INVESTIGATING BEHAVIOURS AND ATTITUDES TOWARDS THE USE OF SOCIAL MEDIA AS A LEARNING TECHNOLOGY AMONG HIGHER EDUCATION STUDENTS IN SAUDI ARABIA

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Abstract

One of the most interesting recent developments in the field of education is the transformation of students from mere consumers of knowledge to active producers, owing to the proliferation of technology and social media. Extant literature has focused on this aspect extensively, analysing how social media has changed the attitudes and behaviour of students, allowing them to freely express their opinions, and the consequent implications of the same towards teaching and learning.

Most of these studies however, are based on Western institutions and users, where social media interactions between teachers and students, as well as contributions from students are relatively common. The findings of these studies may therefore not be applicable in contexts and cultures where such interactions and contributions are not common, such as the Saudi Arabian education system. While some studies have indicated that present-day students in Saudi Arabia consider themselves as part of the "connected generation" and have favourable attitudes towards the use of social media for learning, research in this context remains scarce. There is very little known about the ways in which social media is being used as a learning technology within the Saudi higher education systems and the extent to which it is effective.

This thesis therefore investigates the behaviour and attitudes of higher education students in Saudi Arabia towards the use of social media as a learning technology as well as the use of social media by teachers and Universities in Saudi Arabia for teaching and learning. Drawing on prominent educational and cultural theories, the study highlights the mediating role of culture, disciplinary and gender differences in driving the current and potential uses, and implications of integrating social media into higher education in Saudi Arabia.

In order to fulfil the research objectives, the thesis employs a mixed mode methodology focusing on students, teachers and administrators from three Universities in Saudi Arabia – King Saud University, Princess Nourah University and Al-Emam University. The research design comprises a primary quantitative strand consisting of surveys with three groups of participants from the selected Universities, and a secondary qualitative strand consisting of interviews with a subset of all the three groups of participants. The quantitative data is analysed using a variety of statistical tests and the qualitative data is analysed using thematic analysis.

The findings of the study demonstrate that while the behaviours and attitudes of students and teachers in Saudi higher education corroborate existing studies and assumptions to some extent, they also deviate from them in several ways. Key deviations include the way technology is enabling change in attitudes and practices in the Saudi Arabian education system. Social media is already being used by students, teachers and Universities both inside and outside the classrooms to aid communication, information seeking, information sharing, collaboration and various other teaching and learning activities. While it could be argued that these are supplements to teaching and the essential nature of teaching and learning remains the same, it nevertheless shows a paradigm shift as far as Saudi's educational culture is concerned, in that it challenges the notion of Saudi educational institutions as strict, instructor-controlled, one-way communication systems. To this end, the use of social media as a learning technology is already prevalent.

The findings also reveal areas where the use of social media for learning remains limited, a certain lack of social media policy guidelines for teachers, a variety of barriers for further integration of social media into Saudi higher education, and several differences in the attitudes of staff and students towards use of social media as a learning technology. The findings also highlight the definitive roles that culture and gender play in driving the social media behaviour and attitudes of the participants. Overall, the findings not only shed light on the ways in which social media is currently being used in Saudi higher education, but also highlight the gaps that can be filled, the concerns that must be addressed, and the critical success factors that must be ensured in order to enable continued use and successful further integration of social media as a learning technology into the realm of Saudi higher education. The contribution to knowledge in this study is presented as an implementation model for advancing the use of social media as a learning technology in Saudi higher education.

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Declaration

I declare that the research contained in this thesis, unless otherwise formally indicated within the text, is the original work of the author. The thesis has not been previously submitted to this or any other university for a degree, and does not incorporate any material already submitted for a degree.

Signed Fatimah Algarni

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Glossary

Information and Communication Technology (ICT): In this research, the term refers to all technological devices including mobile devices and their corresponding components, wireless networks, systems, applications, websites and tools that together allow people and institutions to have a digital presence, access/retrieve/store/share digital information and interact with each other in the digital world.

Learning Technologies: The term refers to the application of Information and Communication Technologies for the enhancement of learning through the use of multi-media course materials, online information repositories, technology-based learning and tutorials, digital assessments and digital interactions.

Pedagogy: The term refers to the science, methods, practices, concepts and models associated with teaching.

Social Media: In this research, social media refers to any internet-based application, platform, website or service that allows users to connect with others online, form networks and exchange user-generated ideas through web or mobile devices.

Social Media Types: The current research considered four types of social media - blogs (various blogging platforms), collaborative/crowdsourced projects (platforms where content is created by several users through collaborative efforts i.e crowdsourcing), social networking sites (sites that allow users to create profiles and interact with others) and content communities (platforms where users can share multimedia content with each other).

