided by the voluntary and unpaid nature of participation, and the fact that data were collected in the informal setting of a private hall on campus, far removed from classrooms. Furthermore, access to students in the College of Nursing was managed by academic staff, who served as gatekeepers disseminating information to and recruiting interested participants (free from any coercion or inducement, as per ethical considerations).

As noted previously, the reflexive approach adopted by the researcher was supported by her use of a research diary (Appendix 11) to record decisions and thoughts, and also by regular discussions with the research supervisors. Charmaz (2014) also asserts that in grounded theory analysis, memo writing plays a vital role in making comparisons, stimulating closer involvement with the data, and encouraging the researcher to “engage in critical reflexivity”. Reflexivity was therefore increased throughout data analysis by the application of *in vivo* codes and processes, such as line-by-line coding, memoing, and constant comparison. These safeguards prevented any undue influence being exerted by the assumptions and preconceptions of the researcher.

The following section detail the methods used to collect data. To ensure high quality research, consistency between the research methodology and methods is essential.

Thus, a data collection method was selected that aligned with the qualitative research methodology employed for this research.

3.6. Methods

As stated by Creswell and Creswell (2018) and discussed in the methodology section 3.4, the third main component in the research framework consists of the research methods. These methods concern data collection, data analysis, and data interpretation. Research methods should be chosen based on the nature of the researcher's aim; for example, whether the aim will need to be achieved by obtaining data from human participants, experiments, or secondary research. From the viewpoint of Polit and Beck (2018), research methods are the practices used to organise research and to analyse and obtain relevant data.

Focus groups, in-depth interviews, and observations are the main qualitative research methods. The use of each method is associated with the acquisition of a certain type of data. In the case of observation, this involves gathering data relating to the lived experience of participants in their cultural, physical, economic, and social settings (Mack et al. 2005). The aim of the present study was not to obtain data relating to norms, events, contexts, behaviours, and relationships existing between participants; rather, the research aim was to examine the role of social media in the lives of female Saudi nursing students. Furthermore, the study sought to explore the positive and negative effects of social media from the viewpoint of the participants.

Focus groups are well-known to be an efficient and effective way to gather broad data from different cultural, economic, or social groups and subgroups. The research method of focus groups is commonly used in socio-behavioural research, particularly when the aim is to devise and evaluate services that satisfy the needs of a specific community (Mack et al. 2005). In the present study, focus groups were not conducted due to the potentially sensitive nature of the subject matter, namely social media and online self-presentation, which could present barriers to participants' openness. As noted by Mack et al. (2005), focus groups are suboptimal in terms of acquiring highly personal data, especially when it relates to socially or culturally sensitive topics. In these cases, face-to-face interviews involving only an interviewer and an interviewee are preferred.

According to Boyce and Neale (2006), in-depth interviews are a qualitative research method characterised by the use of intensive individual interviews with small sample groups to investigate the participants' viewpoints on specific ideas, situations, or topics. Since in-depth interviews offer a comfortable and safe environment for interviewees, especially compared to focus groups, they are valuable for gathering data relating to a person's experiences, perspectives, and personal histories (Charmaz 2006). In the case

of in-depth interviews, Mack et al. (2005) also mentioned that they are a useful qualitative research method when the research aim is to examine the experiences, opinions, and subjective meanings of the participants.

It is common to adopt the semi-structured approach to in-depth interviews in qualitative research, as opposed to an unstructured or structured approach (Mack et al. 2005). In semi-structured interviews, the interviewer remains flexible and neutral in terms of the questions they ask the interviewee and their interpretations; they present follow-up questions and probing questions depending on the responses (Gill et al. 2008). Consistent with the insights and recommendations of many researchers, including Mack et al. (2005), DiCicco-Bloom and Crabtree (2006), Cohen et al. (2000), and Gill et al. (2008), this study used in-depth semi-structured interviews to gain insight into the lived experiences, personal views, and fine-grained details of the nursing students' usage of social media, as well as factors such as online self-presentation.

Among the different types of potential in-depth interviews, semi-structured interview method was chosen for this study due to the well-documented limitations of structured and unstructured interviews. Structured interviews are inflexible and essentially function as verbal questionnaires with multiple-choice questions, which are administered by the researcher in-person; follow-up questions are rarely included in structured interviews, which prevents the acquisition of fine-grained data (Gill et al. 2008; Alshenqeeti 2014). Given that achieving this study's research aim depended on the analysis of rich data relating to the participants' views and lived experiences, and given that structured interviews usually do not offer insights into these areas, this research method was not used.

The so-called "unstructured" interview, as noted by DiCicco-Bloom and Crabtree (2006), is not truly unstructured; that is to say, rather than having no structure at all, unstructured interviews tend to resemble guided conversations, whereby the interviewer asks questions spontaneously and typically does not use a pre-prepared "interview guide" (i.e., set of questions) to organise the interview. Unstructured interviews are mainly valuable in the context of exploratory research designs. By contrast, if a researcher has well-defined research aims, a more targeted approach involving the use of semi-structured interviews can be applied for more efficient data collection (Wildemuth 2016). Given the somewhat narrow and targeted focus of the present study (i.e., to investigate the role of social media in female Saudi nursing student lives, as well as to explore positive and negative influences of social media from the viewpoints of participants), the choice of unstructured interviews was ruled out.

The interview approach chosen for this research was the semi-structured interview. Semi-structured interviews benefit from flexibility and opportunities for the interviewer to

ask open-ended questions and follow-up questions. As the most commonly used qualitative research method, semi-structured interviews are also appropriate for use with both individuals and groups (DiCicco-Bloom and Crabtree 2006). Interviews of this kind usually last between 30 and 60 minutes, but depending on the research aim, semi-structured interviews may be shorter or longer. Semi-structured interviews are most valuable by enabling the researcher to discover or elaborate on data that is significant to participants, but which may not have been previously considered relevant to the study (Gill et al. 2008). At the same time, one of the most worthwhile aspects of semi-structured interviews relates to the fact that, even while gathering data on specific topics (e.g., the questions set out in the interview guide), follow-up questions can be asked, and unexpected insights generated from the participants can be followed-up by an astute interviewer (Charmaz 2006).

As mentioned previously, semi-structured interviews were used to gather data from the research participants – namely, Saudi nursing students – in this study. The rationale for selecting semi-structured interviews is based on their ability to yield fine-grained insights, as well as rich and unexpected data, along with their efficiency and relative ease to perform. Furthermore, the use of semi-structured interviews is worthwhile as a way to reflect the true nature of the participants' experiences, thereby promoting credibility and satisfying the trustworthiness criterion for qualitative research.

3.7. Study setting

As described in section 1.2, KSU is the second biggest higher education institution in Saudi Arabia, and its College of Nursing was the setting for this research for four reasons:

- KSU's respectable national and international position and profile. It was also the first Saudi university to provide nursing programmes at undergraduate and graduate levels (KSU 2020).
- There was a sufficient number of students within the College of Nursing to satisfy the eligibility criteria for research participation.
- The student body offers the possibility for a relatively diverse sample of students in terms of age and educational levels.
- The College of Nursing is active on social media, and its students are social media users (KSU 2020).

3.8. Procedure

Charmaz's (2014) constructivist grounded theory model, as discussed earlier, was used as the basis for the current study's various stages, as shown in Figure 3. A distinctive aspect of grounded theory is that data collection and data analysis are combined rather than being performed sequentially. Hence, this chapter uses the framework shown in Figure 3 to describe the stages of analysis and information in the relevant sections as appropriate.

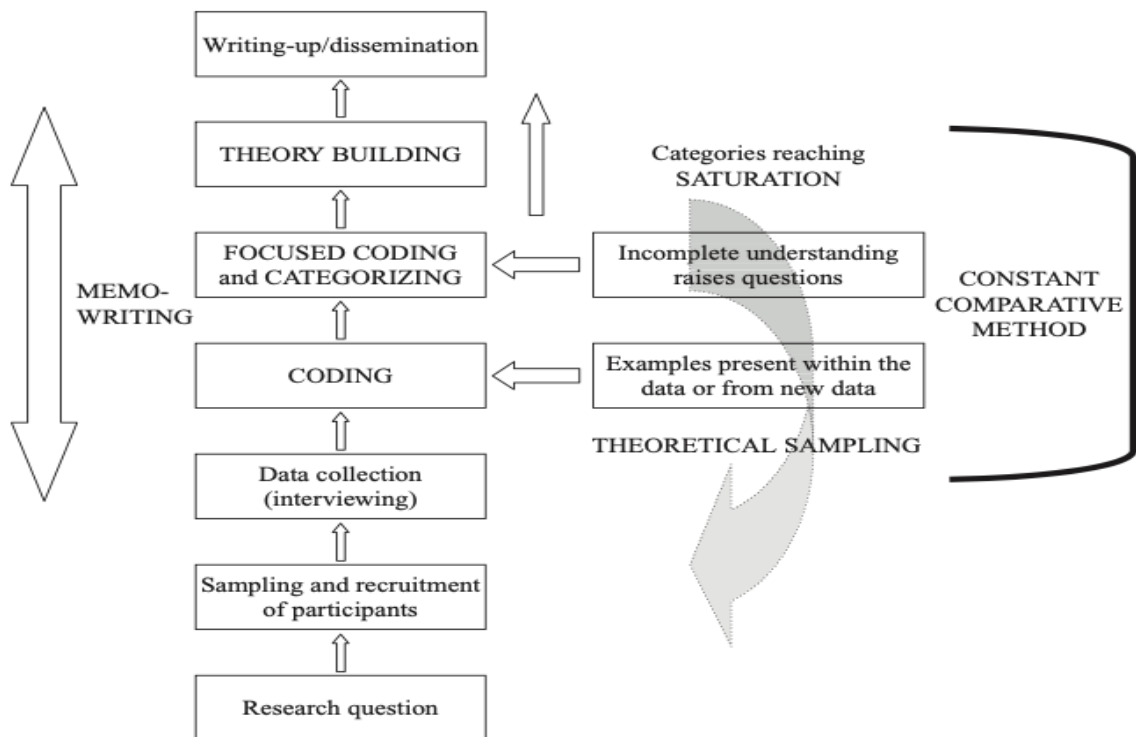


Figure 3. Visual representation of grounded theory as followed in the current study

Source: Tweed and Charmaz (2012)

3.8.1. Interview schedule

A semi-structured interview consisting of open-ended questions was developed by the researcher and was used to conduct face-to-face interviews. For the in-person interviews with the research participants, an interview guide (or schedule) was prepared (Appendix 4) to ensure that each of the interviews was conducted in a relatively standardised way, and that specific key topics were touched on. However, the researcher also remained flexibility and often deviated from the interview guide to ask follow-up questions or to pose prompts. Also, depending on the situation, such as whether a participant appeared not to want to discuss a specific issue, some questions were included or excluded. The interviews were undertaken following the paradigm of intensive interviewing, which involves valuing spontaneity and prioritising the discovery of ideas and discourses as they emerge (Charmaz 2014).

A six-month period was allocated to design and refine the interview guide, after which the pilot interviews were undertaken. Based on the results of the pilot interviews, the interview guide was revised. The interview guide consisted of five main questions, several of which are linked with follow-up questions or probing questions. Consistent with the approach of constructivist grounded theory, the questions that were posed to participants were adapted on the basis of the interviewer's need for additional detail or explanation (Charmaz 2006). For the first main question of the interview guide, the purpose of using social media was the focal point. As for the second main question, this centred on students' personal use of social media. The third addressed academic usage, while the fourth focused on the disadvantages and advantages associated with social media use. The final main question addressed guidelines, policies, and the future use of social media platforms based on the students' experiences and perspectives (Appendix 4).

In the course of undertaking the pilot tests for the interview guide, it was noticed that the participants became confused by certain questions. In certain cases, the phrasing of the questions caused the participants to conflate their answers, so that when the researcher asked the next question, they repeated the answer to the previous question. In response to this, the researcher created a memo about this problem and modified several questions to avoid the repeated answers. The following questions were associated with this issue:

- "How do you use social media platforms in nursing?"
- "In what ways do you use social media for educational purposes?"

These questions were replaced with the following consolidated query:

- "Can you tell me about how you use social media platforms for your nursing education?"

As a result, the participants provided more detail about their social media use for academic purposes in the nursing field.

3.8.2. Pilot interview

Pilot interviews are commonly used in the context of both quantitative and qualitative research designs. In particular, pilot interviews are frequently undertaken in healthcare research, such as in the medical or nursing fields. A pilot interview is a small-scale version of an eventual large-scale study, the purpose of which is to pre-test all aspects of the data collection instruction (Van Teijlingen and Hundley 2001). As noted by Malmqvist et al. (2019), when researchers conduct pilot interviews, the results that their final studies generate are substantially more credible, because the pilot interviews

enabled errors and other suboptimal areas to be identified and corrected in advance. They added that pilot interviews when coordinated and implemented effectively play a fundamental role in maximising the credibility, trustworthiness, and quality of the research, its methodology, and its findings.

The purposes of the two pilot interviews undertaken in the present study were to check that the interview guide was valid (i.e., that the obtained data were pertinent to answer the research questions); to ensure that the questions were comprehensible to the participants; and to enable the researcher –an interviewer with limited experience – to prepare for the main series of interviews. The piloting procedure was undertaken with the cooperation of two nursing students, both of whom offered feedback on the interview guide. Recordings were transcribed and translated into English. Due to this, certain questions were revised in terms of their length and level of clarity, principally to improve readability and comprehension.

Given that most nursing students in Saudi Arabia speak Arabic as their first language, the interview questions were translated from English into Arabic. The interviews themselves were undertaken in Arabic with the interviewees, after which the interview transcripts were translated into English. Transcripts for the pilot interviews were translated into the English language by the Certified Translation Office of Saleh Alomar Certified Translation (SACT), which is one of the foremost agencies for document translation in Saudi Arabia. SACT has completed varied translation projects for clients in both the private and public sectors, and it has collaborated with senior officials for Arabic and English translation services in both the Saudi government and prominent Saudi businesses (Appendix 8).

To promote the credibility of the data obtained from the semi-structured interviews, all of the data yielded from the pilot interviews were recorded and transcribed by the researcher and reviewed by their supervisor. This ensured that the accuracy of the transcription and translation processes was verified, thereby bolstering the degree to which the research methodology had credibility. According to Gudmundsdottir and Brock-Utne (2010), pilot interviews are crucial in avoiding methodological errors, many of which can undermine the degree to which research findings – even if they cover a notable topic or research gap – are useful for policy and practice. At the same time, pilot interviews enable researchers to maximise the credibility of their research, assisting in focusing and adapting the research more effectively to the local situation.

3.8.3. Participant recruitment

A dedicated plan to identify and enrol individuals to take part in research is known as a strategy of recruitment. The elements included in the plan should be eligibility criteria for

including or excluding prospective participants, the number of individuals to be selected, the site where recruitment takes place, and the method employed to perform recruitment. Furthermore, the shape taken by a recruitment strategy depends on the nature of data collection activities, and the number and characteristics of the research population (Mack et al. 2005). The present research intentionally used wide inclusion criteria to ensure that Saudi female students pursuing nursing education at the undergraduate and postgraduate levels were eligible to participate. Since the research was rooted in grounded theory, such an approach was considered flexible and opened participation to nursing students at different levels of education, whilst at the same time the sampling process was informed by theoretical sensitivity.

The decision to select nursing students at various stages in their education journey was justified by the findings of the review of the literature, which revealed a lack of previous studies considering the experience of Saudi nursing students regarding the use of social media. Therefore, the approach adopted afforded detailed insight not only into how nursing students used social media for both personal and academic purposes, but also into the positive and negative influences of such use, as perceived by the students. Moreover, the inclusion of nursing students with different experiences and levels of education ensured rich data, and the possibility to detect how the use of social media varied in the context of nursing education.

There are two distinct campuses within KSU in conformance with the rule that males and females must be segregated in Saudi society (as discussed in section 1.2). Hence, as a female, the researcher would face difficulties in accessing the male campus to carry out face-to-face interviews with male participants, thus only female students of nursing were interviewed.

In terms of the exclusion criteria, in order to avoid ethical issues or the occurrence of power relations, nursing students were not included in the sample of research participants if they were enrolled or were going to enrol in a module taught, evaluated, or assisted by the researcher in her position as a lecturer at the College of Nursing. Furthermore, since the research was concerned specifically with the use of social media by Saudi female students of nursing (a topic that has not been investigated extensively before), nursing students of other nationalities were excluded.

The process of participant recruitment was initiated once the ethical committees of Bournemouth University and KSU approved the research (Appendices 5 and 6). As emphasised by Mack et al. (2005), the optimal approach is for the researcher to collaborate with community leaders and gatekeepers with official roles in formulating a plan for the identification and recruitment of possible participants. Therefore, the researcher consulted with academic personnel at the College of Nursing, including the

Dean for Graduate Studies and Research and departmental heads, to obtain their permission to access students.

The academic personnel recommended that a better response could be obtained if the researcher worked together with university staff to disseminate information about the research and to verbally invite students to participate during visits to classroom activities, rather than distributing invites via email through the "Twasul System" of the Deanship of Electronic Transactions and Communications at KSU. This approach was justified by the fact that the recruitment process would intersect with a period during which the nursing students would be on clinical practice placements or concentrating on academic assignments, which would result in them checking their university email accounts on a less regular basis than usual. Thus, in this study access to students in the College of Nursing was supported by academic members of staff who acted to circulate information to eligible students.

The students who wanted to take part in the research were given a participant information sheet and a consent form, both of which were in Arabic, to make sure that the students understood them perfectly. Providing a clear explanation about the research aims and process to prospective participants in order to secure their informed consent is a necessary stage of participant recruitment in qualitative research. Furthermore, the supplied information must be in a format that is easy for potential participants to comprehend, so that they can decide whether or not they want to become involved in the research in an informed manner, without external pressure or influence (Mack et al. 2005).

Purposive sampling was adopted to recruit 12 nursing students from KSU to be interviewed face-to-face. Emphasis was put on ensuring that the participants differed as much as possible in terms of demographic characteristics such as age and educational level. Furthermore, participant recruitment and analysis were conducted at the same time, with recruitment continuing until theoretical saturation was reached. Data collection and analysis were conducted during the 12 months preceding the outbreak of the COVID-19 pandemic in March 2020. Following the ninth interview, the researcher reviewed the categories and realised that no new categories were emerging; hence, theoretical saturation had been reached. This was subsequently confirmed following the completion of a further three interviews.

The initial six-month time allocated for collecting data was extended to 12 months due to two particular difficulties related to participant recruitment. The first difficulty was the long duration (around half a year) of obtaining ethical approval from both universities involved. The second difficulty stemmed from the fact that the period of final exams and summer holiday began in Saudi Arabia at the time ethical approval was secured. Upon

discussing the issue with the supervisors, the researcher decided to postpone participant recruitment until the start of the new academic year, to avoid response delay and the potential negative impact of exam concerns.