Gender Segregation: It refers to the physical and cultural separation of people in public places based on their biological sex, which is practised in countries like Saudi Arabia.

Abbreviations

SM: Social Media

SA: Saudi Arabia

UK: United Kingdom

KSU: King Saud University

PNBAU: Princess Nourah bint Abdul Rahman University

IMISIU: Imam Muhammad ibn Saud Islamic University, also known as Al-Emam University

VLE - Virtual Learning Environment

EMA: Electronic Management of Assignments

SPSS: Statistical Package for the Social Sciences

HTML: Hypertext Markup Language

TED: Technology, Entertainment, Design

UG: Undergraduate

PG (M): Master

PG (Doc): Postgraduate M.Phil or Doctorate

CHAPTER 1

1.0 INTRODUCTION

1.1 Premise of Study

The use of Information and Communication Technology (ICT) in higher education has been propelled by several assumptions regarding the role of technology in learning. The usage has been championed by educationalists, academia and policy makers who have based their assumptions on case studies and existing literature. According to these, students of today use digital technology differently and much more extensively compared to their older peers as they are constantly surrounded by a plethora of digital devices and internet (Groff, 2013). They not only use computers and digital libraries to aid in their studies, but they also use social media (also known as SM) to access and share information, participate in online communities and liaise with others all over the world to actively create information rather than passively consume it (Mcloughlin and Lee, 2008). Researchers have coined terms like "digital natives" (Prensky, 2010), "connected generation" (Ezzi, Teal and Izzo, 2014), "net generation" (Tapscott, 1998) and "new millennium learners" (Groff, 2013) to describe such present-day students. While the accuracy and definition of these terms is debated, it has nevertheless been pointed out that students of today are so immersed in digital technologies they no longer even think of computers as "technology". Consequently, educational institutions all over the world have started to use digital technologies extensively in their teaching and learning to take advantage of these purported trends among students.

One of the recent key trends in the field of education with respect to the integration of digital technologies has been the increasing use of social media as a tool for teaching and learning. Universities across the world have been exploring the educational possibilities of social media and integrating it accordingly into practice (Greenhow, Sonnevend and Agur, 2016). Both institutions and educators are using social media technologies (platforms, applications, services and websites) to foster communication, interactivity and engagement with students (Dron and Anderson, 2014).

The use of digital technologies in the higher education sector in Saudi Arabia has been similarly influenced by the assumptions regarding the affordances of technology and their popularity among students. They have also been influenced by extrapolations of the Western education system.

Accordingly, there is heavy emphasis on the use of technology in higher education by the Ministry of Economy and Development (2014) and most universities in Saudi Arabia have adopted the use of digital technologies in the last few decades. The Universities in Saudi Arabia have also been attempting to harness the power of social media in teaching and learning, mainly due to the increasing use of it among the students (Al-Khalifa and Garcia, 2013). Although the research is limited in this area, some studies have claimed that the efforts have not met with great success so far, mainly due to the traditional and conservative nature of Saudi Arabian culture, as well as barriers like poor internet access, gender segregation, lack of commitment, privacy concerns, and lack of Arabic interfaces (Alqahtani, 2016; Alsufyan and Aloud, 2017).

Some researchers also claim that the use of social media in education may not be very successful in general given that students differ dramatically in terms of their use of newer technologies from their teachers, and often also have radically new expectations about the role of technology in the overall learning experience (Groff, 2013). Others have pointed out that students typically prefer to keep their personal and professional lives separate, and the use of social media can blur these lines. Researchers like Sekyere (2009) and Dickson and Holley (2010) argue that for many students, social media represents an escape from their academic responsibilities and consequently, they may not be very receptive towards its use in education. All this may be particularly true for a conservative society like Saudi Arabia where interactions between teachers and students are said to be minimal, and traditional models of teaching where the teacher imparts wisdom and the students play no active role nor indulge in creative thinking are purportedly common (Al-Khalifa and Garcia 2013; Alghamdi, 2014). As such, even practices of teaching and learning that have been successful in Western institutions may not work in Saudi Arabian educational institutions. In any case, the learning behaviour of students keeps changing and evolving with time and technological upgrades, and assumptions and theories that were valid a few years back may now be outdated. Hence, research on the role of technology and social media in learning is an ongoing endeavor.

Based on the above premise, this study seeks to investigate the use of social media among students in Saudi Arabia, with particular focus on the use of social media as a learning technology. It seeks to understand the behaviour and attitudes of higher education students towards the use of social media as a learning technology. The research also intends to place these in context by

understanding the snapshot at this point in time of social media among higher education institutions and teachers in Saudi Arabia, the impact of various factors, and the implications for continued use of social media for teaching and learning.

1.2 Background

Over the last few decades, several factors have led to the adoption of digital technologies in higher education institutions across the world. Key amongst these are the emergence and growth of the internet, the consequent move towards an information society, advances in technology, globalization and the proliferation of social media. Additionally, the introduction of mobile devices and internet services at affordable rates have made newer technologies accessible to many, and this has heavily impacted digitization of educational practices. More and more universities, teachers and students are now using digital technologies, devices and more recently, social media for teaching and learning. In fact, Groff (2013) points out that digital technology is an integral part of mastering what are known as "21st century skills" without which it is rather difficult to be productive in today's society.

According to Corrin, Bennett, and Lockyer (2010), students in higher education institutions today are extremely familiar with, and comfortable using technology and devices. This propagates into all aspects of their lives including their academic activities such that students today use technology much more extensively compared to students of even a decade before. Students not only access content and knowledge but also manage, create and share it on their own even outside the classrooms (Pedro, 2009). To this end, students of today are no longer passive consumers of knowledge but rather are active contributors to it. Mcloughlin and Lee (2008) use the term "prosumers" to refer to such students who are both producers as well as consumers of knowledge.

Paavola and Hakkarainen (2005, p.535) point out that due to these shifts in educational practices, learning today is "an intensely social activity, where ideas are generated in contact with others in the community through mutual exchange, contribution and sharing of ideas". As a result, present-day students often possess skill sets and competencies that are vastly different from their older counterparts. They have the ability to multitask, access to the internet and digital technologies, an openness to share knowledge, and lesser dependency on classroom-based learning (Corrin, Bennett and Lockyer, 2000). Dede (2005, p.46) describes their approach to learning as based on

"collectively seeking, and synthesizing experiences rather than individually locating and absorbing information from a single best source". Needless to say, digital connectivity, communication and social interactions are key aspects of this learning approach.

While there have been various theories proposed to understand these evolving approaches to learning of students, many of them such as associative theory, situative theory and cognitive theory were developed before the advent of digital technologies and social media. Even social constructivism, which is a relatively new model of cognitive learning theory and adopted by many institutions worldwide is mostly based on the work of Vygotsky (1978) and consequently sometimes lacking in its ability to explain current digital learning trends that developed after its inception. Due to this, Siemen's (2005) theory of "connectivism" has been gaining traction in the recent past as a way to understand and explain the learning approaches of students who use digital technologies extensively.

The core idea of connectivism is that learning occurs when a learner gains knowledge through the process of connecting and feeding information with and through a learning community. As information continues to change based on new discoveries and contributions to the community, it impacts the learners' understanding of the field in turn as they navigate through the communities. In other words, learners connect to the community to share their knowledge and in doing so, discover new knowledge, which they share back with the same or a different community and the process keeps repeating in a cyclical manner (Siemens, 2005). Simply put, learners participate in the cycle of knowledge generation through which they learn and contribute to their own networks and connections. Overall, connectivism is essentially based on the premise that learning is a social activity and knowledge generation happens due to diversity of skills and opinions among learners (Siemens, 2005). The theory posits that critical thinking, enquiry, decision-making and maintaining connections are all necessary to ensure continuous learning.

Undoubtedly, connectivism has its critics, with some like Kop and Hill (2008) arguing that its contributions are not significant enough for it to warrant being treated as a new learning theory on its own. Others like Verhagen (2006), Dorin, Demmin and Gabel (1990), Duke, Harper and Johnston (2013), and Goldie (2016) have argued that while the premise of connectivism has value, it should be used as a practical tool for teaching and learning rather than as an independent learning

theory. In other words, there is considerable debate regarding the definition of connectivism with some considering it a theory and some considering it practice.

Nevertheless, the principles of connectivism are used by many researchers to explain the evolving learnings styles of present-day students (Pettenati and Cigognini, 2007; Tinmaz, 2012; Dron and Anderson, 2014), particularly in the context of using social media for learning. Tinmaz (2012) explain that this is mainly because connectivism explains learning in terms of interactions on various networks where learners share their knowledge, which is very similar to how many students of today gain knowledge informally using social media. Baggaley (2012) corroborates this stating that connectivism provides a way to evaluate contemporary asynchronous and informal learning methods. On similar lines, Pettenati and Cigognini (2007) argue that connectivism as a theory has the potential to re-conceptualize learning in which formal learning methods can be combined with the informal learning that often happens on social media, creating continuous learning opportunities for students through "personal learning environments". They further argue that institutions can utilise the theory to understand the learning needs of students and integrate social media accordingly into teaching and learning.