3.8.4. Sampling strategy

Research fundamentally depends on proper sampling. Qualitative research is particularly reliant on sampling, which is the basis of genuine grounded theory. Sampling is intended to ensure good representation of the topic under investigation, especially by recruiting suitable participants for interview. This is essential for researchers to acquire the data necessary to develop categories, themes, and constructs for the formation of theoretical description, organisation, and interpretation. In the case of qualitative research, participants are selected with the active involvement of the researchers, and the sampling process is purposeful rather than arbitrary. Grounded theory involves an emergent design, requiring sampling strategies to demonstrate flexibility and applicability to outline concepts, and to build and validate theories. In other words, the acquisition of adequate data and the quality of the grounded theory are dependent on the chosen participants. Therefore, effective sampling and continuous data analysis are vital in successfully framing the boundaries of the phenomenon, determining the depth of description detail, recognising pertinent concepts and how they relate to one another, and determining the extent of variability and generality (Morse and Clark 2019).

In this research, purposive sampling was applied initially, and subsequently a more and more theoretical form of sampling was adopted as the research advanced. A discussion of the two types of sampling is provided below.

3.8.4.1. Purposive sampling

A widely used method of sampling, purposive sampling involves selection of participants based on pre-established criteria related to a specific research question (Mack et al. 2005). Following preliminary identification of prospective participants, purposive sampling was applied in this research to distinguish the most suitable participants to take part in semi-structured interviews in accordance with the eligibility criteria discussed in section 3.8.3. Purposive sampling is advantageous because it enables the collection of abundant data to serve as the basis of analysis (Pidgeon and Henwood 1996). Originally, the sample created in this research was purposive in nature, but it acquired a more theoretical character as the research advanced. At first, nursing students who were willing to talk about their experience of social media use were recruited. Once four interviews were analysed, theoretical sampling was adopted to further investigate the categories arising from the initial analysis. Thus, the research followed the recommendation of Morse (2010), who suggested that grounded theory research designs should initially use purposive sampling to choose participants according to

preliminary interview analysis, before changing to theoretical sampling to collect the data needed to elaborate upon the delineated categories and constructs.

Hence, concurrent collection and analysis of data ensures the greatest efficiency in purposive sampling. Furthermore, the size of a purposive sample is commonly established according to theoretical saturation, which refers to the point in the process of gathering data where newly emergent data become superfluous to addressing the research question (Mack et al. 2005). For the aims of this research, 12 nursing students from KSU were purposely sampled for face-to-face interviewing, and efforts were made to select students of different ages and educational level. Recruitment and analysis were conducted at the same time, and recruitment continued until saturation was reached. The data collection and analysis period took a total of 12 months. Although repetition began to emerge in the data after nine interviews had been carried out, an additional three interviews were undertaken to make sure that the available data were sufficiently abundant.

3.8.4.2. Theoretical sampling

A basic principle of grounded theory, theoretical sampling is an essential for grounded theory research concerned with the formulation of a conceptual framework and/or theory regarding a particular topic (Charmaz 2014; Corbin and Strauss 2014). This form of sampling can be understood as a process intended to refine the features of emerging categories or theories, rather than to sample populations chosen arbitrarily or representative distributions of a specific population (Charmaz 2014). The pursuit of knowledge about a particular topic drives theoretical sampling in the context of qualitative research. This knowledge is accumulated gradually as the research advances and participants are recruited according to the input they can bring in terms of experience, position, and other aspects. The growth of knowledge about the topic permits selection of participants in keeping with the “needs of the study” or, in the case of grounded theory, the “needs of the developing theory”, especially with regard to the formulation of constructs and theoretical features of category (Morse and Clark 2019).

Theoretical sampling is not concerned with the population but rather with the formulation of concepts and theories (McCrae and Purssell 2016). Therefore, there is no *a priori* specification of the number and characteristics of participants, so researchers do not have a clear idea about sampling targets and outcomes (Glaser 1978). Furthermore, in the context of qualitative research, the amount of data acquired from a suitable sample (i.e., the nature and number of participants capable of providing insights into the topic under investigation) is the more fundamental feature dictating how adequate the data are (Morse and Clark 2019). Consequently, it is not possible to approximate the necessary number of participants at the outset of grounded theory research.

Unlike purposive sampling, theoretical sampling is rooted in the data collected, the questions engendered by it, and the aspects prioritised by the researchers in order to gain insight into the topic of interest. In the present case, the researcher relied on theoretical sampling to gain more information about the data categories. As emphasised by Conlon et al. (2020), developing ideas from theoretical sampling help to fill out the features of data categories constitutes the reference point, rather than addressing every feature of study population characteristics.

Purposive sampling was applied initially in this research to recruit nursing students. However, as the data were analysed concurrently, a theoretical sensitivity developed, which can be understood as the capacity to comprehend and characterise a phenomenon abstractedly, as well as to prove abstract correlations amongst the investigated phenomena (Charmaz 2014). The development of theoretical sensitivity and recognition of major categories during the analysis of data in this research led to the realisation that many participants indicated that social media platforms made them feel distracted and unable to concentrate. As a result, the participants suffered on a personal as well as on an academic level, resulting in performing poorly and having consistent trouble maintaining their attention. Subsequently, purposive sampling was replaced with theoretical sampling. The latter is a repetitive and continuous process of acquiring data according to the emerging categories and themes (McCrae and Pursell 2016). As Corbin and Strauss (2014) emphasise, theoretical sampling commences following the initial analytical phase, and goes on until the research is completed.

Theoretical sensitivity represents the point at which the emerging data patterns and processes are refined; in other words, the point at which researchers seek to establish what the situation is (Conlon et al. 2020). For instance, in the present case, the researcher explored the implications of the distraction caused by social media and the measures taken by the nursing students to address the issue. This kind of approach reflects that a researcher working on the basis of grounded theory is applying theoretical sensitivity (Glaser 1978). Furthermore, the impact of bias can be mitigated by following the key principles of grounded theory, namely, continuous comparison, theoretical sensitivity, and theoretical sampling within constructivist grounded theory (Charmaz 2014).

To effectively implement theoretical sampling, the researcher sought help from the research supervisors as well as from methodological literature related to the constructivist grounded theory. As this research was rooted in grounded theory, theoretical sampling was crucial in two respects. First of all, theoretical sampling was applied after four interviews were analysed preliminarily to make sure that the views of the participants were diverse enough. In this way, data richness was increased and

greater insight was gained into the experiences and perspectives of the participants. Furthermore, the theoretical sampling interviews were framed based on the aspects and queries that previous interviews did not address. Thus, theoretical sampling was employed during the initial coding phase, when potentially useful categories began to take shape, and contributed to the expansion of developing focused codes and categories. For instance, during the initial coding phase, there was frequent mention of methods of ensuring the quality of the information in social media, when participants described their experiences in searching for information on social media sites. Thus, this aspect was pursued further by asking about ensuring the quality of the information in social media, and this aspect was later included in the interview questions, to explore such experiences further.

The second reason underpinning the significance of theoretical sampling is that it enabled the researcher to identify and to explore of the features and priorities of categories. This procedure involved the use of memos to identify and characterise the relationships between categories, followed by sorting and collation of the memos to organise categories. A few notable categories (e.g., “extending knowledge”) began arising after the initial four interviews were carried out and analysed. Certain interview questions were amended in order to trace developing categories. As observed by Charmaz (2006), such an analytical approach has considerable implications for the upgrading of the focused codes and the categories. Sampling is critical to the research because it is ongoing all through the analytical process and occurs at the same time as the analysis of data. Moreover, the sampling approach is continuously modified and attains a more purposive and theoretical character as analysis progresses (Morse and Clark 2019).

3.8.5. Participants’ characteristics

The final number of participants in this research was 12. Their anonymity was preserved by assigning a participant number to each of them. All participants were female, of different ages, studying as undergraduate or postgraduate nursing students at KSU, Riyadh. The demographic data of the participants are provided in Table 5. As recommended by Morse and Coulehan (2015), demographic information should be reported as group data in ranges, to maintain the confidential nature of that information. This is important as such information could be exploited to discover the identity of a certain individual and their opinions, particularly given the limited size of qualitative research samples. Therefore, in the present study, the participants were kept anonymous by grouping them based on age and educational level instead of specialisation.

Demographic data	
Age (years)	20-40
Educational level	Undergraduate students (n = 8)
	Postgraduate students (n = 4)

Table 5. Participant demographic data

3.8.6. Sample size

When conducting qualitative research, informational requirements typically determine sample size. Sampling continues until redundancy occurs and no further information can be gathered, a point known as theoretical saturation (Polit and Beck 2018). Because sample size in grounded theory is based on the theoretical categories that emerge, it cannot be decided on through theoretical deduction (Vasileiou et al. 2018). Charmaz (2006) argued that data collection therefore ends when no novel insights or new properties are generated; in other words, saturation of categories or themes is achieved. This constitutes the point at which the sample is deemed sufficient. Known as theoretical saturation, it occurs when categories and their properties are sufficiently defined as a result of having acquired a breadth of views, a range of contexts, and a full description of the phenomenon (Charmaz 2006; Corbin and Strauss 2014).

Although several suggestions have been made with respect to what constitutes a sufficient sample size in grounded theory research, these are recommendations rather than empirically grounded propositions (Mason 2010). Morse (2000) asserts that the quantity of useable data is determined by the number of interviews per participant and the overall quality of the data. The volume of such data and the number of participants are inversely related: the fewer the participants, the larger the quantity of usable data generated per person. Morse (2000) advises that researchers consider the design and scope of the study, the complexity and accessibility of the topic, and the quality of data. With considerable reliance on the research question and the nature of the phenomenon under investigation, an adequate sample is needed to establish sufficient methodological rigour (Charmaz 2006; Polit and Beck 2018). In terms of exact numbers, McLeod (2011) suggests there should be 8 to 20 participants, on the grounds that more than this would lead to repetition and redundancy, while fewer would risk reducing the research to a case study (i.e., a highly specific study with extremely limited generalisability).

In line with the recommendations of Charmaz (2006), a sample of 15 to 20 nursing students was the target for the current study, although in practice saturation was achieved with just nine participants. Thus, after the ninth interview, the researcher reviewed the categories and realised that no further novel categories were emerging.

This was confirmed by the twelfth interview, at which point it was decided that theoretical saturation had occurred.

3.8.7. Data collection

To ensure all participants felt safe and comfortable, all interviews took place in an informal yet suitable location. To guarantee confidentiality and privacy, the room chosen was quiet and contained no phones, in order to minimise interruptions. Comfortable chairs and refreshments were available to create a relaxed, informal atmosphere. Interviews ranged in duration from 50 to 60 minutes. At the start of each interview, personal details such as age and education level were collated to provide an insight into the social background of the interviewees. Although most of the planned questions were put to participants, a degree of flexibility was employed whereby questions were omitted if they were deemed superfluous, and additional clarifications and prompts employed when further information was required. In grounded theory, interview questions can be altered in line with the emerging data to move towards theoretical saturation and a level of theoretical sensitivity, where theoretical understanding is augmented by the literature (Mills et al. 2007). Such issues were ruminated upon by the researcher before, during, and after each interview.

An electronic voice recorder was used to collect the data, and recordings were transcribed to enable the researcher to continually review and analyse the data. Charmaz (2006) states that the quality of findings is enhanced by the digital recording and transcription of data. This was important in the current study because it ensured that full interview transcripts were available for the researcher to analyse. Transcribing interviews enables researchers to immerse themselves in the data, allowing them to reflect upon the categories that emerge, explore new ideas, and review both the interviews and associated skills such as using appropriate pauses and engaging in active listening. In line with the constructivist paradigm, after each interview the researcher spent time noting down her thoughts, impressions, and observations in a reflexive journal. These notes, the transcribed data, and open-ended questions asked during the interview all formed part of the rich dataset analysed in this research. This was valuable in illuminating the context of the study and demonstrating its credibility. (This is considered in greater depth in section 3.9)

Although it takes a considerable amount of time, reflection has substantial advantages for the researcher. First, it facilitates immersion in the data and enables the researcher to familiarise themselves with the codes and categories. To understand the content in greater depth and facilitate such reflection, transcriptions were undertaken by the researcher, rather than a contracted third party.

Although the interviews were conducted in Arabic, the transcripts were translated into English language by a certified translation office (discussed in greater depth in the pilot interviews section 3.8.2). To enhance the credibility of the research, data were subsequently checked by the researcher's supervisor to ensure the accuracy of both the transcriptions and translations.

3.8.8. Data management

To accurately capture the unique experiences, thoughts, and feelings of participants, qualitative researchers need to be systematic and thorough in their organisation of data (Mack et al. 2005). Charmaz (2006) asserts that to ensure they are immersed in the data, researchers must transcribe it themselves, rather than outsourcing it to a third party. In the current research, Microsoft Word was used to manually transcribe all the recorded interviews in Arabic. A certified translation office then translated the transcripts into English. The researcher supervisors then checked the transcripts to ensure that both the transcription and translation were accurate.

To organise and manage the data effectively, MAXQDA was used by the researcher. Part of CAQDAS (Computer Assisted Qualitative Data Analysis Software) (Kuckartz and Rädiker 2019), MAXQDA is a potent software used to assist in analysing qualitative data. It offers a variety of options for organising qualitative data, such as memo sorting, visual tools, and distinct coding features (Friese 2019). The researcher used MAXQDA to review and examine the coded data. Interview transcripts were scrutinised in detail and the unique experiences of participants captured using tools that visualised and summarised the information. Using MAXQDA, the researcher was able to smoothly navigate the data to identify initial codes or concepts and then explore particular ideas in more depth. It also enabled the researcher to identify how often dominant codes occurred in the transcripts and where they arose by organising, comparing, and integrating memos (Charmaz 2006). MAXQDA enabled the researcher to move easily between different transcripts and portions of the data, facilitating the subsequent interpretation of the data. Finally, MAXQDA ensured that interpretations remained grounded in the data, facilitated constant comparison, and assisted the researcher in identifying theoretical links to the data.

3.8.9. Data analysis and coding stages

When analysing data, it is essential for researchers to demonstrate how they moved from the raw data to core categories. To achieve this in the current study, the researcher adhered closely to the established procedure for constructivist grounded theory (Charmaz 2006, 2014). This section explains this process and sets out each stage of the analysis, including the three stages of coding.

Charmaz (2006) states that coding involves placing pieces of data into a named category that describes that data. It constitutes the key link between gathering data and constructing an emerging theory to explain what it means. Thus, in constructivist grounded theory, coding denotes the identification, description, and extraction of meaning from the thoughts and feelings of participants Charmaz (2014) considers it an innovative, organic, and repetitive process that comprises three levels before interpretations are arrived at. These three levels are initial coding, focused coding, and theoretical coding, each of which is described in turn.

3.8.9.1. Initial coding

Initial coding is the first stage of the analysis and, in keeping with constructivist grounded theory, is inductive in nature. Inductive reasoning extracts patterns from a wide variety of individual cases to create a broader conceptual category (Bryant and Charmaz 2019). In the current study, inductive reasoning was employed to begin initial coding based on existing evidence from participant interviews. Charmaz (2014) stated that initial coding refers to the process of labelling data with codes during the first step of the analytical process in constructivist grounded theory, during which the researcher begins classifying data word-by-word, line-by-line, or incident-by-incident. She strongly advises new grounded theory researchers to engage in line-by-line coding of transcriptions, as this enables them to perform a detailed, comprehensive, and methodical analysis of the data while reducing the possibility that key concepts will be overlooked.

As a result, the researcher elected to code each transcript line-by-line. An example of line-by-line initial coding performed by the researcher in this study can be found in Appendix 12. This was a useful strategy as it enabled the researcher to ensure that analysis remained firmly grounded in the data. Having coded the first three transcripts, the researcher was able to get an idea of how extensive the coding was likely to be, how it changed as the process went on, and the optimal way in which this potentially unwieldy process could be managed. As indicated in Figure 4, on some occasions there was more one code for each line, while on others a single code was sufficient for an entire sentence or segment. The aim was to generate a body of codes that captured the essence of the data without being overly influenced by the research questions.

Whilst engaging in this process, the researcher strived to create codes that were brief, closely associated with the data, and abstract without being excessively theoretical in nature (which entailed a careful balance). The coding was carried out quickly and without excessive deliberation, in order to ensure the researcher maintained sufficient distance from the accounts, and appropriate critical, analytical, and creative features (Charmaz 2014). For instance, when no code sprang to mind after reading a line of data, a note was made by the researcher who returned to it later in the analysis with fresh eyes.

Conversely, if the line of data appeared to contain several different messages, the researcher afforded herself the flexibility to use more than one code and rename codes wherever necessary. This enabled the researcher to proceed swiftly with the analysis.

When segmenting and coding the data, it is important to engage in close reading to ensure all potential theoretical implications are considered. When naming codes and writing memos, Charmaz (2006) recommends adhering to Glaser's (1978) guidelines on the use of "gerunds" (verbs ending in "ing"), as these help to generate a feeling of process and movement as well as aiding in the development of categories. To that end, codes were devised that emphasised actions and used gerunds wherever possible. Examples are "submitting assignments" and "communicating and exchanging information". Charmaz (2006, 2014) also explains that the use of gerunds helps the researcher to explicate the processes undertaken and nurtures theoretical sensitivity as the researcher is impelled to think in terms of "enacted processes" rather than "static topics". On some occasions, *in vivo* codes were used; these comprised the actual words of participants, and were selected because they concisely and creatively captured the essence of what was being said or expressed. A notable example is "social media is indispensable in the nursing field". Gerunds were applied throughout the process of coding, to ensure the codes and categories generated were active in nature. Figure 4 presents several examples of initial codes, an example list of which can be found in Appendix 12:

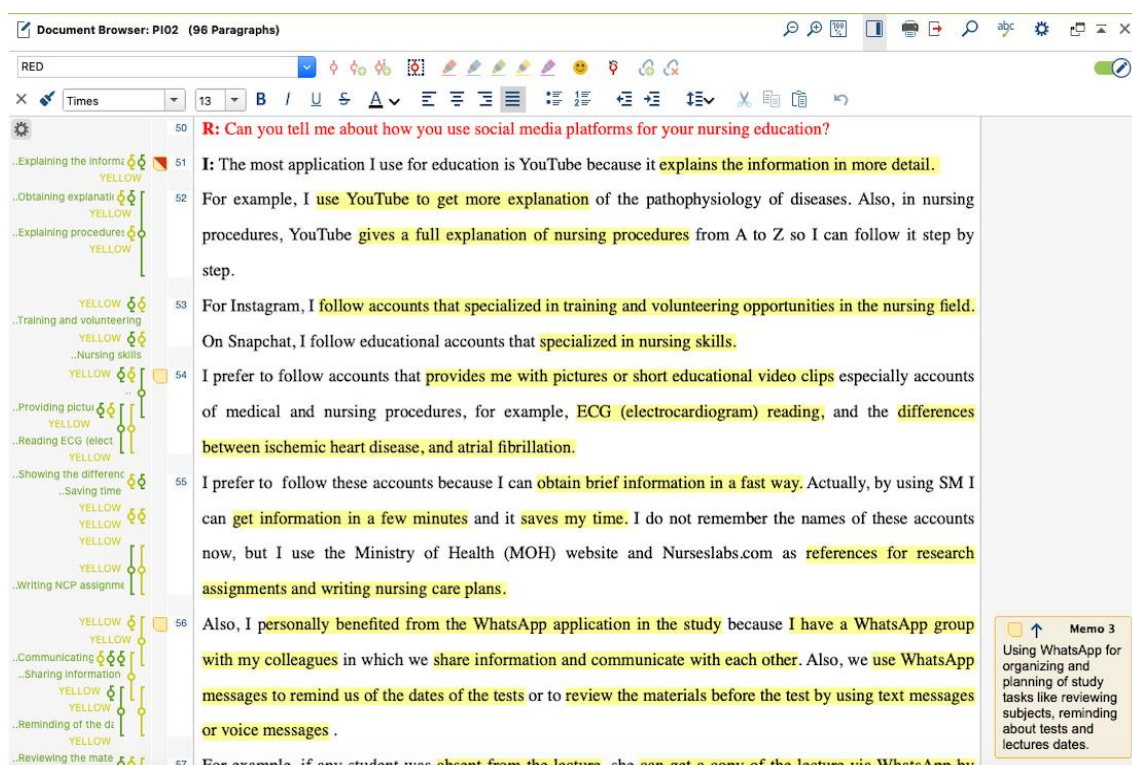


Figure 4. Example of initial coding using MAXQDA software to conduct (line-by-line coding)

In the current study, memos were written as soon as the first interview had been completed. A single case-based memo was written for each interview, summarising the key message taken by the researcher. Memos also formed the major tool for implementing the technique of constant comparison. The initial process of memo writing is essential in enabling the researcher to proceed to the next stage. Memos can be used as the basis for possible categories and therefore serve as preparation for the next stage of coding (Charmaz 2006). Using the constant comparison method, the researcher was able to combine codes that were similar or repetitive and remove any irrelevant codes. Throughout the process of analysis, data and codes were constantly compared both within and across sources (e.g., for early memos and transcripts). Indeed, constant comparison is the core technique in the early stages of the analysis that, if applied thoroughly, increases the “conceptual understanding” of the researcher, and ensures that the data are comprehensively and thoroughly scrutinised (Charmaz 2006). Further discussion on this issue is presented in The Constant Comparative Method section.