Indeed, the emergence of social media combined with idea of connectivism creates interesting opportunities for educational institutions where they can reconsider, reimagine and redesign their teaching and learning activities to encourage more student engagement while taking the current approaches to learning of students into account. Researchers like Vassilevel (2008) have pointed out that technologies, policies and practices used by the institutions should be able to support the learning of tech-savvy students, help them connect to the right learning communities, enable them to navigate through the communities, encourage them and promote social learning. The use of social media for teaching and learning, supported by the principles of connectivism offer a way to do this.

Connectivism has also come under criticism for its excessive focus on cognitive development without accounting for context, culture, external environment and changes over time (Kop and Hill, 2008). This leads to concerns about the role of connectivism and social media in countries like Saudi Arabia where the idea of teachers yielding control and learners becoming autonomous is quite unexplored. This calls for further research in the area as the success of any learning theory or method depends on establishing its reliability and success in various contexts. This in turn

depends on studying and understanding the attitudes and readiness of users, as well as influencing factors in different contexts and situations in which the theory in applicable. In other words, to determine if the principles of connectivism and the use of social media in teaching and learning would work in Saudi Arabia or not, it is important to consider them holistically in the context of the country's culture, existing teaching and learning practices, current use and attitudes towards use.

1.3 Need for Research

The potential of social media to promote connectivity among learners and create learner-centred environments is acknowledged in literature (Rosen and Nelson, 2008; Dabbagh and Kitsantas, 2012). Given that many students today have access to digital devices, content and networks, there can be potential benefits of integrating social-media into teaching and learning such as increased connectivity with students, better communication, accessibility, speed and better student engagement. In trying to do so, higher education institutions often face multiple challenges such as information technology costs, need to avoid technological obsolescence, teachers' skills, adapting to varying learner competencies and expectations, privacy and security concerns, and creating best practices within existing policy frameworks.

Several studies have been conducted from different perspectives to aid institutions in their venture to integrate social media into higher education to create more effective learning experiences for students. For instance, Barnes and Lescault (2011) conducted a study on the use of social media by higher education institutions and found that it can be effective as a communication tool. Others like Hrastinski and Aghaee (2012) and Dunn (2014) have explored the use of social media from the perspective of higher education students and found different ways in which students use it for learning. Corrin, Bennett and Lockyer (2010) have studied another aspect of the issue by investigating the difference between students' use of social media in regular life versus their academic life. The Babson Survey Research Group and Pearson (2013) conducted a study involving around 8,000 instructors from various fields to understand if they used social media to aid teaching.

The premise of these studies is to understand the use of social media as a learning technology. This is grounded on the idea of learning as a social process and the social aspects of learning, which is

also the basis of Siemens' (2005) connectivism theory. These are derived from Vygotsky (1978)'s theory of social constructivism that argues that knowledge is essentially constructed as a result of communication and interaction with others within a social environment through the use of language as a tool. Accordingly, connectivism explains learning as a process based on connection, communication, engagement and constant interaction between learners. These ideas have been used as a foundation to understand and advocate the use of social media as a learning technology. For instance, Bates (2011, p.25) says regarding the use of social media in education that they "empower the end user to access, create, disseminate and share information easily in a user-friendly open environment". Similarly, a report by Smyth and Mainka (2010) predicts that by considering the social aspects of learning through online communication and collaboration, and by using Web 2.0 and social media as learning technologies, institutions can help students feel more comfortable and lead to better learning outcomes. It has also been pointed out that social media tools and technologies make it easier for students to continue learning even in the absence of teachers, thus allowing them to be engaged in their own education (Greenhow, Sonnevend and Agur, 2016).

All this may work well in Western pedagogical models where teachers serve as guides and facilitators rather than strict instructors, and students are encouraged to put forth their own perspectives and understanding of content. Additionally, communication and interaction are common elements of teaching and learning in Western classrooms. Thus, it stands to reason that a model based on social interactions and exchange of ideas may work well in such situations. Unsurprisingly, several studies that have focused on Western teacher and student attitudes towards use of social media as a learning technology reveal that many of them have positive attitudes towards it (Caraher and Braselman, 2010; Lewis and Nichols, 2012). Lewis and Nichols (2012) also posit that having an opportunity to actually use social media as a learning technology further strengthens the positive attitudes.