3.8.9.2. Focused coding and categorising

Focused coding comprised the second stage of coding. This involved reviewing each interview transcript and extracting the initial codes that occurred more frequently and appeared to have a more substantive analytical value. This served to refine the process of developing theoretical categories as it enabled the researcher to combine and analyse

large segments of data at a more conceptual level. Charmaz (2014) views focused coding as the stage at which decisions are made with respect to which categories to include, combine, or remove. Thus, in the current study, the researcher continually scrutinised, reviewed, combined, and renamed codes in order to create precise and analytically meaningful focused codes that captured the meaning of relevant initial codes in a more conceptual fashion.

Throughout the ongoing process of collecting, analysing, and comparing data, the codes and categories that emerged were refined and adapted by the researcher through reflection and review. Adopting a flexible yet pragmatic approach, the researcher sometimes retained initial codes, combined several initial codes into one category, or coded initial codes as focused codes. Through the use of constant comparison, the analysis performed by the researcher was enhanced as a result of combining induction with a degree of deduction and verification (Birks and Mills 2015). For instance, deductive reasoning was employed to change questions and refine categories. Deduction was defined by Bryant and Charmaz (2019) as a form of reasoning in which a general or abstract concept is applied to certain instances. For example, in the early stage of coding, participants who described their experiences searching for information on social media referred to the methods they employ to verify the quality of such information. To explore this aspect, the researcher altered her questions to ask subsequent participants how they assessed the quality of the information found on social media.

Thus, throughout this study, the researcher had to continually move back and forth in the data to assess whether focused codes could be applied to other elements of data in the same or other interviews. Based on the order in which they were conducted, the researcher endeavoured to ensure that initial and focused coding for each initial interview was completed before proceeding to analyse the next. This did not mark the end of the process, however, as earlier data and codes were frequently revisited during the analysis until no further categories emerged from the data. This was defined as the point at which theoretical saturation had been reached. An example of the focused coding of an interview extract can be found in Appendix 12.

Whilst proceeding with the analysis, the researcher noticed that certain focused codes synthesised several layers of meaning and actions and thus seemed to offer a more accurate reflection of what was occurring in the data. These codes were then deemed categories as their conceptual value was considered to be greater. Bryant and Charmaz (2007) define a category as a pertinent idea or statement that describes what a set of codes is concerned with. More precisely, a conceptual category was defined by Charmaz (2006) as a powerful abstraction that concisely reflects thoughts and events taking place in the data. Themes from two or more focused codes can be included in a conceptual

category. The use of conceptual categories strengthened the analysis by enabling the researcher to work with groups of codes that were related to each other, and in which similar themes and patterns emerged (Charmaz 2014). By the end of this stage, three categories had been developed, each of which was described by and associated with a set of focused codes, now known as subcategories. Further details are presented in Chapter 4 and Appendix 13.

The flexibility and creativity encouraged by Charmaz (2014) permits the researcher to employ various strategies during the analytical process, such as memoing and clustering, to help organise the data and refine the process of coding. A detailed discussion of this process is presented in sections 3.8.9.6 and 3.8.9.7.

To clarify the connections between categories, Strauss and Corbin (1998) also proposed the use of axial coding. However, Charmaz (2006) argued that although axial coding may be of value in providing the researcher with a framework to clarify and guide their analysis, it can be somewhat limiting and is generally unnecessary if flexible and straightforward guidelines are preferred. Based on this, axial coding was not employed in this research.

3.8.9.3. Theoretical coding

In grounded theory, the final step is to employ theoretical coding, whereby the researcher generates a theoretical framework in which one over-arching high-level category is linked to other core concepts (Charmaz 2006). In so doing, the potential relationships between categories are identified. In this study, constant comparison was applied by the researcher to combine focus codes into categories and employ sorting and diagramming techniques to create higher level conceptualisations. The principal purpose of theoretical coding is to therefore define the primary categories that constitute different elements of the theoretical model. The labels and relationships between theoretical codes were constantly reviewed by the researcher to visually signify links between categories. Charmaz (2006) explained that sorting memos and creating diagrams can assist the researcher in developing and refining such theoretical links by comparing categories and identifying the abstract relationships that exist between them. Indeed, diagrams proved extremely useful in enabling the researcher to develop and hone her thoughts when developing categories. To form a theoretical model, the three conceptual categories and their associated subcategories were then combined. The resultant model is explained and presented in section 4.6.

To reach theoretical saturation using diagrams and memos, abductive reasoning was employed by the researcher, supplemented by constant comparison and memo writing. Charmaz (2014) views abduction as the primary means by which theoretical saturation

is achieved. It enables grounded theorists to check and develop new concepts created from inductive data. In the current study, mind maps (Appendix 14) were transformed via memos and constant comparison into refined diagrams that depicted potential categories and their relevant properties, drawing on the categories of location and direction. For instance, the core category “Personal Interests” was associated with various connections within the data and within other categories and codes (as discussed in Chapter 4). Reichertz (2019) expanded on this notion further, arguing that abductive inferencing identifies and explains a concept, idea, or theory that renders comprehensible the actions presented in the data. This is achieved by identifying the regularities upon which this action is based, which make its motives evident. Bryant and Charmaz (2019) agree with this view, asserting that creativity is brought into the process of inquiry by abduction, and drives the iterative process that underpins grounded theory towards the construction of theory.

Having completed the analysis and developed the conceptual categories, the researcher then conducted a second review of the literature to consider the results in the light of existing theories, in order to subsequently devise the grounded theory. These processes are explained in detail in Chapter 5.

3.8.9.4. Theoretical saturation

In the context of grounded theory, theoretical saturation is the point at which no new knowledge about a particular topic is obtained from data collection and the existing data are sufficiently detailed, comprehensive, and rich to allow elaboration of theoretical categories. Furthermore, saturation can be deemed as theoretical sufficiency when the correlations amongst categories and the degree of variability in and between categories have been established, verified, and clarified (Charmaz 2014).

Saunders et al. (2017) make an important distinction between theoretical saturation and data saturation. They characterise theoretical saturation as being derived from traditional grounded theory where, driven by the concept of theoretical sampling, the criterion for collecting additional data is the development of categories and the theory that emerges during the analysis. Data saturation, by contrast, does not necessarily link to the theory generated as it refers to the point at which there appears to be redundancy in the data; it is thus separate from the formal procedure of data analysis. In the current study, theoretical saturation was used by the researcher to identify the point at which no new codes emerged for each category which, as explained previously, was judged to have occurred by the completion of the twelfth interview.

The researcher had a discussion with the supervisors regarding the lack of new information yielded by the data and the density of categories, and made efforts to conform to the notion of theoretical saturation within the practical limitations of the research (e.g., the limited time of a doctoral thesis). It was decided that theoretical saturation was reached at the point where no new focused codes emerged for every category. The lack of any new forthcoming data and acceptable density of categories were the factors considered in evaluating theoretical saturation. In addition, data analysis and supervisors' guidance were relied on in this research to determine when saturation was achieved. However, with regard to the manner of application of the grounded theory, Dey (1999) suggested that "theoretical sufficiency" was a more appropriate term than "saturation", signifying that the categories are populated to an acceptable degree, as in the present research.

As previously stated, saturation or sufficiency was appraised according to how much and how detailed data were in every category, theoretical sampling, and continuous comparison, as well as guidance from supervisors. Such an approach requires researchers to reflect on the features ensuring data richness and relevance. It must be highlighted that such data are sourced from the process based on grounded theory involving continuous comparison, diagrams, and the fusion of literature and the researcher's reflexive thinking, and not only from participants' interviews (Charmaz 2006).

3.8.9.5. Constant comparative method

A central and fundamental component of the grounded theory method is that of constant comparison. It is predicated on the notion that the development of concepts is facilitated by comparison between a variety of research components at differing stages of the process. This includes making comparisons between codes, descriptions of incidents, statements, and findings (Bryant 2017). Constant comparison is therefore an analytical procedure employed for the development of both codes and categories. Concepts and theoretically relevant categories are therefore continually refined as a result of identifying consistencies and differences between each component (Chun Tie et al. 2019). It is a process that starts when the initial data have been gathered and continues until the research is complete.

In the current study, the researcher compared codes with codes, codes with data, new data with existing codes, codes with categories, categories with categories, and categories with extant literature. This aligns with Bryant and Charmaz's (2019) constant comparative method, which strives to generate concepts and theories that are more abstract in nature. For instance, examples given by participants regarding the use of self-control on social media were coded "Avoidance". To identify key characteristics,

enablers, and obstacles to avoidance, the researcher reviewed the data to identify examples of participants who were or were not, able to exert self-control. This focused the analysis and ensured sufficient saturation of each category through the process of comparing and contrasting. The data were also compared to the memos regularly written by the researcher. By using this method, researchers increase the abstraction of their analyses by revealing the range of characteristics within their emerging categories. Thus, through constant comparison, a theoretical model was produced in which the relations between integrated and abstract categories were clearly defined.

3.8.9.6. Memo writing

An essential method in grounded theory is memo writing, which stimulates researchers to analyse their data and refine their codes into increasingly abstract categories at an early stage of the research (Bryant and Charmaz 2019). It begins when the first interview is completed, initiating the process of analysing the data (Charmaz 2006). Initial memos are concerned with exploring the data and identifying focused codes while later, more advanced memos assist in formulating the structure of categories, the ways in which they relate to the data, and facilitating the process of comparison (Charmaz 2006). Charmaz and Thornberg (2020) suggest that early memos can make important points relating to codes as well as analytical and methodological questions. More analytical memos enable grounded theorists to analyse codes in more detail. Thus, at each stage of the analysis in this study, writing memos served as a crucial tool for exploration and development.

The writing of memos is also vital in enabling the researcher to actively engage with the data in a reflexive manner, which is a crucial component of grounded theory analysis (Charmaz 2014). Memos allow the researcher to scrutinise the decisions they make and reflect on these before carrying out any further interviews. In the current study, memo writing enabled the researcher to fully engage with the data, examine any relationships identified, pinpoint analytical gaps, and drive the process of theoretical sampling. They also enabled the researcher to scrutinise processes relating to the way in which the study was conducted, such as the recruitment of participants, and assisted the analysis and subsequent interpretation of data. Several examples of memos are included in Appendix 11.

The sorting, comparison, and integration of memos in this study followed the approach suggested by Charmaz (2014). It began at an early stage and was carried out using the memos for writing available on MAXQDA software. Memos are extremely powerful tools in MAXQDA. Using this software, the researcher was able to write memos for codes, documents, or annotate segments of data with ideas and comments at all stages of the project (Friese 2019; Kuckartz and Rädiker 2019). To organise the memos, different

types of memo and memo labels were available. Memos could also be searched for and filtered in table overviews. A search for terms could also be performed in all the memos or documents of a project. MAXQDA also enabled the researcher to manage the increasing number of memos during the analysis and review them when required. An overview of transcript memos using MAXQDA is presented in Figure 5; an overview of memos for categories and subcategories is provided in Figure 6.

Overview of Memos		
All		12 Memos
<p>After reading this transcript, I noticed that she focuses on learning styles (visual learner) like videos and animations. Also, she listed several SM features like voice recording, audio and visual options. She mentioned that she used SM Apps for purchasing products and using SM anywhere and anytime. She said that she likes to use SM for socialization training and volunteering activities. She noticed differences between the teacher and SM Apps explanations, which affected her exam result. She mentioned that SM affect her academic performance, and she used limitations or self-restriction by keeping her phone away when she does her assignments. Also, she used SM for organization and planning, especially in educational tasks like "reminding of the dates of the tests and reviewing the materials". She likes to use SM more on the personal entertainment side more than the study side. She described SM as "an indispensable thing in our lives". Also, she mentioned how she solved SM difficulties by adjusting, coping, and more practicing with teachers and colleagues. Also, she emphasized the quality of information and reliability of recourses in SM.</p>		
Title	Preview	
PI01	After reading the participant transcript many times, I noticed	
PI02	After reading this transcript, I noticed that she focuses on le	
PI03	In this transcript, the participant mentioned that she is using	
PI04	In this transcript, the participant uses social media to seek i	
PI05	In this transcript, the participant defined SM as a group of pr	
PI06	This participant defines SM as a way to have a relationship wit	
PI07	This participant describes SM as way to offer social life (soci	
PI08	In this transcript, the participant describes SM as a way to no	
PI09	This participant classified her usage to work and education usa	
PI10	This participant describes SM as a tool reduced the physical di	
PI11	She describes SM as connection tool to keep update with news an	
PI12	She described SM as a way to connect with people despite the di	

Figure 5. Overview of all transcript memos using MAXQDA

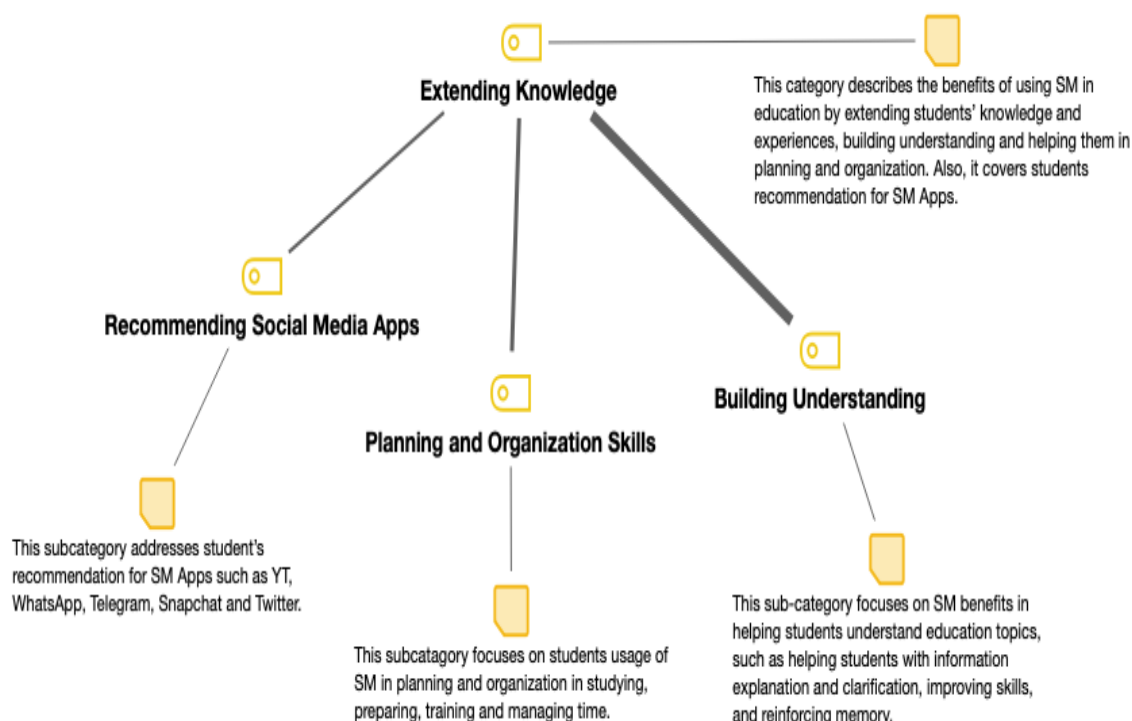


Figure 6. Example of memos for categories and subcategories

3.8.9.7. Theoretical clustering and diagramming

To obtain control over certain components of the data, Charmaz (2014) identified clustering (a shorthand prewriting strategy that enables researchers to start organising their data) and the use of diagrams (allowing researchers to view the comparative scope, direction, and power of categories along with their interrelationships) as useful solutions. The researcher thus employed clustering and diagramming at different stages of the analysis to facilitate the conceptualisation of codes, categories, and potential relationships. They were especially useful in ensuring the researcher retained control over a large body of data, was able to identify any inherently valuable relationships, and helped structure the findings in Chapter 4. Using Microsoft Word, theoretical clustering first involved compiling focused codes as table lists based on their central ideas.

In terms of diagramming, mind maps were then used to replace these clusters, whereby a dominant code (connected to most participants) was linked to several other codes. The links between such codes also varied as some formed sub-groups whereas others were connected only to the dominant code. Via constant comparison and memoing, these were then transformed into refined diagrams that depicted the potential categories and their properties. It is important to stress that although such diagrams were extremely helpful in enabling the researcher to understand how the codes had evolved and stimulated their thinking, they were not a substitute for analysis (Charmaz 2014); rather visual aids supplemented memoing and coding. An example of the use of diagramming during theoretical coding is shown in Figure 7.