Some studies have also found that despite acknowledging the educational benefits of social media and having a positive attitude towards it, many students did not use it or have any plans to do so (Ajjan and Hartshorne, 2009). Some of the reasons stated for this are the privacy and security concerns, possibility of misinterpretations, discomfort interacting with teachers, and the need to keep personal and professional lives separate (Sekyere, 2009; Dikson and Holley, 2010;

Greenhow, Sonnevend and Agur, 2016). Some researchers have argued that even if students have a positive attitude towards the use of social media in learning, teachers are reluctant to allow it (Rolbyer et al., 2010).

This raises several questions regarding the application of social media as a learning technology in more conservative societies like Saudi Arabia, where literature suggests that teachers and students do not operate in a collaborative and interactive environment to begin with, and student inputs in classrooms are minimal (Al Lily, 2011; Al-Seghayer, 2011; Alghamdi, 2014). The relationship between teachers and students in Saudi Arabia is considered highly formal and to some extent didactic, with teachers acting as imparters of knowledge and students merely absorbing it without question (Alghamdi, 2014). It has also been said that the learning is predominantly based on "rote-learning" methods (Alqahtani, 2016). Greener (2015) explains this by stating that in many parts of the world there is a "strong reluctance to challenge and question" authority, and that this reluctance is often cultural and communal. However, Alqahtani (2016) points out that Saudi Arabia occupies an "ironic" position with respect to the use of social media in that the country is highly conservative and religious, yet quite advanced in terms of technology implementations and in case of the younger generation, highly enthused about its use.

Based on this premise, it is reasonable to hypothesise that it may be possible to use social media as a learning technology in Saudi Arabia, what works in the West may not necessarily work there, and there are likely to be differences in attitudes between Western teachers and students and their Saudi Arabian counterparts. It is also reasonable to hypothesise that the principles of connectivism and the use of social media have to be, at the very least, adopted and customised according to the current teaching and learning practices of the country as well as the attitudes of the users in order to be successful in any way. This poses a problem as very little research exists on the use of social media as a learning technology in Saudi higher education systems that can provide a foundation to do so. Most of the current existing studies on the use of social media as a learning technology that have provided valuable insights remain focused on Western education institutes and students.

While some research has emerged in recent times on the use of social media in Saudi higher educational institutions (Mirza and Al-Abdulkareem, 2011; Aljasir, Woodcock and Harrison, 2013; Al-Khalifa and Garcia 2013; Ezzi, Teal and Izzo, 2014), they mostly focus either on the use of social media within educational institutions as tools of marketing and communication or on the

barriers faced by Saudi institutions while adopting social media for learning. Very little is reported on the subject from a truly academic perspective, particularly with respect to how social media is being used as a learning technology by students and the support they are getting from teachers and institutions in doing so. Hence, they fail to shed light on the various aspects necessary to effectively integrate social media as a tool for teaching and learning in Saudi higher education institutions.

This is particularly relevant considering that the institutions seem to have the technological capabilities to enable such integrations and the students seem enthused about it (Ezzi, Teal and Izzo, 2014; Alqahtani, 2016). Indeed, these studies indicate that present-day students in Saudi Arabia consider themselves as part of the "connected generation" and have very favourable attitudes towards the use of social media as a learning technology. This points to a significant gap in literature that requires investigation of the broad context of social media as a learning technology in Saudi Arabia, the benefits that it could bring to the students, the current usage patterns of students, and the current attitudes towards it. The gap manifests itself not just theoretically but also practically as the lack of research and knowledge creates barriers for educational institutions in implementing appropriate measures to support students', teachers' and institutional use of social media as a learning technology. Hence, to achieve beneficial outcomes from the integration of social media in Saudi higher education institutions, more dedicated research is required.

1.4 Research Aim, Objectives and Questions

The main aim of the current research is to investigate the behaviour and attitudes of higher education students in Saudi Arabia towards the use of social media as a learning technology. To accomplish this, it is important to explore the issue from various angles in order to gain a holistic picture. Accordingly, the research aims to investigate the current usage trends of students, their attitudes, the current snapshot of social media among higher education institutions in Saudi Arabia, the ways teachers are using it for teaching, the ways in which students are responding to such endeavours, the ways in which students differ in their attitudes and behaviour from staff and the impact of factors like context, gender and academic discipline on them. These, in turn are expected to shed light on the implications for the continued use and advancement of social media as a learning technology in the higher education sector of Saudi Arabia.