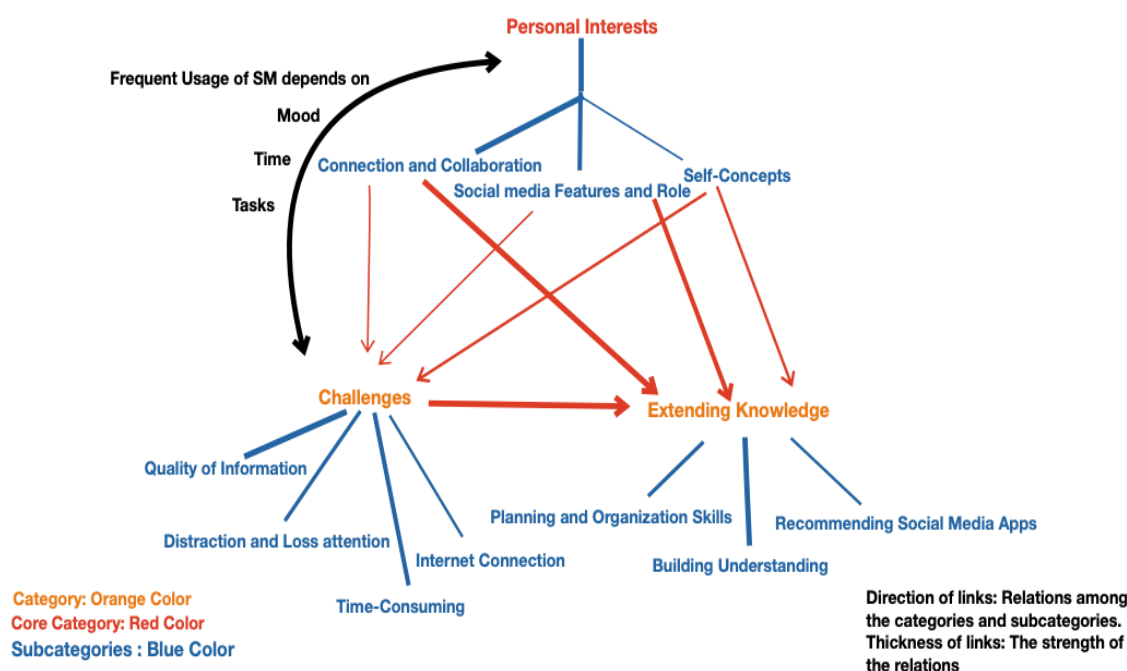


Figure 7. Example of diagramming during theoretical coding

3.8.9.8. Writing the first draft

Writing up the study is the most instrumental way to make a novel contribution to the topic under investigation, which means offering new or in-depth understandings with regard to participants' experiences (Charmaz 2006). It is a process that requires numerous adaptations and changes. Thus, the initial draft was written and revised multiple times. However, previous copies were retained, as reviewing and reflecting upon these provides a useful indication of previous thoughts and decisions.

3.9. Note on the production of the theoretical model compared to the methodological plan in this study

Although the approach to grounded theory adopted in this research was guided by the work of Charmaz, rigid adherence to this approach was not necessary. Indeed, Charmaz (2009) herself emphasises that grounded theory is a term that encompasses numerous different directions, emphases, versions, and ways of addressing data. Throughout the research process, the researcher refined and changed her research plan as necessary with respect to the timing and implementation of the literature review, coding, and development of core categories. First, regarding the literature review, Glaser and Strauss (1967) contended that this step should be omitted so that the researcher is not exposed to existing theories that may influence the way in which they interpret their findings. However, this view was challenged by Charmaz (2006) on the basis that the literature

needs to be reviewed in order to elucidate the area of investigation and formulate research questions before collecting any data. Additionally, Charmaz (2014) emphasised that a literature review should be a procedure which continues throughout the research. It was therefore necessary for the researcher to reflect on how to address such issues whilst remaining loyal to the methodology of grounded theory, how to engage with the literature, and at what stages such engagement should occur. The decision taken by the researcher was to conduct a wide-ranging literature review before the research to ensure she had developed a solid understanding of the topic area. To align with grounded theory, a second literature review was undertaken when data analysis had been completed in order to improve the researcher's understanding of the principal ideas that were emerging, and to increase her theoretical sensitivity.

With regard to the second element, coding, the guidelines of constructivist grounded theory were followed in conducting both the initial and focused phases of coding. Strauss and Corbin (1998) also recommended the use of axial coding to illuminate the links between categories. Although Charmaz (2006) acknowledges the value of axial coding in terms of providing a clear structure for the analysis, she contends that the use of adaptable and straightforward guidelines renders axial coding restrictive and largely redundant. Hence, the researcher chose not to perform axial coding. As a more innovative and less rigid alternative, Charmaz (2014) proposed diagramming to clarify the properties and relationships among categories. As described in Section 3.8.9.7, diagramming was employed widely in the current research to construct the theoretical model. For instance, Figure 7 depicts a diagram developed whilst constructing the primary categories and sub-categories.

Theoretical coding is the final level of coding on which Charmaz (2014) elaborated as forming part of the process of analysis in constructivist grounded theory. It involves elevating focused codes to greater levels of abstraction where they are then known as theoretical codes. Like axial coding, however, the use of theoretical coding has generated considerable debate among experts in grounded theory. As Charmaz explains, one ongoing issue is the conflict that exists between the way in which codes emerge and how they are applied. In Glaser's approach to grounded theory (Glaser, 1978), it is considered necessary to apply pre-existing families of theoretical codes to the data (e.g., contexts, causes, consequences, contingencies, conditions, and covariances). By contrast, the preference in constructivist grounded theory is to view theoretical concepts as arising from the data analysis, as this helps to avoid the imposition of an established framework (Charmaz, 2006). The principal objective of theoretical coding in the current study was therefore to conceptualise and identify the primary categories that comprised the elements of the theoretical model. In keeping with

a constructivist grounded theory approach, constant comparison was used to assemble focus codes into categories; and to transform such codes into higher-level abstractions, sorting and diagramming were used. Thus, no attempt was made to follow Glaser's approach. The three conceptual categories and their corresponding subcategories were then combined to create the theoretical model which is presented and explained in detail in Section 4.6.

The final component is the core category which Strauss (1987) argues is the most essential element of a grounded theory. This is because it is integral to the theory and binds all the various components together. Charmaz (2006), however, asserted that identifying a single fundamental procedure or core category within the topic under investigation is not the aim of constructivist grounded theory which instead permits the creation of several core themes or categories.

The core category identified in the current study was that of personal interest as this was deemed necessary to understanding how social media were used by nursing students to communicate and work together, enhance their knowledge, and handle any difficulties that arose. This core category was demonstrably in alignment with all the others, fully maintaining associations between codes, and assisting in explaining category variance, all of which are vital components of a theory (McCann and Clark, 2003). Glaser (1978) contends that the core category connects all other categories by amalgamating them with respect to their dimensions and properties, thereby creating "substantive meaning" through the interrelationships between the categories.

3.10. Scientific rigour

As a further means of enhancing qualitative research, it is important to establish and demonstrate the rigour with which data were collected. In this respect, Charmaz (2014) advises researchers "to look back into our journey and forward to imagining how our endpoints appears to our readers or viewers". To facilitate this, four evaluation criteria were developed: credibility, originality, resonance, and usefulness. These were applied by the researcher in the current study as described below.

3.10.1. Credibility

Credibility refers to whether or not the presentation and familiarity of the data, the analytical process, and the evidential support for claims indicate the results are plausible (Charmaz 2014). Charmaz and Thornberg (2020) explain that credibility is based on having sufficient relevant data to generate pertinent questions, perform methodical comparisons, and conduct a comprehensive analysis. In the current study, the researcher was familiar with both with the setting and topic of the research, as she

worked as a lecturer at the studied College of Nursing. Discussions were therefore held with appropriate academic staff, such as the Dean for Graduate Studies and Research, heads of department, and nursing students. The richness of the data was enhanced by recruiting a sample of participants with a diverse range of ages and educational levels.

Recruiting a small sample of 12 participants of a given gender but with a wide range of educational levels and ages greatly enhanced the richness of the data. This strengthened the research as it enabled the researcher to perform an in-depth investigation of the experiences of nursing students. Moreover, using such a small sample enabled the researcher to become fully immersed in the data, diligently reading and rereading transcripts in order to familiarise herself with the material and develop an in-depth understanding that served to generate important insights into the data. This also facilitated the use of constant comparison during the process of analysis. Furthermore, the data produced were robust enough to devise a theoretical model that would provide essential insights into how nursing students use social media platforms for both personal and academic motives. This increased the extent to which the research could be deemed credible. This is reinforced by the fact that, as Crouch and McKenzie (2006) emphasise, the small sample enabled the research to attend closely to the participants and conduct a fine-grained, comprehensive investigation in a naturalistic environment. As such, they became immersed in the topic, formed ongoing and productive relationships with participants, and addressed the research problem at a profound level through the process of theoretical contemplation.

In-depth examination of an abundance of data was also facilitated by the fact that the interviews were close to one hour in length. Credibility were further demonstrated by the researcher taking six months to develop the interview guide, following which it was tested using two pilot interviews, subsequently revised, and then reviewed by the supervisors. To further enhance credibility, Polit and Beck (2018) state that triangulation can be employed, which involves making use of different methods of data collection. To that end, both purposive sampling and theoretical sampling strategies were utilised to recruit participants from different levels of education (undergraduate and postgraduate degrees). As a further example of triangulation, the data generated were discussed with three supervisors.

To analyse the data and present the findings, the researcher adhered to the guidelines clearly set out by the constructivist grounded theory approach. For instance, the technique of constant comparison was employed throughout the analysis. Quotes from participants were also utilised to explain and provide evidence for the development of codes and categories. Due to their extensive experience in the application of grounded theory, the supervisors then shared and reviewed a sample of coding. The relationships

between different categories were presented and discussed in depth, with visual illustrations where necessary. Overall, the researcher's in-depth familiarity with the data was demonstrated by these findings.

The analysis was further strengthened by the use of techniques such as theoretical sampling and theoretical saturation, which enhanced the overall quality of the research (Charmaz and Thornberg 2020). In this study, theoretical sampling was employed by the researcher to identify and examine the dimensions and priorities within each category. When no further codes were generated for each category, theoretical saturation was reached which, as explained previously, was achieved after nine interviews, and confirmed after 12. This process was supported by reviewing and discussing each of the categories generated with the supervisors, further enhancing the credibility of the research.

3.10.2. Originality

Originality is demonstrated in the extent to which categories are novel and generate a new understanding of the topic area, and whether a novel theoretical interpretation of the data is offered by the analysis (Charmaz 2014). For Charmaz and Thornberg (2020), originality is demonstrated by providing novel insights, offering a new understanding of an established problem, and conveying the importance of the analysis. In the current study, a lack of research on the use of social media by Saudi nursing students meant that the research demonstrated originality by generating novel insights and developing new categories, as discussed in Chapters 5 and 6. These findings have several important implications for nursing education and policy. For example, the principal gap identified in this research was the lack of guidelines produced for Saudi nursing students on the use of social media platforms. No existing studies have addressed this issue; therefore, these findings are extremely important as there is an urgent need for such guidelines (Chapter 5).

3.10.3. Resonance

Resonance refers to the extent to which others who share the same experiences can make sense of the study; the categories are sufficiently rich and describe different features of the phenomenon under investigation; and the analysis provides participants with in-depth insights into their experiences (Charmaz 2014). Additionally, Charmaz and Thornberg (2020) assert that resonance is also exhibited in the extent to which the concepts created also offer insights into the experiences of other people. In essence, however, the purpose of collecting data is to elucidate the experiences of the participants.

To demonstrate the richness of the topic and clarity in the research findings, the researcher created each of the categories using the words spoken by the participants. This ensured the findings were grounded in the data and that every stage of the research was clearly reported. When conducting theoretical sampling, the researcher used memos to identify and define the relationships between the categories, sorting and combining these to transform the categories into concepts. Having followed several lines of inquiry, theoretical saturation was demonstrated by the amount and depth of data within each category, via the processes of constant comparison and theoretical sampling, and through discussion and reflection by supervisors. Finally, the researcher employed a reflective approach throughout to assess their effect on the research and to identify and provide a justification for all the decisions that were made.

3.10.4. Usefulness

Usefulness is demonstrated by the extent to which the study provides an insightful understanding; helps expand the existing base of knowledge; and suggests avenues for further research (Charmaz 2014). Additionally, Charmaz and Thornberg (2020) stated that usefulness is exhibited in the extent to which participants' understanding of their everyday lives is elucidated, a basis is formed for policy and practical applications, new lines of research are created, and widespread processes and practices are uncovered. The findings of the current study may offer information of value to nursing students and nursing education professionals. In terms of future research, it would be useful to investigate whether the findings can be applied to the work of healthcare professionals in other domains. Above all, the crucial identification of an absence of formal social media guidelines for Saudi nursing students will form an important starting point for future research exploring the significance of this phenomenon. Table 6 illustrates the measures used to improve the quality of the current study based on the evaluation criteria of Charmaz (2014).

Rigour criteria	Strategies implemented
Credibility	<p>Familiarity with the topic and setting of the research was achieved.</p> <p>Participants with a range of ages and educational level were recruited.</p> <p>The initial interviews were lengthy, lasting from 50-60 minutes.</p> <p>The researcher and supervisors reviewed the interview guide.</p> <p>Two pilot interviews were conducted.</p> <p>The researcher completed a reflexive journal.</p> <p>Bi-weekly supervision meetings were held.</p> <p>Triangulation was used to enhance credibility.</p> <p>The constant comparative method was employed for the data analysis.</p> <p>Quotes from participants were used.</p> <p>Visual representations were used to illustrate categories, subcategories, and their relationships.</p> <p>Theoretical saturation was achieved.</p>
Originality	<p>The categories constructed were grounded in and unique to the data.</p> <p>Novel conceptual understandings of the data were generated by the analysis.</p> <p>The novel insights generated will enable social media guidelines for nursing students in Saudi Arabia to be established.</p>
Resonance	<p>Participants' own words were used in the construction of categories.</p> <p>Theoretical sampling was performed to identify and examine the categories.</p> <p>Memos were used to identify and define the relationships between categories.</p> <p>Data were revisited and the categories reviewed in conjunction with supervisors.</p> <p>Theoretical saturation was assessed.</p> <p>The researcher used a reflexive journal throughout.</p>
Usefulness	<p>The usage of social media in education was elucidated by the findings and will be of use to nursing education professionals.</p> <p>The need to create formal social media guidelines for Saudi nursing students was highlighted by the findings.</p>

Table 6. Strategies adopted to enhance the quality of the current study

Source: based on the evaluation criteria of Charmaz (2014)

3.11. Research ethics

3.11.1. Ethical approval

This research conformed with the ethical requirements of Bournemouth University Research Ethics Committee (2014) and King Saud University Deanship of Scientific Research (2015). Ethical considerations were identified in advance of conducting any part of the research, and given that achieving the research aim depended on the

involvement of human participants (i.e., Saudi nursing students), ethical approval was required.

As shown in Appendices 5 and 6, ethical approval was subsequently received for the research from the Ethics Committees at Bournemouth University and King Saud University. The ethics application covered issues such as the study's inclusion and exclusion criteria, the sampling technique, and paperwork for data collection (e.g., consent form and participant information sheet). Along with this, the ethics application contained a copy of the interview guide before piloting.

Consistent with ethical requirements, as well as ethical approval received from the relevant authorities to perform the study, participants were asked to read an information sheet, which provided full details about the nature of the study, the research aim, and how their data would be used (Appendix 9). All of the participants had access to the contact details of the lead researcher and their supervisor in case any questions needed to be asked. Alongside this, the information sheet provided an overview of the participants' right to withdraw from the study at any stage of the interview without providing any reasons. Additionally, before any semi-structured interviews were undertaken with the participants, all of them received complete information via an oral statement. The participants were also asked to sign a voluntary and informed consent form before they were included in the research (Appendix 10).

The ethical review and approval process undertaken by the Bournemouth University Research Ethics Committee ruled that the proposal (as outlined in the Ethics Committee Application) was low-risk from the standpoint of health and safety (the Risk Assessment is shown in Appendix 7). Although the lead researcher is employed as a lecturer at KSU, she did not have any previous teaching contact with the participants. At the same time, no unsuitable power relationships occurred in any phases of the research. It is worth noting that participation in the research took place on a voluntary and unpaid basis. The researcher's positioning for the study is outlined in greater detail in section 3.5.5

To gain insight into demographic aspects of the participants, personal information was gathered at the outset of the interviews. For example, data relating to each participant's age and education level were obtained. To ensure that the ethical requirements are satisfied, all personal data were processed in a way that safeguarded privacy, anonymity, and confidentiality. To maximise anonymity, identifying information was removed through the use of pseudonyms during data analysis. At the same time, the obtained data were maintained in a safe and secure way in the form of both hard and soft copies.

3.11.2. Ethical consideration

Comprehensive ethical considerations and observances were honoured during the preparation of this research, as well as the fieldwork and writing-up. At every stage, the research complied with the ethical principles delineated in the Bournemouth University Research Ethics Committee's (2014) *Research Ethics Code of Practice: Policy and Procedure*, namely beneficence, non-maleficence, respect, autonomy, confidentiality, and privacy. These principles were also conditions for the ethical approval of this research. The purpose of ethical research standards is to make sure that the requirements and worries of the research population are taken into consideration, that the research conduct is adequately supervised, and that a foundation for research-participant trust exists (Mack et al. 2005).

3.11.2.1. Beneficence

The *Belmont Report* (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research 1978) stipulates that beneficence refers to a pledge to reduce research-related hazards (e.g., psychological, social risks) as much as possible, while enhancing the advantages for the research participants as much as possible. Regarding the present case, the research was not directly beneficial to the participants, as indicated in the participant information sheet; instead, the research was advantageous in terms of increasing general knowledge about the use of social media among Saudi nursing students, knowledge that could in turn be useful to the students for enhancing the benefits that they could derive from social media, not only on a personal level but also professionally. Moreover, this research contributed to the identification of gaps in understanding of the use of social media in the context of Saudi nursing and put forward suggestions for better harnessing such usage in that specific context.

3.11.2.2. Non-maleficence

As defined by Beauchamp and Childress (2001), non-maleficence refers to the duty of researchers to avoid deliberate harm. In keeping with this principle, the participants were informed about the advantages and disadvantages of involvement in the research and their consent was sought to make sure they comprehended the research aims and possible risks and that they were adequately protected. Furthermore, the participants were made aware of the fact that they could terminate their involvement whenever they wanted up to the point of analysis completion. Moreover, the researcher supplied her contact information in the event that the participants had any queries after the interview. It was not expected that this research would present any risks besides those occurring in daily life. Physical harm can happen in the context of a research and can cause distress, but this was highly improbable in the present case and there were no such

incidents. Additionally, problems associated with financial resources did not arise in this research as the interviews were conducted on the University campus, at times and places convenient for the participants.

3.11.2.3. Respect for autonomy

The importance of recognising individuals' right to choose, express opinions, and act according to their own values and perceptions reflects the principle of respect for autonomy (Beauchamp and Childress 2001). This principle demands the upholding of research participants' autonomy, and ensuring that individuals are not taken advantage of when independence may be curtailed. It is essential to preserve the dignity of every research participant. The purpose of the principle of respect for autonomy is to prevent individuals being exploited in the interest of research goals (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research 1978). As regards the present research, the participants were clearly informed about the research aims and methods, and they were also made aware that they were free to terminate their involvement whenever they wanted, and that their data would be employed solely to address the research questions (Appendices 9 and 10).

3.11.2.4. Confidentiality and privacy

Preventing any connection being made between an individual and the data they supply is imperative to uphold confidentiality. In other words, details that can identify an individual (e.g., their identity within study reportage, as well as their name and address) must not be reported, and ideally should not be recorded during interviews (or subsequently be transcribed) (Mack et al. 2005). Confidentiality also pertains to any research publications in which every measure must be taken to keep the identity of people and locations secret. One method for maintaining participants' privacy is to modify names and other details that can identify them (Green and Thorogood 2018). The present research was carried out at KSU in Riyadh and employed a sample of 12 nursing students to collect data via interviews. Participant anonymity was maintained by assigning a unique label to each of them (i.e., Farh, Jood, Lora, Rwan, Nora, Mela, Arwa, Tala, Yasmeeen, Najd, Renad, and Sama). The participants were informed about this approach to assure and encourage them to talk openly of their experience of social media use.

Besides mere confidentiality, the right to privacy signifies that people are entitled to refuse involvement in the research, answering questions, calls or emails, and participating in interviews, as well as being entitled to the sanctity of their home, and behaving however they want privately with no apprehension of observation. Therefore, it is the duty of researchers to make participants aware that they can deny part or complete involvement in research, that they must consent to research, and control the

length of time of involvement (Cohen et al. 2007). According to the Helsinki Declaration, all measures must be taken to uphold participants' privacy and keep their information confidential (World Medical Association 2001).

The participants in the present research had the right to make the decision regarding involvement. Those who agreed to participate were provided a participant information sheet and were asked to sign a consent form. Furthermore, participants could withdraw participation during the interview whenever they wanted, without giving a reason. In the event that the participants wished to stop their involvement, the researcher would remove any data pertaining to those participants. Researchers may remove participants' data even after the interviews if data analysis has not commenced already, or if the data have not been included in the research conclusions. As previously mentioned, participants' identity could not be determined from the data, and their decision about involvement or lack of involvement would not affect their education at KSU.

The highest ethical standards were honoured in this research. Prior to collecting the research data, the researcher undertook completion of ethics modules with success, and achieved ethical certification as well as permission to undertake this study from Bournemouth University. Ethics training and certification are important for all researchers conducting qualitative studies before commencing fieldwork and collecting data, as advocated by Mack et al. (2005). In the present research, every major principle of ethics (i.e., beneficence, non-maleficence, respect for autonomy, and confidentiality and privacy) was given due consideration (University Research Ethics Committee 2014).

3.12. Chapter summary

The methodology and methods implemented in this research were explained in this chapter. A qualitative approach based on constructivist grounded theory was adopted as the study's methodology, as proposed by Charmaz (2014). Such an approach was considered the most suitable for gaining insight into the experiences and views of Saudi female students of nursing with regard to the use of social media, as well as into the positive and negative effects of that use. In addition, the research approach, philosophical worldview, and justifications of the use of a qualitative approach were discussed, and potential alternative research methods were taken into account.

Among the methods applied in keeping with the research methodology were purposive and theoretical sampling, theoretical sensitivity, data analysis, ongoing comparison, theoretical saturation, and elaboration of categories based on theoretical memos and diagrams (Charmaz 2014). Furthermore, to ensure that the research process was transparent, the approach employed in collecting and analysing the research data was presented. Moreover, four evaluation criteria were applied: credibility, originality,

resonance, and usefulness. In addition, reflexivity was implemented, with justification of the motivation, assumptions, and personal background of the researcher. Finally, ethical considerations were addressed in accordance with the expectations of a doctorate degree, and research underpinned by the paradigm of constructivism. The next chapter presents and explains the study findings, using excerpts from participant interviews to demonstrate the emergent categories and to construct the final theoretical model of the study findings.

Chapter 4 has been redacted as it may contain information about research in progress where there is an intention to publish later
see <https://eprints.bournemouth.ac.uk/38117/>

Chapter 6

Conclusion and Recommendations

6.1. Introduction

This chapter concludes the research with an overview of the main findings, an assessment of the extent to which the research questions have been addressed, a summary of the theoretical, methodological, and practical contributions made, an evaluation of the strengths and weaknesses of the study, and suggested avenues for research in the future.

6.2. Summary of key findings

During the interviews, nursing students gave a wide range of reasons for using social media platforms – for example, to support academic work and entertainment. Three main categories were highlighted following an analysis of the interview data, each comprising a number of sub-categories. These themes were personal interests; extending knowledge; and the challenges associated with using social media platforms.

The personal interests comprised three sub-categories: connection and collaboration, features and role of social media, and self-concepts such as online self-presentation and self-development. The findings indicate this category is vital in illuminating the disparate ways in which social media platforms were used by participants, their reasons for using them, and the different platforms used. Most notably, it became clear that the usage of social media platforms was essential in facilitating communication, be this academic or personal. Such usage occurred often, and fulfilled different functions according to the context in which they were used and the differing capacities of each platform. For example, WhatsApp groups and YT videos were primarily used for academic reasons whilst Snapchat and Instagram were used largely for entertainment. Participants demonstrated strong awareness of the inherent risk involved in using social media excessively, emphasising the need for discipline and self-control. At the same time, they were cognisant of their value in facilitating interpersonal communication, personal development, and supporting their academic studies. It was clear that participants were acutely aware of the advantages offered by the different components and functionalities of social media platforms and expressed a positive attitude towards the future use of such platforms in Saudi Arabia and across the world.

The second category, extending knowledge, comprised three sub-categories: building understanding, planning and organisation skills, and recommended social media applications. This was an extremely valuable category in terms of highlighting the way

such platforms were used as vital adjuncts to education. With respect to the first sub-category, building understanding, participants clearly felt that social media platforms provided novel, stimulating, and easily accessible opportunities to enhance their overall understanding as well as endowing them with knowledge specific to the domain of nursing. Even though a number of participants preferred conventional forms of teaching and learning as a means to understand issues specific to nursing, all agreed that social media platforms could fruitfully and effectively fulfil this function at no extra cost. In terms of developing their knowledge, abilities, and skills with respect to nursing, one of the social media applications used most often by participants was YT. However, when it came to enhancing and developing their planning and organisational skills, participants identified WhatsApp as a particularly useful social media platform. The primary reason for this was the particular functionalities offered by WhatsApp such as direct messaging and file-sharing, which both support effective organisation and planning. From YT and WhatsApp to Telegram and Twitter, virtually all participants advocated using social media platforms for both personal and academic reasons, underscoring the perceived ability of these platforms to extend participants' knowledge across a variety of domains.

Regarding the third category, four main challenges relating to the usage of social media platforms were highlighted: quality of information, distraction and loss of attention, consumption of time, and Internet connections. All these challenges have been considered at length in the relevant literature (as detailed in the discussion chapter), and reflect a strong and consistent level of agreement that although social media platforms have immense educational worth, especially prominent in the domain of nursing, notable drawbacks also exist. With respect to nursing and higher education, measures need to be implemented to ameliorate any potential negative impacts. In this respect, the primary issue pinpointed in this study was that there are currently no formal guidelines in place on social media usage by Saudi nursing students.

This is an important gap that needs to be addressed and will be guided by additional research in this area. It was notable that all of the challenges identified were problematic for the participants, indicating the prevalence of issues such as the strong possibility of being distracted when working, wasting time, relying on sub-standard information, and poor Internet connections. However, participants were creative in proposing useful solutions to these problems. This will be helpful in guiding and supporting future nursing students when they encounter similar problems using social media platforms. Among the practical suggestions they made were to practice using social media apps, avoid distractions, set aside a dedicated time in which to study, ask for help, use the resources suggested by teachers, and make use of internet services. When tackling such challenges, this study's data suggest that it is essential to consider contextual factors

that may impact social media use, such as addiction to social media or socioeconomic factors that affect whether students can pay for a reliable media service.

6.3. Reviewing the research questions

This section assesses the extent to which the research questions presented in section 1.8 were answered.

Q1: How do female Saudi nursing students use social media in their daily lives for personal and academic purposes, and are such uses connected?

The answer to Q1 was examined in detail in Chapter 4, incorporated into the theoretical model presented in section 4.6. and summarised in the grounded theory model depicted in Figure 13. Bringing these different elements together, the findings confirm that social media platforms are used for both personal and academic reasons by nursing students. Such usage ranged from socialisation, entertainment, and interpersonal communication to collaboration and academic tasks. Regarding the link between the personal use and the academic use, participants, were acutely aware of the importance of maximising and monitoring their usage of social media in order to increase the likelihood of academic and professional success. In this respect, they emphasised the need for discipline and self-control. They recognised the pitfalls of failing to strike a balance between social media usage and other elements of their life such as responsibilities at home and preparing for exams. A common pattern of usage, however, was for participants to engage more heavily with social media in their spare time and less heavily when undertaking academic tasks.

Q2: What are the advantages and disadvantages of social media use by female Saudi nursing students for personal and academic purposes from their perspective?

Q2 was examined in detail in Chapter 4, incorporated into the theoretical model presented in section 4.6, and summarised in the grounded theory model depicted in Figure 13. Overall, students largely agreed that there were immense personal and academic advantages to be gained from using social media platforms, primarily due to factors such as ease of access, low cost, flexibility, efficiency, and simplicity. The disadvantages cited were sub-standard and unreliable information, having to avoid distractions and maintain focus, the time consuming nature of such usage, and poor Internet connections.

6.4. Research contributions

The research findings contribute on a general level to current literature on social media usage in nursing education, and more specifically on such usage in relation to Saudi higher educational institutions. These contributions are of three types: theoretical, methodological, and practical, each of which is now addressed in turn.

6.4.1. Theoretical contributions

- This study is one of the first to examine social media usage in nursing education for personal and academic reasons among both undergraduate and postgraduate students. It thus addresses an existing empirical gap in knowledge regarding the usage of social media in nursing education by Saudi nursing students.
- It constructs a theoretical model that incorporates the benefits of social media usage and the challenges faced by Saudi nursing students. This model can potentially be used to illuminate the experiences of nursing students in general with respect to social media usage.
- A particularly valuable theoretical contribution is that allows the theoretical model developed to be compared with existing theories in the literature. This elucidates the important relationship between such theories and the ways in which Saudi nursing students use social media for academic and personal reasons.

6.4.2. Methodological contributions

- This study is one of the first to employ a qualitative approach based on Charmaz's version of constructivist grounded theory on the usage of social media in nursing education in Saudi Arabia. This approach was invaluable in generating important insights into the opinions and experiences of Saudi nursing students regarding their use of social media platforms.
- In accordance with the method proposed by Charmaz (2014), this study employed theoretical sensitivity, theoretical sampling, a particular approach to data analysis, constant comparison, theoretical saturation, and the refinement of categories using theoretical memos and diagrams. Such a systematic approach makes it easier for future researchers to adopt and implement a similar strategy.
- In this study, MAXQDA software was used to efficiently organise and manage the data. This enabled the researcher to examine the interview transcripts and the coded data, and utilise tools that visually depicted and summarised the information to capture the experiences and views of participants. This will demonstrate to other researchers the utility of MAXQDA software for handling and organising qualitative data.

6.4.3. Practical contributions

- The findings of this research and the methodology employed provide a basis for nursing researchers to conduct further studies on patterns of social media usage, exploit the advantages of social media platforms, and ameliorate their negative effects.
- The findings will aid decision-makers in the Saudi MoE in creating and developing nursing programmes in which social media is embedded into the curriculum as a tool to enhance the theoretical and practical knowledge of nursing students. It will also encourage faculty members to exploit the benefits of social media, increasing and expanding opportunities for learning within the domain of nursing education.
- Having highlighted the absence of social media guidelines for Saudi nursing students, this issue can now be addressed by decision-makers as a matter of some urgency.

6.5. Implications of the research for nursing education

This section considers the implications of this research for nursing education regarding communication and peer support among students. Firstly, social media platforms offer nursing students a forum on which to communicate, interact, exchange information, and share their experiences and thoughts. One of the primary benefits they offer is that they enable nursing students to work together on a wide range of activities. For instance, social media platforms are used by nursing students to collaborate in their studies, prepare their academic work, and manage their time. Indeed, through their interviews, nursing students emphasised the advantages offered by the communicative power of social media platforms in terms of planning and organising their work. For example, many use WhatsApp groups to run projects with their fellow students, and to be kept informed about important dates through alerts and relevant updates. The clear benefits of such platforms in this respect was seen by nursing students as being due to the fact they are able to share files, readily access pages on the internet, and communicate with members of staff and fellow students in real time. The collaboration this affords is therefore a productive way for them to acquire knowledge. This aligns with the earlier work of Vygotsky (1978) who asserted that greater levels of understanding are achieved by learners when they work with others rather than alone. Consequently, he viewed collaborative interaction between students within the context of study groups as an essential means by which each individual student's knowledge is constructed. This

implies that faculty staff need to motivate nursing students to work in collaboration with their fellow students.

This emphasis reflects how the process of learning in nursing education is increasingly shifting from a staff-centred approach to one that is student-centred. Accordingly, the role of staff has transformed from passively delivering lectures to coordinating learning activities and supporting nursing students in working together and exchanging knowledge via the use of social media platforms. In a similar vein, the role of nursing students has shifted from being passive recipients of educational content to actively engaging with others, sharing opinions, and exchanging experiences.

To promote the use of social media in nursing education, the researcher will disseminate the findings and knowledge she has acquired through the publication of articles and presentations at conferences. One article has already been submitted for publication, consisting of a structured review of literature on the use of social media platforms by both nursing students and healthcare professionals (Appendix 15). In addition, the researcher has presented her PhD research at the 12th Annual Postgraduate Research Conference 2020 held at Bournemouth University (Appendix 16).

6.6. Strengths and limitations

6.6.1. Strengths

First, several methodological features of this study make a novel contribution to knowledge. For instance, this is one of the first studies to employ constructivist grounded theory to explore the use of social media for academic and personal reasons by nursing students in Saudi Arabia. As detailed in section 2.3, previous studies examining students' experiences of using social media have been quantitative in nature and have focused on testing established theories and models. Furthermore, although the literature review indicated that this topic has been investigated worldwide and scholars continually emphasise the importance of conducting research in other countries, little attention to date has been paid to Saudi Arabia. This is a gap addressed by this study. Secondly, comparing the theoretical model developed from the findings to existing studies has generated novel theoretical insights into this topic (see section 5.5). Another strength concerns the level of methodological rigour employed (section 3.9), as evidenced by the originality, credibility, usefulness, and resonance of the theoretical model of the study findings (Table 6). With regard to the specific use of grounded theory, the substantive use of diagramming during the process of data analysis as a basis on which to create the theoretical model was another notable and original aspect of the research (see Chapter 4 and Appendix 14). Moreover, the recruitment of both undergraduate students

and postgraduate students ensured a wider range of views were collected in comparison to earlier studies.

6.6.2. Limitations

As is often the case in qualitative research, the small sample size could be construed as a limitation. However, in grounded theory research, it is theoretical saturation that determines the size of the sample (section 3.8.9.4); this being the point when no new findings are emerging from the data and data generation stops (Charmaz, 2014). This process was strictly adhered to in the current research, and theoretical saturation was believed to have been reached by the ninth interview as now new themes were emerging. Inspection of the categories after the twelfth interview revealed that this was indeed the case and that the categories were fully developed, which meant data collection then ceased.

A second potential limitation of the research was that it only focused on the views and experiences of female nursing students, creating a potential gender bias in the findings. Whilst conceding this may have been the case, the study was necessarily conducted in accordance with the gender segregation policy operating in Saudi Arabia (sections 1.2 and 3.8.3). The potential value of data on male nursing students does, however, open up a potential avenue for future research.

Another issue that arose was the unforeseen outbreak of COVID19 pandemic during the process of analysing the data. The imposition of travel restrictions made it impossible for the researcher to meet their supervisory team in the UK. Had face-to-face meetings been possible, this would have opened up more opportunities for reviewing and refining the codes and categories. Nevertheless, the quality of the analysis was maintained by holding discussions with the supervisory team using the Zoom app.

A final limitation concerns the researcher's position as a lecturer at the College of Nursing. The relationship between the researcher and the participants may have introduced a bias into the findings as it would have been likely to impact the responses given by the participants. However, to address this, the assumptions, biases, and previous experiences of the researcher were acknowledged and managed through the adoption of a reflective approach that served to lessen their impact on how meaning was co-constructed by both the researcher and the participants (see section 3.5.5).

Overall, the findings generated important insights into how social media platforms are currently being utilised by nursing students for both academic and personal reasons, and thus usefully extends the existing literature in this area. The findings will motivate other researchers and scholars to engage in additional research in the areas now identified in the following section.

6.7. Recommendations for future research

The findings of the current study extend existing knowledge on the experiences of nursing students, particularly Saudi nursing students, when making use of social media platforms for both academic and personal reasons. In so doing, it elucidates the advantages, difficulties, and functions of such usage and how these shape, and will go on to shape, the personal and academic utility of social media platforms for nursing students. Based on the findings, the following recommendations are useful avenues for future research.

As highlighted in the limitations section, to generate findings from a more representative cohort of nursing students, a larger study could be performed on a sample of both male and female Saudi nursing students. Importantly, this could form the basis upon which a novel survey instrument can be developed that can then be applied to a much larger sample. This will facilitate an understanding of the experiences of Saudi nursing students to be generalised to a much larger population. To extend the scope of the study, further research could be implemented to elicit the perspectives of faculty members who use social media platforms in their teaching, and an assessment made as to how these align with those of students, which will have clear educational value.

As noted previously, this study has generated insights that usefully demonstrate the inherent value of using social media platforms in nursing education to the MoE. This represents a useful point at which to address some of the difficulties arising from social media usage that were raised by Saudi nursing students and which are likely to confront future students. Similarly, it would be useful to explore the experiences and difficulties reported by nursing students in other Saudi Arabian institutions. This will provide the MoE with a more comprehensive insight into the utility of social media platforms in nursing education and optimal ways to prepare new students for the experiences and difficulties they are likely to encounter. Also emphasised in this study was the urgent need to provide nursing students in Saudi Arabia with guidelines on the use of social media. In future research, the development of such guidelines should be prioritised. From an educational standpoint, it is therefore hoped that this research will serve as a stimulus for the creation of such guidelines and the development of a national policy on the usage of social media by nursing students in Saudi universities.

Another useful avenue of research would be to examine whether the advantages and difficulties associated with social media usage identified by the participants in this study are similar to those of nursing students in other institutions within Saudi Arabia. These studies could make innovative use of a variety of methods, including field observation, focus groups, and surveys to generate their findings.