The choice of Saudi Arabia as focus is motivated not only by the lack of studies in this area and the researcher's own interest, but also by the potential of social media to enhance teaching and learning in Saudi Arabia. Saudi Arabia is one of the most technologically advanced countries in the Middle East with high emphasis on the use of technology in education. There have been considerable efforts by the government and the Ministry of Education towards the advancement of technology in education in recent years (Al-Asmari and Khan, 2014). Many of the key aims for development of higher education in the country focus on the adoption of new forms of technology, digitization and promotion of technology based learning (Ministry of Economy and Development, 2014). Al Alhareth et al. (2015) further posit that the government has been making efforts to modernize the curriculum in response to criticisms of rote-learning, lack of critical thinking and lack of interactive learning although the efforts have not been hugely successful. Social media has immense potential to be the channel that supports some of these aims. Moreover, studies have shown that present-day students in Saudi Arabia consider themselves to be part of the connected generation, are prolific users of social media and are extremely enthused about it (Al-Khalifa and Garcia, 2013; Ezzi, Teal and Izzo, 2014; Alqahtani, 2016). This not only indicates an opportunity for the advancement of social media in teaching and learning but also showcases the preferences of students which educational institutions must take into account.

The decision to investigate the snapshot of social media among higher education institutions and teachers in Saudi Arabia at the current point of time is based on the need to understand the issue holistically. Studies have shown that lack of access to the technologies, inadequate institutional support, and societal norms can all act as hindrances to the use of social media for learning (Fallows, 2005; Kennedy et al., 2006; Bennett, Maton and Kervin 2008). Further, studies have also shown that students often differ in their attitudes towards the use of technology and social media from their teachers (Sekyere, 2009; Dickson and Holley, 2010; Groff, 2013). Above all, the study is based on the premise that the methods and practices that work in Western institutions may not work in Saudi Arabian institutions due to the cultural and pedagogic differences. Hence, to understand the behaviours and attitudes of students meaningfully, it is important to also understand the larger context.

The decision to focus on the mediating role of disciplinary and gender differences on the use of social media is based on existing literature that indicates that both discipline and gender have an

impact on the way students use social media for learning. Researchers like Oh and Jeng (2011), Ortega and Aguillo (2012), Thelwall and Kousha (2014) and Haustein et al. (2014) all found through their studies that students from different disciplines use social media differently for their academic activities with students from some disciplines dominating social media much more than others. Moreover, Siemens (2005) also argues that connectivism, which gels well with contemporary social-media based learning practices, is more suited for certain disciplines and subjects more than others, mandating further investigation in this area. This is also important considering that the curriculum and educational practices of Saudi Arabia are often quite different from that of Western countries (Elyas and Picard, 2010; Elyas and Al-Sadi, 2013, Alghamdi, 2014).

In terms of gender, several researchers have pointed out a significant relationship between gender and technology in general, and gender and social media usage in particular. Mishra and Monippally (2014) attribute the differences in usage of social media between genders to the fact that men and women communicate differently in real life as well, which translates into their usage of social media. Others like Bölükbaş and Yıldız (2005) and Fallows (2005) have also found in their studies that male and female users differ in their usage of social media due to the differences in their offline behaviour, which in turn depends on traditional gender roles and expectations of society. Again, these would be particularly relevant in a society like Saudi Arabia which enforces strict gender segregation as well as guardianship and patriarchal rules.

Hence, the effects of discipline and gender must be considered to arrive at a true understanding of the role of social media in higher education teaching and learning. These aspects remain under-explored, and this creates further gaps in the understanding of the situation, particularly with respect Saudi Arabia where the academic system is quite different from the West and is moreover gender segregated. The impact of other factors like age will also be considered during the research, although the primary focus will be on discipline and gender, mainly because Saudi Arabia differs considerably from Western countries with respect to these two factors.

Based on the above premise, the following research objectives and questions emerge:

Objective 1: To explore the snapshot in time of social media as a learning technology in higher education in Saudi Arabia.

- **Research question 1:** How are academics/teachers in higher education institutions in Saudi Arabia using social media in teaching and in their interaction with students?
- **Research question 2:** How are higher education institutions in Saudi Arabia using social media?
- **Research question 3:** Are there any differences in the attitudes of students and staff with respect to the use of social media as a learning technology?

Objective 2: To explore the behaviour and attitudes of students towards the use of social media as a learning technology in higher education

- **Research question 4:** How are higher education students in Saudi Arabia using social media as a learning technology?
- **Research question 5:** Does the academic discipline of higher education students in Saudi Arabia have an impact on their behaviour and attitudes towards social media as a learning technology?
- **Research question 6:** Does the gender of higher education students in Saudi Arabia have an impact on their behaviour and attitudes towards social media as a learning technology?

Objective 3: To determine the implications of using social media in Saudi Arabian higher education in order to develop an implementation model for advancing the use of social media in teaching and learning in Saudi higher education.

- **Research question 7:** How do the usage patterns of social media by institutions, teachers and students, as well as the attitudes towards the use of social media for teaching and learning bode for the future of social media as a learning technology in Saudi higher education?

The above objectives and questions are also available in Appendix A for quick reference.

1.5 Significance and Expected Contributions of the Study

The significance of the present study lies in the fact that it is not only attempting to address the gaps in literature regarding the use of social media as a learning technology in higher education in Saudi Arabia, but it is also expected that the findings of the study will contribute towards the advancement of social media in teaching and learning within the sector and also help in the development of more relevant social media policies. The key gaps in literature that the study will attempt to address are as follows:

- There is limited research on the academic use of social media by teachers and students in the non-Western context
- There is very limited research available on the use of social media as a learning technology by students in the higher education sector in Saudi Arabia
- The institutional presence of and support for social media in the higher education sector of Saudi Arabia is not well understood
- The current usage of social media in teaching and learning by Saudi higher education students and staff, as well as their attitudes towards such usage is largely unknown
- The relationship of social media with factors like academic discipline and gender is not explored well in the Saudi Arabian context

Towards these, the present study will:

- Contribute to the literature in terms of the use of social media as a learning technology in the higher education sector of Saudi Arabia
- Provide an understanding of the attitudes and behaviours of higher education students in Saudi Arabia regarding the current and future use of social media as a learning technology, and contrast them with those of staff
- Contribute to the development of an implementation modelfor advancing the use of social media as a learning technology in higher education institutes in Saudi Arabia
- Provide the groundwork for academics and higher education institutions in Saudi Arabia for policy development and further research in the area.

1.6 Structure of the Thesis

The thesis is structured as follows:

Chapter 1: This chapter provides an introduction to the topic and discusses the background and need for research as well as its significance. It also outlines the research aim, objectives and questions, the methodological approach and limitations of the study.

Chapter 2: This chapter provides an overview of the existing literature regarding the use of social media in education in general, and its use in the higher education sector in Saudi Arabia in particular. It discusses the social aspects of teaching and learning and the role of social media in them. It then explores the role of social media in Saudi Arabian higher education institutions and outlines the relationship of social media with academic disciplines and gender. This provides the groundwork for the present research.

Chapter 3: This chapter explains and justifies the research methodology used in the present study. The study uses a mixed method research methodology with a dominant quantitative strand. The chapter explains the various aspects of the methodology such as the methodological approach, the data gathering methods used, the participants involved in the research and the sampling strategy. It also provides a data analysis plan for the different types of data gathered.

Chapter 4: This chapter outlines the results of the data analysis for the quantitative and qualitative data of the study. The quantative data is analysed using the statistical software SPSS and the qualitative data is analysed using thematic analysis techniques, both as per the plan outlined in the previous chapter.

Chapter 5: This chapter collates, synthesizes and discusses the key findings emerging from the analysis of quantitative and qualitative data. It also places the findings in the context of literature and highlights similarities as well as differences with existing studies.

Chapter 6: This chapter summarizes the overall study, describes the implications of using social media in teaching and learning in Saudi higher education, provides recommendations based on the implications, and constructs an implementation modelto highlight the measures to be taken for the advancement of the use of social media as a learning technology in Saudi higher educational

institutions. It also discusses the limitations of the study and provides directions for further research.

CHAPTER 2

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter reviews the existing literature related to the understanding of the use of social media for teaching and learning in general, and in the context of Saudi Arabian higher education in particular. The key aim of the chapter is to set the context for the research, and establish the theories and concepts on which it will be based.

The chapter begins with an overview of social media and its types. It then touches upon the theories/concepts related to digital social teaching and learning, particularly Siemen's (2005) connectivism and Wenger's (1998) communities of practice. It then explores the role of social media in teaching and learning and its benefits as well as drawbacks. The review then explores the use of social media in Western educational institutions and the attitudes of teachers and students towards it.

The review then touches upon the teaching and learning practices in the East, in particular Saudi Arabia, and contrasts them with those of Western educational institutions. Finally, the review explores other factors like academic discipline and gender that may have potential implications for the use of social media in as a learning technology.