Finally, given the rapid evolution of social media platforms, it is likely that the experiences and challenges associated with social media usage will also change, indicating that research in this area will need to keep pace with these developments and be conducted on a regular basis.

6.8. Chapter summary

The study was concluded in this chapter through a summary of the main findings; an assessment of the extent to which the research questions have been addressed; a discussion of its theoretical, methodological, and practical contributions; an evaluation of its strengths and limitations; and the identification of a set of recommendations arising from this study regarding avenues for research in the future.

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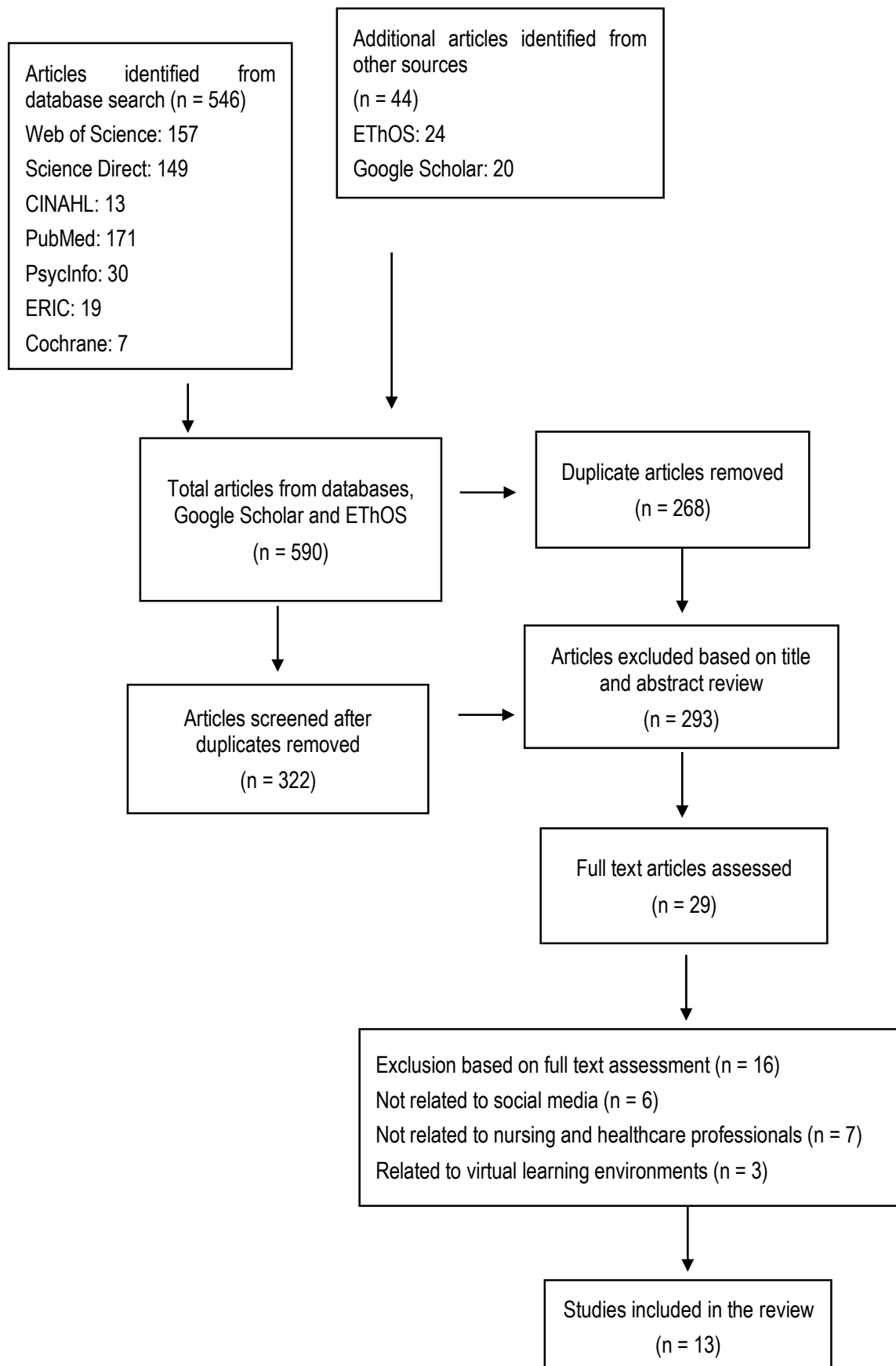
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Appendix 1: PRISMA Flowchart of Article Selection



Appendix 2: Appraisal of Qualitative, Quantitative and Mixed-Method Studies

Using the quality assessment tool QATSDD (Sirriyeh et al., 2012)

- | | | |
|---------------------------|------------------------------|-----------------------------|
| A. Ferguson et al. (2016) | F. Campbell and Craig (2014) | K. Alsuraihi et al. (2016) |
| B. Nyangeni et al. (2015) | G. O'Sullivan et al. (2017) | L. Smith and Knudson (2016) |
| C. Benetoli et al. (2017) | H. Alsaqri et al. (2018) | M. White et al. (2013) |
| D. Price et al. (2018) | I. Alsobayel (2016) | |
| E. Tuominen et al. (2014) | J. Sattar et al. (2016) | |

	A	B	C	D	E	F	G	H	I	J	K	L	M
1. Explicit theoretical framework	3	0	0	0	0	3	0	3	3	0	0	0	0
2. Statement of aims/objectives in main body of report	3	3	2	3	2	2	2	3	2	1	2	0	2
3. Clear description of research setting	3	3	2	3	2	3	3	3	3	3	3	3	3
4. Evidence of sample size considered in terms of analysis	2	3	2	1	1	1	1	1	1	1	1	0	2
5. Representative sample of target group of a reasonable size	3	3	2	3	2	3	2	2	1	1	1	1	2
6. Description of procedure for data collection	3	2	2	1	2	1	2	2	1	1	2	1	1
7. Rationale for choice of data collection tool	1	1	1	0	1	0	0	0	0	0	0	0	0
8. Detailed recruitment data	3	2	2	1	1	0	2	2	1	1	1	1	2
9. Statistical assessment of reliability and validity of measurement tool(s) (quantitative only)	-	-	-	0	1	0	0	0	0	0	2	0	0
10. Fit between stated research question and method of data collection (quantitative only)	-	-	-	0	2	2	0	0	0	0	0	0	0
11. Fit between stated research question and format and content of data collection tool e.g., interview schedule (qualitative only)	0	1	1	-	-	-	-	-	-	-	-	0	0
12. Fit between research question and method of analysis	0	1	1	0	2	2	0	0	0	0	0	0	0
13. Good justification for analytical method selected	1	1	1	0	1	1	0	1	1	1	1	1	1
14. Assessment of reliability of analytical process (qualitative only)	1	1	1	-	-	-	-	-	-	-	-	0	0
15. Evidence of user involvement in design	0	0	1	0	1	0	2	2	1	1	1	0	0
16. Strengths and limitations critically discussed	2	1	1	1	1	1	0	0	1	1	1	0	2
Total													
	25	22	19	13	19	19	14	19	15	11	15	7	15
	59.5	52.4	45.2	30.9	45.2	45.2	33.3	45.2	35.7	26.2	35.7	14.6	31.2
	%	%	%	%	%	%	%	%	%	%	%	%	%

0 = Not at all, 1 = Very slightly, 2 = Moderately, 3 = Completely

Qualitative and quantitative studies Total / 42 X 100 =

Mixed methods Total / 48 X 100 =

Appendix 3: Summary Table of Retrieved Studies

Aim Of Study	Methodology	Study Synthesis
1. Price et al. (2018), UK		
To explore students' perceptions and patterns of social media use during the pre-registration programme. To highlight the strengths and weaknesses of social media usage from an educational perspective.	A descriptive, cross-sectional survey design was used in the present research. The criteria for participants was that they had to be first year undergraduate students majoring in adult, child or mental health nursing.	On the whole, students seem to have positive opinions of social media, especially in stimulating debate and supporting information exchange activities. A majority of the participant believed social media was helpful to their education.
2. Ferguson et al. (2016), Australia		
To explore the role played by social media in helping first year student nurses to adapt to university life from an academic and social perspective.	Ten students were selected using convenience sampling, and they were separated into three focus groups. To analyse the collected data, qualitative content and thematic analyses were conducted.	The effects of social media were grouped into three key categories, which were: Helping to coordinate group work, without invading privacy. Helping independent learning through access to important learning materials. Lowering the risks typically relating to social media use.
3. Smith and Knudson (2016), US		
To expand upon findings of previous studies to show the effects that unethical social media use has on the student nurse-patient relationship.	To explore the relationship between unethical behaviour, social media usage, age and clinical cohort, a mixed method quantitative (survey) and qualitative (interviews) approach were used.	The findings indicated that there was a significant correlation between unethical behaviour and social media usage. Furthermore, there was a crucial difference between unethical behaviour, age and clinical cohort.
4. Nyangeni et al. (2015), South Africa		
To highlight nursing students' opinions of social media. To outline the nature of social media use in the clinical setting.	A qualitative, exploratory approach was used. Tesch's (1990) eight step data analysis process (cited by (Creswell and Creswell 2009) was used in the study.	The results indicated that inappropriate use social media use by nursing students had now blurred the boundaries between their personal and professional lives.
5. Tuominen et al. (2014), Finland		
To explore nursing students' patterns of social media use, with particular interest in the type of sites used to help their studies and for leisure activities.	This quantitative survey-based evaluation was carried out in 2012 through the use of a structured questionnaire. The questionnaire was distributed through online and paper-based channels.	It was found that social media applications like videos and online community networks are more often used for leisure purposes than academic purposes. Students ranked them highly and showed good proficiency levels.

Aim Of Study	Methodology	Study Synthesis
6. Alsaqri et al. (2018), Saudi Arabia		
This research aimed to explore the effects of social media use on nursing student study habits with regard to time, management, concentration and motivation.	A quantitative, non-experimental research design was employed, which took the form of a correlational study. The study relied on the technology acceptance model (TAM), which investigates how users adopt and use different technologies.	WhatsApp was found to be the most commonly used social media platform, and almost half the participants reported using social media for more than ten hours every week. It was also found that social media use largely impacted study behaviour.
7. Alsobayel (2016), Saudi Arabia		
To assess the important of social media in the professional development of healthcare employees in Saudi Arabia.	The research used a across-sectional. purpose-built online survey, which was administered through social media sites like Twitter, LinkedIn and WhatsApp.	The results indicated that social media are commonly used and provide an effective instrument for supporting professional development, aiding in problem-solving and knowledge acquisition in Saudi Arabian healthcare staff.
8. Sattar et al. (2016), Saudi Arabia		
To assess the attitudes of medical students towards social media use and how the latter impacts their learning and development of medical information.	A comparative cross-sectional questionnaire-based study was carried out in the Medical Department.	The findings showed that medical students demonstrate positive attitudes towards social media in terms of its influence on medical professionalism. The most positive effect of the social network system (SNS) was that it enabled medical students to learn and understand medical information.
9. Alsuraihi et al. (2016), Saudi Arabia		
To investigate Saudi Arabian medical students' social media use and identify the most typical resources employed in medical education. To highlight the students' understandings of the influence that SM have on their learning.	A cross-sectional study was used. A validated questionnaire was administered to medical students in different Saudi Arabian universities through emails, Twitter, Facebook and SMS.	The results indicated that SM tends to be used by medical students in Saudi Arabia for educational purposes. In fact, 87.7% (n = 576) of participants reported using SM to aid their learning. YouTube was the most common website reported by students.

Aim Of Study	Methodology	Study Synthesis
10. White et al. (2013), Canada		
<p>To study the opinions and experiences of healthcare professional students regarding the use of Facebook at University of Alberta</p> <p>To explore if any policy developments or guidelines are required to help students integrate this new technology into their learning processes.</p>	<p>A mixed-methods approach was used. This took the form of semi-structured interviews, which were used to identify key themes.</p> <p>To conduct the analysis, both descriptive statistics and thematic analysis were used.</p>	<p>The key themes identified in the research were: patterns of use and attitudes to friendship, perceptions of online privacy, breaches of professional behaviour on Facebook and opinions regarding the Facebook usage guidelines. Most participants had considered posting unprofessional material on Facebook relating to alcohol/drug use, crime, obscenity/nudity/sexual content, patient/client information, criticism of others.</p>
11. Campbell and Craig (2014), US		
<p>To explore the extent to which health profession students (HPS) use the internet and online activities, particularly social media, and to identify the key motivations for using social media.</p>	<p>An online survey was carried out to address the research questions. It was administered to 4,370 HPS from the Texas Tech University Health Sciences Centre.</p> <p>The research employed the Uses and Gratifications theory.</p>	<p>The findings showed Facebook to be the most frequently used social media platform, both for academic and personal purposes. The increased use of social media websites is affecting the learning patterns of health professionals.</p>
12. Benetoli et al. (2017), Australia New Zealand US Brazil Germany Nigeria Thailand Philippines UK		
<p>To investigate the extent to which pharmacists separate professional and personal information on SNS, their opinions of professional behaviour on SNS, and perceptions of guidelines relevant to this topic.</p>	<p>In-depth, semi-structured interviews were used and distributed to international practising pharmacists (n = 31) from various countries (n = 9).</p>	<p>Most participants reported that they mix professional and personal information and activities on SNS, with approximately a third indicating that they used a separation strategy in which they separated professional information and activities from personal ones. A majority of participants were worried about how pharmacists present themselves and act when using the SNS, particularly as they reported (un) professional behaviours.</p>
13. O'Sullivan et al. (2017), Australia, Canada, China, Ireland, Mexico, UK		
<p>To explore health science students' perceptions of social media use in health science education and to highlight the key factors that can deter people from using it.</p>	<p>A Web-based survey was conducted via SurveyMonkey and administered to health science teachers and students from eight universities across seven countries.</p> <p>There were 1640 student respondents, and these were categorised as users or non-users according to how often they claimed to use social media to help their education.</p>	<p>The results indicated that a majority of students (81.89%) from various health science disciplines used social media to help their learning. The key obstacles preventing social media use in both users and non-users were uncertainty of policies, concerns about professionalism and insufficient support from the department.</p>

Appendix 4: Interview Schedule

Prompts	Question examples
Introductory Questions: Understanding of social media	
Usage of social media Purpose of using social media The key things of social media Using social media in daily life	Can you tell me a bit about how you use social media platforms? Can you give me an example? What would you use social media for? What are some of the key things that a social media platform should do in your opinion? What does the use of social media platforms mean for you in your daily life?
Transition Questions: Personal usage	
Social media activities Using social media in free time Interesting aspects Accessing social media by cell phone How often you access social media	You mentioned earlier that you use social media platforms in your daily life. Can you tell me about some of the activities you do on social media? What social media platforms do you use in your free time? What aspects of social media do you find particularly interesting? Can you tell me about how you use your cell phone to access social media to communicate with your friends and family? Can you tell me how often you access social media platforms?
Key Questions: Academic usage	
Using social media for nursing education Reasons Using social platforms as educational tools in nursing studies Use social media for academic purposes Personal usage of social media platforms affects your academic use Recommendations and thoughts in nursing education.	Can you tell me about how you use social media platforms for your nursing education? Thinking about the social media platforms you use for your nursing studies, why do you use these? What is your opinion towards using social platforms as educational tools in nursing studies? How do think your personal usage of social media platforms affects your academic use? What recommendations and thoughts do you have as to how social media could be better used in nursing education?
Key Questions: Advantages and disadvantages	
Advantages and disadvantages (general-nursing education). Ability to learn The difficulties of using social media solutions	What are some of the advantages and disadvantages you feel are present in utilizing social media for nursing education? Can you give me an example? How do you think that social media may help your ability to learn? What are some of the difficulties you face when you use social media to facilitate your learning? Why do you think you experience these difficulties? Can you think of solutions to these difficulties? What could be solutions to these difficulties?
Closing Questions: Policies, guidelines and future usage	
Awareness of the guidelines and polices of using social media (general- as nursing student). Future usage of social media Dream social media platform	Can you talk a little about your awareness of the guidelines and policies of using social media as a nursing student? Do you think that Saudi nursing students' usage of social media into their learning will increase in the future? Why or why not? Can you describe your dream social media platform? Why do you want this? Do you want to add further information regarding our conversations?

Appendix 5: Bournemouth University Ethical Approval



Research Ethics Checklist

About Your Checklist	
Reference Id	25401
Date Created	04/02/2019 07:42:23
Status	Approved
Date Approved	03/07/2019 08:35:50
Date Submitted	05/03/2019 14:23:17

Researcher Details	
Name	Mashael Alsufyani
Faculty	Faculty of Health & Social Sciences
Status	Postgraduate Research (MRes, MPhil, PhD, DProf, EngD, EdD)
Course	Postgraduate Research - HSC
Have you received external funding to support this research project?	No
Please list any persons or institutions that you will be conducting joint research with, both internal to BU as well as external collaborators.	Dr. Osman Ahmed Bournemouth University, Dr. Ann Hemingway Bournemouth University, Dr. Carol Bond Wolverhampton University, Dr. Faten Helmy King Saud University

Project Details	
Title	Exploring the Usage of Social Media by Female Saudi Nursing Students for Personal and Academic Purposes
Start Date of Project	11/04/2016
End Date of Project	10/04/2020
Proposed Start Date of Data Collection	18/03/2019
Original Supervisor	Osman Ahmed
Approver	Research Ethics Panel

Summary - no more than 500 words (including detail on background methodology, sample, outcomes, etc.)
<p>Social media is a global communication tool, allowing users to interact and exchange information easily through multiple platforms. In recent years, there has been a shift towards examining the use of social media in nursing. The literature review which forms part of my PhD study indicates that much of the research undertaken on social media in the nursing field is conducted in the Western world, and that very few studies have been conducted in Saudi Arabia. Therefore, the aim of this study is to examine the role of social media in female Saudi nursing students' lives and to explore the positive and negative influences of this from the students' perspective.</p> <p>A qualitative, research design will be used to explore the social media usage of Saudi nursing students. Qualitative techniques will be used to gain an understanding of the data collected from a focused population. In this study, grounded theory methodology will be used to explore the subject area through participants' views. This study will adopt Charmaz's approach, which is the most relevant to the aims</p>

Appendix 6: King Saud University Ethical Approval

جامعة الملك سعود
هاتف: +966 11 467 0106
فاكس: +966 11 467 79 99

المملكة العربية السعودية
ص. ب. الرياض 2454
www.ksu.edu.sa



مكتب وكيل الجامعة
للدراسات العليا والبحث العلمي

Ref. No. :KSU-HE-19-89

Researcher. Mashael Alsufyani

Community Health Nursing

Subject: Research Project No. KSU-HE-19-89

Project Title: " Exploring the Usage of Social Media by Female Saudi Nursing Students for Personal and Academic Purposes"

Dear. Alsufyani

With reference to the approval of the institutional Review Board (Human and Social Researches) Meeting 22 held on 19th February 2019, regarding the above mentioned subject, please be informed that the institutional Review Board of king Saud University has confirmed the approval of your project.

We wish you the best of success with your research endeavors.

☺ Sincerely yours,

Prof. Ahmad Salem Alameri

Vice Rector for Graduate Studies and Scientific Research

Chairman, Institutional Review Board (KSU)



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١٤٤٠/٧/٥ هـ

Appendix 7: Risk Assessment

About You and Your Assessment

Name
Mashael Alsufyani

Email
i7601973@bournemouth.ac.uk

Your Faculty or Professional Service
Faculty of Health & Social Sciences

Is Your Risk Assessment in relation to Travel or Fieldwork?
Yes

Status
Approved

Date of Assessment
19/02/2019 00:00:00

Date of the Activity/Event/Travel that you are Assessing
18/03/2019 00:00:00

What, Who & Where

Describe the activity/area/process to be assessed
Interviews to be undertaken as part of the Ph.D. project - interviews will be undertaken by Mashael Alsufyani in College of Nursing at King Saud University, Riyadh, Saudi Arabia

Locations for which the assessment is applicable
College of Nursing at King Saud University, Riyadh, Saudi Arabia

Persons who may be harmed
Student

Hazard & Risk

Hazard
None anticipated. Participating in this research poses no risks beyond those associated with everyday life.

Severity of the hazard
Low

How Likely the hazard could cause harm
Low

Risk Rating
Low

Control Measure(s) for None anticipated. Participating in this research poses no risks beyond those associated with everyday life.

- Participants will be made aware of the purpose of this research. - Participants confidentiality and anonymity will be assured. Participants' names will not be used within the research study and all data will remain confidential. To protect the identity of the participants, pseudonyms will be used. - Adequate time will be assigned for the interview to be conducted. - Participants will be asked to sign informed consent. - Participants are free to change their mind and withdraw from the study at any time without giving a reason. A decision to take part in the study or not to take part, or to withdraw from the study at any time, will not affect their studies at King Saud University. - All the transcribed and audio information provided will be stored in a locked filing cabinet and on a password protected the computer and will not be made available to any third party. Also, personal details will not appear anywhere in the research as they will only be identified with a code which will be known only by the researcher.

With your control measure(s) in place - if the hazard were to cause harm, how severe would it be?
Low

With your control measure(s) in place - how likely is it that the hazard could cause harm?
Low

The residual risk rating is calculated as:
Low

Review & Approval

Any notes or further information you wish to add about the assessment

Names of persons who have contributed
Dr. Osman Ahmed Bournemouth University; Dr. Ann Hemingway Bournemouth University; Dr. Carol Bond Wolverhampton University; Dr. Faten Helmy King Saud University

Approver Name
Auto Approved by Mashael Alsufyani

Approver Job Title
[Not Applicable]

Approver Email
Auto Approved by i7601973@bournemouth.ac.uk

Review Date

Appendix 8: Certified Translation Office



30th April 2019

We, Saleh Alomar Certified Translation, a sole proprietorship company organized and existing under the laws of Saudi Arabia, with Commercial Registration number [1010347528] and having its registered address at 8592 King Fahd Rd, Tulip Tower, Olaya, Riyadh 12333-3802,

Hereby confirm that we are certified translation vendor and that we are competent in both Arabic and English to render and certify translation services.

For the last five years, we have translated a number of high-profile translation projects achieving a remarkable success. As one of the leading translation agencies in Saudi Arabia, SACT has been at the forefront in translation of a wide array of projects for individuals, government, and major corporations even for the highest executive office in the Kingdom.

We, at SACT, realize the importance of confidentiality regarding our clients' projects information and data privacy, and ensure that it is all kept under wraps with only limited access. In this context, we sign a Non-disclosure Agreement with our clients to ensure confidential application development. Moreover, all of our translators are signatories to NDA.

We are pleased to present our proposal to offer translation services for your consideration. If you have any questions, please don't hesitate to get in contact with me.

Best Regards,

Saleh Alomar
Managing Director
+966542192919

Saleh.alomar@sact.co



للتبديل مع آل عمر للترجمة المعتمدة 8592 طويق للمنافسة، الرياض، الفرع الرئيسي 3802-12333 - الفاكس: +966112015559 - هاتف: +966112015559
Saleh Alomar Certified Translation, 8592 King Fahd Rd, Tulip Tower-opposite to Kingdom Tower, Olaya, Riyadh 12333-3802- Call Center: 9200004395- Tel: +966112015559

Appendix 9: Participant Information Sheet



Participant Information Sheet

The title of the research project

Exploring the Usage of Social Media by Female Saudi Nursing Students for Personal and Academic Purposes

Invitation to take part

You are being invited to take part in a research project. This study is being conducted to fulfil the doctoral degree requirements at Bournemouth University in the United Kingdom. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

What is the purpose of the project?

Social media is a global communication tool, allowing users to interact and exchange information easily through multiple platforms. In recent years, there has been a shift towards examining the use of social media in nursing. In this study, the literature review indicates that the majority of studies undertaken on social media in the nursing field are conducted in the Western world, and that very few have been conducted in Saudi Arabia. Therefore, the aim of this study is to examine the role of social media in female Saudi nursing students' lives and to explore the positive and negative influences of this from the students' perspective.

Why have I been chosen?

You have been chosen because you are a female Saudi nursing student and the inclusion criteria of this study include Saudi female nursing students registered for the undergraduate and postgraduate nursing degree and aged between 19 and 40 years old.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a participant agreement form. You can withdraw from participation during the interview at any time and without giving a reason. If you decide to withdraw we will usually remove any data collected

about you from the study. Once the interview have finished you may still be able to withdraw your data up to the point where the data is analysed and incorporated into the research findings or outputs. At this point your data will usually become anonymous, so your identity cannot be determined, and it may not be possible to identify your data within the anonymous dataset. Withdrawing your data at this point may also adversely affect the validity and integrity of the research. Deciding to take part or not will not impact your studies at King Saud University.

What would taking part involve?

A semi-structured interview consisting of open-ended questions will be used to conduct face- to-face interviews. Each interview will range in length from 45-60 minutes and will be audio- recorded to transcribe the discussion to ensure it is accurate. The interview may be repeated at a later date to follow up issues raised.

What are the advantages and possible disadvantages or risks of taking part?

There are no direct benefits in taking part of the study. However, it is anticipated that the outcomes of this study will help to understand how Saudi nursing students use social media in their lives, and in turn enable them to achieve the maximum benefit from using social media for themselves, their patients, and their profession. Also, it is anticipated that this study will also identify knowledge gaps relating to social media and nursing and will make recommendations on the usage of social media in Saudi Arabia in the nursing field. Risks associated with this study are anticipated to be nil. Participants will be numerically coded to ensure confidentiality. If during the course of the interviews we establish that you have engaged in any criminal activity, we have an obligation to report this to the relevant authorities. Otherwise there are no identified risks anticipated with this study beyond those associated with everyday life.

What type of information will be sought from me and why is the collection of this information relevant for achieving the research project's objectives?

During the interview, you will be asked questions about how you use social media platforms (in particular personal and academic uses) and what are some of the advantages and disadvantages of using social media in nursing education. The findings of this study will assist to understand how Saudi nursing students use social media in their lives. Also, it will help to determine knowledge gaps in using social media and nursing field.

Will I be recorded, and how will the recorded media be used?

The audio recordings of your activities made during this research will be used only for analysis and the transcription of the recording(s) for illustration in conference presentations and lectures. No other use will be made of them without your written

permission, and no one outside the project will be allowed access to the original recordings.

How will my information be kept?

All the information we collect about you during the course of the research will be kept strictly in accordance with current data protection legislation. Research is a task that we perform in the public interest, as part of our core function as a university. Bournemouth University (BU) is a Data Controller of your information which means that we are responsible for looking after your information and using it appropriately. BU's Research Participant Privacy Notice sets out more information about how we fulfil our responsibilities as a data controller and about your rights as an individual under the data protection legislation. We ask you to read this [Notice](#) so that you can fully understand the basis on which we will process your information.

Publication

You will not be able to be identified in any external reports or publications about the research without your specific consent. Otherwise your information will only be included in these materials in an anonymous form, i.e., you will not be identifiable.

Security and access controls

BU will hold the information we collect about you in hard copy in a secure location and on a BU password protected secure network where held electronically.

Except where it has been anonymised your personal information will be accessed and used only by appropriate, authorised individuals and when this is necessary for the purposes of the research or another purpose identified in the Privacy Notice. This may include giving access to BU staff or others responsible for monitoring and/or audit of the study, who need to ensure that the research is complying with applicable regulations.

Participants' names will not be used within the research study and all data will remain confidential. To protect the identity of the participants, pseudonyms will be used. All the transcribed and audio information provided will be stored in a locked filing cabinet in a locked office room at (KSU) and will not be made available to any third party. This information will be held securely for five years following completion of the study and then destroyed.

All of the transcription of the interviews will be undertaken solely by the Primary Investigator (Mashael Alsufyani).

Sharing and further use of your personal information

As well as BU staff [and the BU student] working on the research project, information from this study will be shared with the translation company Saleh Alomar Certified

Translators (<https://sact.co>) .This will be following the transcription and anonymisation of the recordings and is solely for the purpose of translating the data from Arabic to English.

The information collected about you may be used in an anonymous form to support other research projects in the future and access to it in this form will not be restricted. It will not be possible for you to be identified from this data. Anonymised data will be added to BU's [Data Repository](#) (a central location where data is stored) and which will be publicly available.

Retention of your data

All personal data collected for the purposes of this study will be held for 5 years after the award of the degree.

Although published research outputs are anonymised, we need to retain underlying data collected for the study in a non-anonymised form for a certain period to enable the research to be audited and/or to enable the research findings to be verified.

Where will the information be kept and who will have access to it?

All the transcribed and audio information you provide will be stored in a locked filing cabinet in a locked office at King Saud University and on a password protected computer and will not be made available to any third party. Also, your personal details will not appear anywhere in the research as you will only be identified with a code which will be known only by the researcher.

Who is organising the research?

The research is being organised by Bournemouth University (in the town of Bournemouth in the United Kingdom) and King Saud University.

Contact for further information

If you have any questions about this research, please feel free to contact:

Mashael Alsufyani: maalsufyani@ksu.edu.sa

Dr. Osman Ahmed: ahmedo@bournemouth.ac.uk

In case of complaints

Any concerns about the study should be directed to Mashael Alsufyani
maalsufyani@ksu.edu.sa

If your concerns have not been answered by Mashael Alsufyani, you should contact Faculty of Health and Social Sciences Bournemouth University by email to researchgovernance@bournemouth.ac.uk.

Finally

If you decide to take part, you will be given a copy of the information sheet and a signed participant agreement form to keep.

Thank you for considering taking part in this research project.

Appendix 10: Consent Form



Consent Form

The title of the research project

Exploring the Usage of Social Media by Female Saudi Nursing Students for Personal and Academic Purposes

Principal Researcher: Mashael Alsufyani

Please read each statement and add your initials next to each to confirm that you have done so, and sign below:

N	Statements	Initials
1	I confirm that I have read and understood the participant information sheet for the above study and have had the opportunity to ask questions	
2	I understand that my participation is voluntary and that I am free to withdraw at any time without giving a reason.	
3	I understand that all information I provide will be kept confidential and anonymous	
4	I understand that I am being asked to take part in a number of audio/tape recorded interviews and I agree to the use of anonymised quotes as part of the research project	
5	I understand that anonymised extracts from interviews may be used in presentations and any future publications.	
6	I agree to take part in the research project	

Name of participant:

Signature of participant:

Date:

Name of Researcher:

Signature of researcher:

Date:

Appendix 11: Examples of Memos

This appendix does not include all memos generated during the research process. It presents a selection deemed illustrative of the process of memo writing.

Reflective memo: Retaining an open-mind and welcoming points of view that are both similar and different

Thus far I have carried out three interviews and have worked hard to ensure I do not let my personal biases affect the way in which I explored the concerns and issues of participants. I welcome the opportunity to elicit multiple viewpoints, all of which are “real” in the sense that these are the views and experiences of these particular individuals. I need to constantly employ reflexivity so that I remain aware of myself as the researcher and my aim to remain open-minded irrespective of the views expressed by each participant. I must remember that my aim is to explore participants’ experiences when using social media and pinpoint how they make sense of these experiences. Through the adoption of an open-minded stance, it is important to be driven by the responses of the participant. I also need to ensure I focus on the experiences of these nursing students and do not elicit more general assumptions about the use of social media.

Sampling memo: Postgraduate students

Having analysed the first interview (Farh) with a postgraduate student and compared this with interviews conducted with undergraduate students (Jood, Lora, Rwan, Nora, Mela), I feel that more postgraduate students should be included in the purposeful sample. Therefore, to identify the differences between undergraduate and postgraduate students, a theoretical sample was recruited comprising postgraduate students Arwa, Tala and Yasmeen.

Theoretical memo: Apparent theoretical sufficiency

A comparison across and within-participant responses indicated that during the 9th interview, the examples provided by the participant were similar to those given in earlier interviews. This appears to suggest theoretical sufficiency has been achieved regarding the amount of data collected although I had planned to collect more in order to guarantee theoretical saturation. Through constant comparison it was clear that all students depend on their interests in using social media for both personal and academic purposes along with the other main categories of extending knowledge, and challenges.

Theoretical memo: Confidence in theoretical sufficiency

Towards the conclusion of the Sama, no new ideas were generated and her answers contained examples of issues mentioned by earlier participants. All data seemed to fit into the core categories of personal interests, extending knowledge, and challenges. I

therefore feel confident that my earlier decision regarding theoretical sufficiency was robust and appropriate. Therefore, no further data collection will be carried out and my primary goal now is to complete the draft report.

Single case-based memo

This participant describes SM as way to offer social life (socialisations) and she focused mainly in two aspects the quality of information and the health education. She has a self-control on her usage of SM by using time management skills. She also mentioned that she uses drugs app to help her to calculate the doses and to know the reactions. She classified her communications on WhatsApp as family, children and colleagues. She has a self-determination because she used specific apps for her work and another for her education. She refers to reliable recourses to seek information even in browsing news. SM is not necessary or important in her life it depend on time. Also, SM didn't affect her study she has a self-control and prefer class lecture than SM. According to her, SM heled in providing health education, understanding practical skills and increase study motivation. The limitations of SM depend on person duties or obligation or responsibilities particularly on time wasting. The difficulty of using SM like having effort to find suitable and reliable articles and tried to solve this problem by training and practicing. Her dream App will help student in preforming educational tasks like NANDA and will help in providing a complete treatment plan for patients.

Appendix 12: Example of Initial Coding and Focused Coding

MAXQDA 2020

10/12/2019

Participant	Participant Quote	Initial Coding	Focused Coding
P102	<p><i>I use SM mainly for communication to contact with others.</i></p> <p><i>Two main things I use SM for it, first for communication with my family and relatives.</i></p> <p><i>Also, I personally benefited from the WhatsApp application in the study because I have a WhatsApp group with my colleagues in which we share information and communicate with each other. Also, we use WhatsApp messages to remind us of the dates of the tests or to review the materials before the test by using text messages or voice messages. For example, if any student was absent from the lecture, she can get a copy of the lecture via WhatsApp by sending the lecture to her as an attachment or explaining it to her via voice messages.</i></p> <p><i>The most application I use for education is YouTube because it explains the information in more detail. For example, I use YouTube to get more explanation of the pathophysiology of diseases. Also, in nursing procedures, YouTube gives a full explanation of nursing procedures from A to Z so I can follow it step by step. The most useful applications, I have benefited from it in nursing education are YouTube and Snapchat.</i></p> <p><i>The use of SM is something essential in our lives, in other words, SM is an indispensable thing in our lives.</i></p>	<p>Communicating and contacting others.</p> <p>Having a WhatsApp colleagues' group</p> <p>Sharing information</p> <p>Communicating with other</p> <p>Using WhatsApp messages</p> <p>Reminding of the dates of the tests</p> <p>Reviewing the materials</p> <p>Sending the lecture as an attachment</p> <p>Explaining via voice messages</p> <p>The most application I use for education is YouTube</p> <p>Explaining information in more detail</p> <p>Getting more explanation</p> <p>Giving a full explanation of nursing procedures</p> <p>Using SM is something essential in our lives</p> <p>SM is an indispensable thing in our lives</p>	<p>Communication</p> <p>Maintaining social relationships</p> <p>Group work and collaborative learning</p> <p>Using organization skills</p> <p>Peer knowledge and support</p> <p>Convenience"</p> <p>Recording voice"</p> <p>Helping colleagues</p> <p>Efficiency "Making interactions more efficient"</p> <p>"Helping the student to catch up"</p> <p>Facilitating and promoting knowledge</p> <p>Building understanding</p> <p>Extending knowledge skills</p> <p>Playing an important role</p> <p>Indispensable</p>

Appendix 13: Identified Categories, Subcategories, and Supporting Raw Data Extracts

Category: Personal Interest

In this category, participants describe their personal use of SM also the features and roles of SM in their lives. Also, it covers their self-concepts.

Subcategories	Participant quote
Connection and collaboration This subcategory addresses the reasons for using SM, such as communication, entertainment, socialisation, and regular updates.	<p><i>"I usually use SM to communicate with everyone, my family, relatives and friends". Lora</i></p> <p><i>"SM helps people to communicate despite the distance, for example, I live far away from my parents, but I use SM to communicate with them on a daily basis". Rwan</i></p> <p><i>"I participate in a volunteer nursing group on WhatsApp to post topics about nursing on a weekly basis". Nora</i></p> <p><i>"If I feel bored, I would definitely use SM because it is possible for me to find entertainment in SM. Things that interest me most are watching animation and movies". Nora</i></p> <p><i>"I know news regarding educational courses and seminars easily via social media. It also facilitates access to and exchange of information, particularly among students. SM increases motivation, for example, on Twitter, I am following accounts of people to track their development and finding out their starting point and current status gives me motivation to study". Arwa</i></p>
SM features and role This subcategory addresses the benefits of using SM, such as simplicity, accessibility, flexibility, affordability, and efficiency. Also, it covers the indispensable role of SM and students' future expectations about SM.	<p><i>"The reason why I am using social media in nursing education because it is an easy and inexpensive way to access information". Farh</i></p> <p><i>"Indeed, they are important tools in life to learn about useful things". Tala</i></p> <p><i>"It is very important to me. Frankly, I cannot live without it. As soon as I wake up, I grab my phone to check Twitter and WhatsApp. Life without Social Media is not life". Tala</i></p> <p><i>"Compared to our usage of SM in the present time, I think the use of social media will increase in the future". Jood</i></p> <p><i>"Now, Saudi Arabia has developed in many fields and SM is one of the objectives of Saudi Vision 2030". Jood</i></p>
Self-concepts This subcategory focuses on students' self-concepts such as self-control, self-development and self- presentation.	<p><i>"It doesn't affect me academically, since I can control myself and manage my time, and I dedicate most of my time to studying. And when I feel bored, I remember all the lives that I am responsible for at the hospital, so I immediately get back to studying". Sama</i></p> <p><i>"Now, I know how to look up information". Najd</i></p> <p><i>"Searching for information has become easier and faster. Also, my communication skills with people has improved. My English has improved, particularly when I watch YouTube videos of nursing procedures". Najd</i></p>

Category: Extending Knowledge

This category describes the benefits of using SM in education by extending students' knowledge, building understanding and helping them in planning and organisation. Also, it covers students' recommendations for SM Apps.

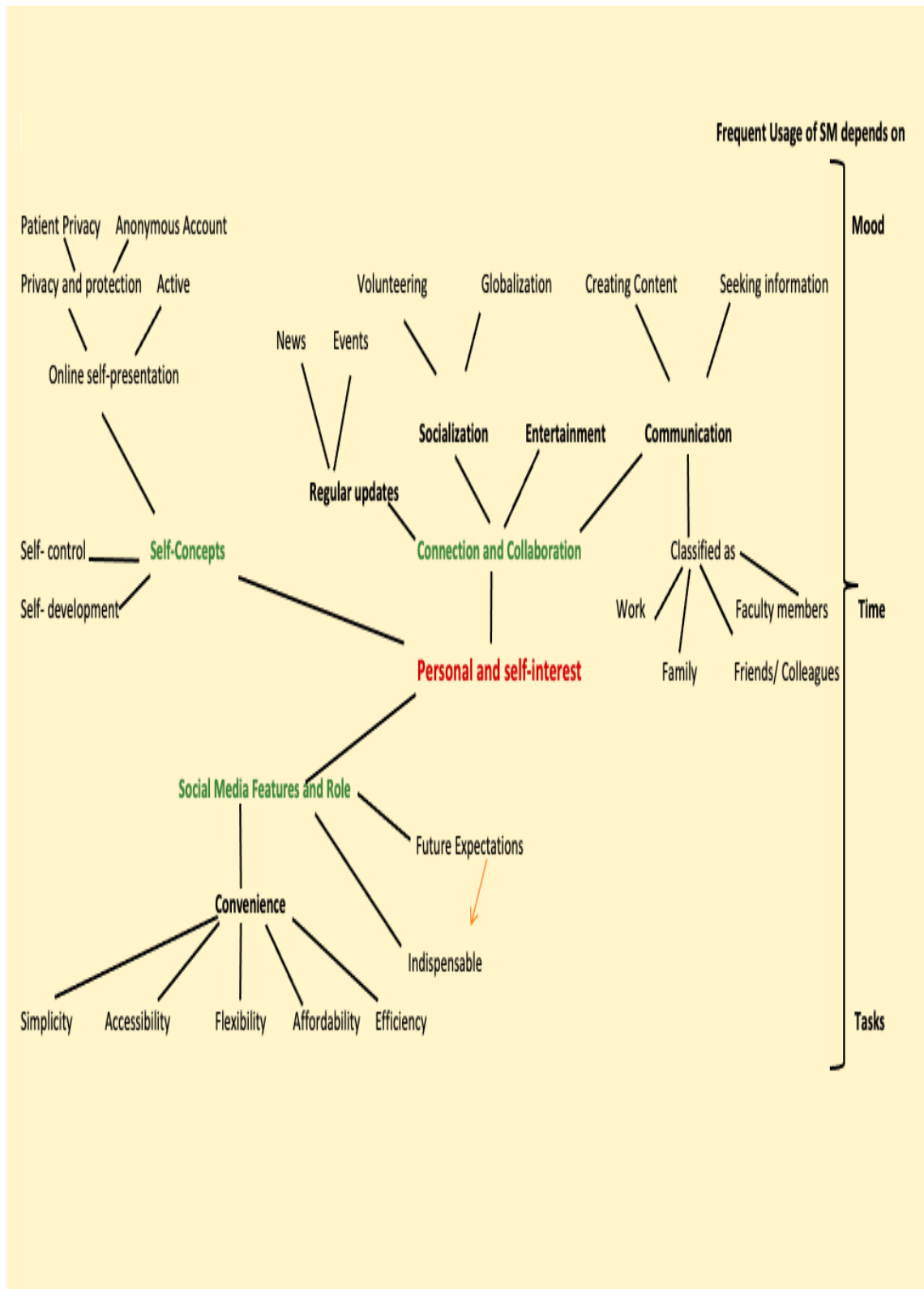
Subcategories	Participant quote
Building understanding This subcategory focuses on SM benefits in helping students understand education topics, such as helping students with information explanation and clarification, improving skills, and reinforcing memory.	<p><i>"The most application I use for education is YouTube because it explains the information in more detail. For example, I use YouTube to get more explanation of the pathophysiology of diseases. Also, in nursing procedures, YouTube gives a full explanation of nursing procedures from A to Z so I can follow it step by step. The most useful applications, I have benefited from it in nursing education are YouTube and Snapchat". Jood</i></p> <p><i>"Social media helped me to develop my searching skills for information, as I noticed my improvement in my search skills day by day. -Also, it improves my reading skills by improving my skimming and scanning techniques. So, I can obtain the information in an easy and fast way". Farh</i></p> <p><i>"Some videos are really useful in helping me memorize and understand a specific topic easily. I think YouTube is the best app when it comes to learning nursing procedures in detail". Sama</i></p>
Planning and organisation skills This subcategory focuses on students usage of SM in planning and organisation in studying, preparing, training and managing time.	<p><i>"As for calculating the time of using SM, the iPhone provides a service named (screen time) to calculate the time you spent in Apps". Lora</i></p> <p><i>"The important thing that I do in SM especially in my study is I open the study section group in WhatsApp to see if there is anything new in my school day. For example, before I leave home, I check the WhatsApp group to see if there is anything new about school subjects, for example, lecture cancellation, changing the lecture time, or preparing for the lecture by pre-reading". Lora</i></p> <p><i>"I prefer to use YouTube in education because it provides me with videos to explain information and that helps me to understand information more quickly. For example, I am following a Registered Nurse channel on YouTube to review some nursing skills and to search for more explanation of course topics as well, to prepare for the NCLEX exam". Mela</i></p>
Recommending SM Apps This subcategory addresses student's recommendation for SM Apps such as YT, WhatsApp, Telegram, Snapchat and Twitter.	<p><i>"I advise them to use YouTube because it provides a lot of information, especially in the field of nursing procedures, compared to other applications. For example, it is easy for a student to search on YouTube for an explanation of nursing procedures or search for specific information". Mela</i></p> <p><i>"If nursing students want to search for an explanation to understand the course materials, I advise them to use YouTube. Also, I advise them to use Twitter if they want to book appointments for physicians or know the dates for course registration at the university. Also, they can use Snapchat to know about events or workshops held at the university or to follow the accounts of faculty members to benefit from their educational experiences. Also, they can use WhatsApp groups to communicate with other students, exchange information and know the dates and times of the lectures". Rwan</i></p>

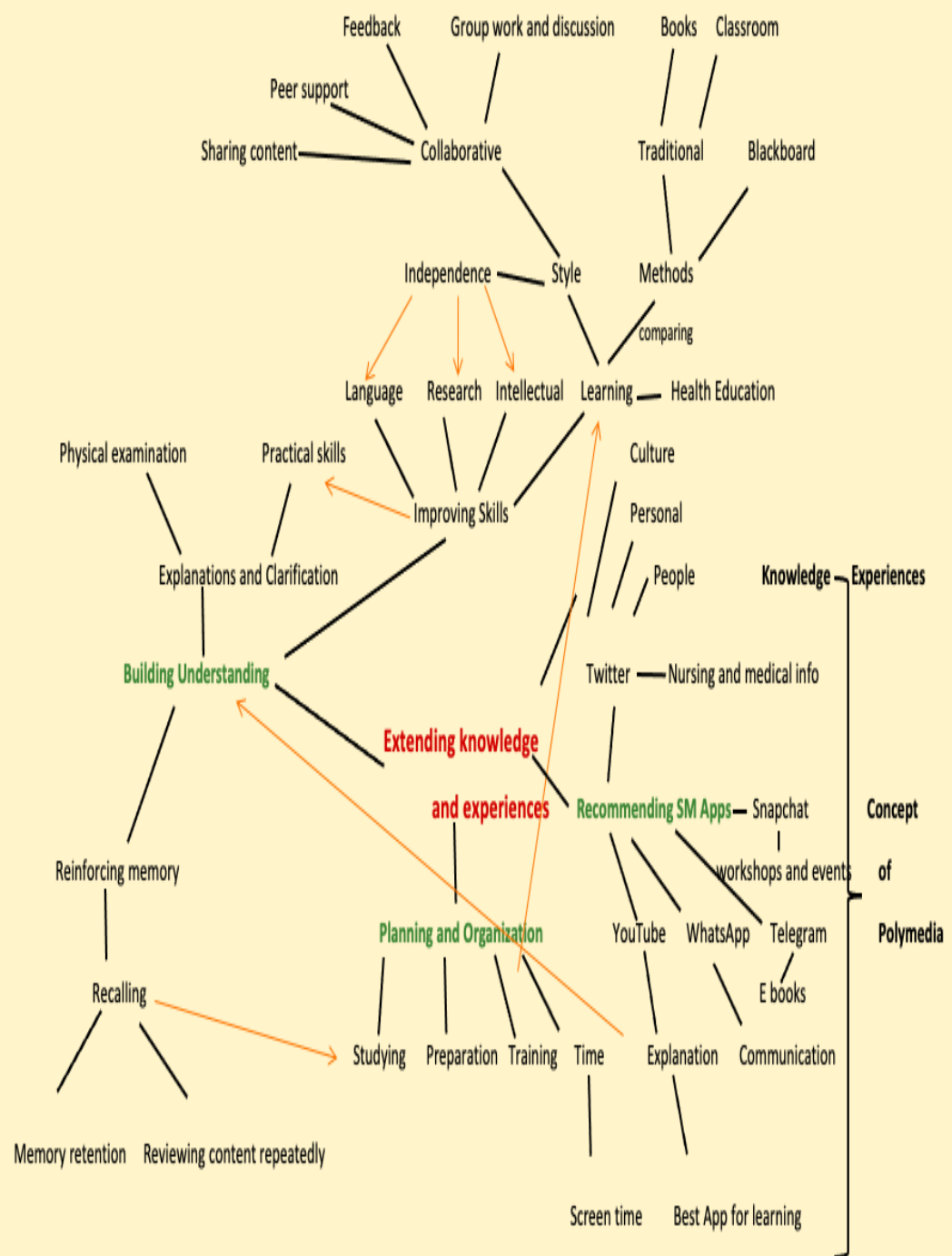
Category: Challenges

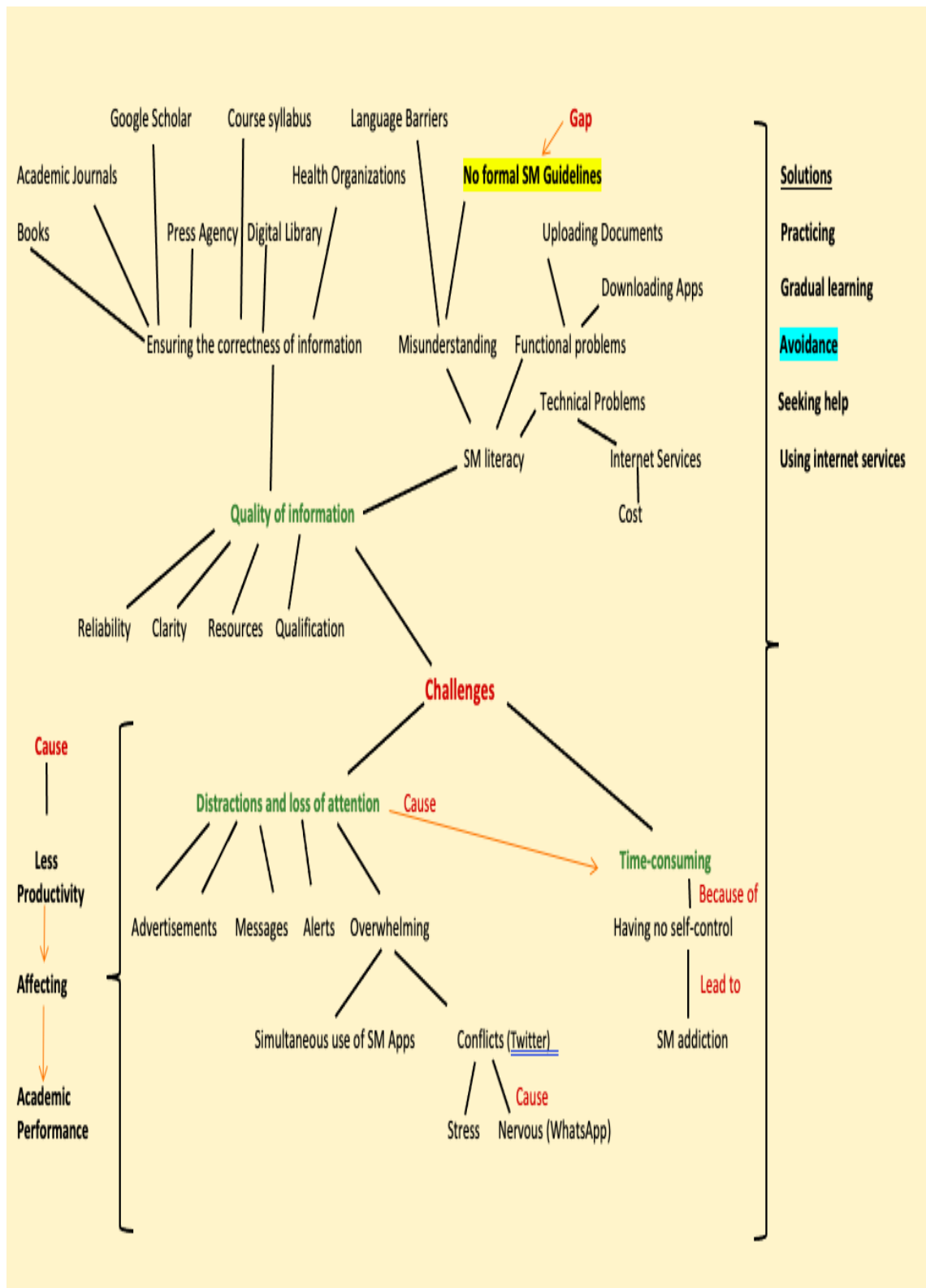
This category focuses on the difficulties that students face when using SM, such as information quality, distractions and loss of attention, and time consumption.

Subcategories	Participant quote
Quality of information This subcategory focuses on reliability, clarity, resources, qualification SM literacy and ensuring the correctness of information.	<i>"The use of SM as an educational tool for nursing education is very important, but we must focus on how to choose the information because not all of the information in SM is correct. -For example, when I am searching for treatment of a specific disease, I find a variety of information differs from one application to another. So, students should pay attention to how to choose the correct information. With regard to how to choose the correct information, I am always referring to Google scholar by searching in electronic books or by searching in scientific journals. When I found the information repeated in many journals and books, I use it because I trust the information source". Farh</i>
Distraction and loss attention This subcategory addresses distractions such as adverts, messages, alerts, and overwhelming.	<i>"I consider distraction as one of the main disadvantages of using SM, because of ads, messages, and alerts that I receive from all SM apps. Also, I think following up on different accounts in different fields causes distraction. Because when I search for a specific topic, I get distracted by advertisements or by watching other clips or diaries that are available, for example, on YouTube or Snapchat. Sometimes I think to leave the WhatsApp study group because I think it makes me nervous, but I decide to retreat from this idea in order not to miss anything important for the study". Lora</i>
Time-consuming This subcategory focuses on time consumption, having no self-control and social media addiction.	<i>"I find social media definitely a time stealer. Sometimes, I'd waste half an hour on social media without noticing, especially when I have an assignment to complete". Yasmeen</i>
Internet connection This subcategory focuses on internet connection problems and how students find solutions for this issue.	<i>"Another difficulty is the internet disconnection. For example, at home, we do not have an internet router, and everyone uses only the internet on their mobile. When I do not have enough credit in my mobile phone, I cannot use the internet, but that rarely happens, not always. I tried to solve it by recharge my internet card and also by using the university's internet". Lora</i>

Appendix 14: Initial Mind Map/ Clustering of Categories and Subcategories







Appendix 15: Article submitted for publication

Nursing Open

NursingOpen

Open Access

THE USE OF SOCIAL MEDIA BY NURSING STUDENTS AND HEALTHCARE PROFESSIONALS: A STRUCTURED LITERATURE REVIEW

Journal:	<i>Nursing Open</i>
Manuscript ID:	Draft
Wiley - Manuscript type:	Review Article
Search Terms:	Nursing Students, Social Media, Education, Healthcare Worker
Abstract:	<p>ABSTRACT</p> <p>Aim: The aim of this review was to explore the use of social media by nursing students and healthcare professionals.</p> <p>Design: A structured literature review.</p> <p>Methods: For the literature search, inclusion and exclusion criteria were applied and PRISMA guidelines were followed. Key terms and Boolean operators were searched for in the following databases: Web of Science; Science Direct; CINAHL; PubMed; PsycInfo; ERIC; Cochrane; EThOS and Google Scholar. The quality assessment tool for studies with diverse designs (QATSDD) was used to critically appraise the included literature.</p> <p>Results: Thirteen studies were included in the literature review. Two main themes emerged from the studies: the unprofessional use of social media and the use of social media in education. In the studies reviewed, nursing students were found to have positive perceptions on the use of social media platforms in education. The findings also showed that these platforms had substantial impacts on healthcare professionals when integrated into educational activities. In addition, this review highlighted the significance of providing students with updated policies and guidelines on the use of social media.</p> <p>Keywords: social media, social networking, nursing students, healthcare professionals, education.</p>

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Appendix 16: Certificate of Participation



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Certificate of Participation

This is to certify that

Mashaël Alsufyani
presented their research during
The 12th Annual Postgraduate Research
Conference Wednesday 2 December 2020

Signed

A handwritten signature in black ink, appearing to read 'Fiona Knight'.

Dr Fiona Knight
Doctoral College Academic Manager

A handwritten signature in black ink, appearing to read 'Julia Taylor'.

Dr Julia Taylor
Doctoral College Academic Manager

Glossary

COVID-19	Coronavirus Disease 2019
CGT	Constructivist Grounded Theory
CLT	Connectivist Learning Theory
CT	Choice Theory
GT	Grounded Theory
KSA	Kingdom of Saudi Arabia
KSU	King Saud University
MAXQDA	MAX Qualitative Data Analysis software programme
MoE	Ministry of Education
MoH	Ministry of Health
NANDA	North American Nursing Diagnosis Association
NCLEX	National Council Licensure Examination
OPEC	Organization of the Petroleum Exporting Countries
PEOU	Perceived Ease of Use
PU	Perceived Usefulness
QATSDD	Quality Assessment Tool for Studies with Diverse Designs
SACT	Saleh Alomar Certified Translation
SDL	Saudi Digital Library
SM	Social Media
SM Apps	Social Media Applications
TAM	Technology Acceptance Model
WHO	World Health Organization
YT	YouTube