2.2 Social Media

In the last few years, there has been a constant and intensive scrutiny of the impact of social media on the individual and collective lives of people. Scholars like Marshall et al. (2012), Gainous and Wagner (2014) and Herrera (2014) call it the "social media revolution" attributing several technological, social and political changes to the proliferation of social media. Kaplan and Haenlein (2010) point out the number of registered users on popular social media sites like "Facebook" has reached levels greater than the population of some countries. Yet, despite the staggering statistics, there seems to be little clarity in literature regarding the exact definition and/or attributes of social media. To an extent, this could be due to the fact that the concept of social media is implicitly interwoven with technology and the internet as modes of delivery, both

of which witness changes on an almost daily basis. Moreover, Kaplan and Haenlein (2010) point out that the "seemingly-interchangeable related concepts of Web 2.0" also cause confusion regarding what is social media and what is not. Hence, it is important to try and define the term as it will be used in the current research at the onset to avoid ambiguities.

Ellison (2007) defines social media as web-based services that facilitate the creation of public or partially public profiles for users, and allow them to construct, view, and/or explore lists of other users within whom they share connections. Kaplan and Haenlein (2010) define social media as a framework that allows the creation of applications and services that rely on openly shared, user provided digital content. According to them, "Social media are a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content". It is clear from both definitions that users, their activities, connections and exchange of information are at the core of social media.

Today social media or indeed the web itself is no longer a one way broadcasting channel where users can only download the data and resources provided by organizations or content providers. Rather, the users of today are as much providers, organizers and critics of content as they are consumers (Lister et al., 2009; Kaplan and Haenlein, 2010). Social media technologies now enable users to share their views, opinions, content and resources with others and foster an environment of collaboration, participation, individual contribution, openness and creativity (Karacapilidis et al., 2012).

From the users' perspective, social media perform a variety of roles depending on the technology, platform and device. From this view, it can be posited that Kaplan and Haenlein's (2010) definition of social media is more acceptable in today's context as it disperses the notion that social media is solely based on the web, and recognizes the recent development of social media around many applications that are not dependent on web browsers at all. Social media sites today exist on web as well as mobile devices, operate on a variety of technologies, offer a variety of functions, cater to a variety of users and needs, and have a juxtaposed set of features. The current research utilises these ideas and considers any internet-based application, platform, website or service that allows users to connect with others online, form networks and exchange ideas as social media.

2.2.1 Types of Social Media

Considering the vastness of social media platforms and features available today, it is difficult to pin down specific types of social media. Nevertheless, according to various researchers (Kaplan and Haenlein, 2010; Kong, 2014), based on certain unique characteristics, social media can be classified into six key types: Collaborative or crowdsourced projects where content is created jointly and simultaneously by several users (e.g.Wikipedia); Blogs and microblogs that enable users to share their own information with others in the form of reverse chronological date-stamped entries (e.g. Blogger, Twitter); Content communities that enable sharing of multimedia content among users (e.g. Flickr, Youtube); Social networking sites that allow users to network virtually by creating personal profiles and connecting to that of others' (e.g. Facebook, Google+); Virtual game worlds in which users can interact with others in a simulated three-dimensional, rule-based gaming environment through their personalized "avatars" (e.g. World of Warcraft, Guild wars 2); and Virtual social worlds in which users can interact with others using their three-dimension avatars similar to gaming worlds, except that there are very few rules limiting their interactions with others. Kaplan and Haenlein (2010) categorize these further based on their interpretation of social presence/media richness and self-presentation/self-disclosure of the types as seen in Figure 2.1 below:

		Social presence/ Media richness		
		Low	Medium	High
Self-presentation/ Self-disclosure	High	Blogs	Social networking sites (e.g., Facebook)	Virtual social worlds (e.g., Second Life)
	Low	Collaborative projects (e.g., Wikipedia)	Content communities (e.g., YouTube)	Virtual game worlds (e.g., World of Warcraft)

Figure 2.1 Social Media Types (Kaplan and Haenlein, 2010)

It can be argued that the above categories proposed by Kaplan and Haenlein (2010) can overlap each other. For instance, the microblogging site Twitter is used by many for sharing news, social networking sites like Facebook are often used for multimedia content sharing, and content communities may allow users to create profiles and interact with others. Hence, their categorization appears to be interchangeable and not rigid, indicating the complexities involved in

defining and/or categorizing social media in a generic way. Nevertheless, the classification above provides a useful foundation to analyse the various ways in which social media is used in today's world, its infinite possibilities, and the potential implications of use.

The current research uses the definition proposed by Kaplan and Haenlein (2010) and a subset of their typology to make it applicable in the context of higher education. As mentioned previously, it treats any internet-based application, platform, service or website that allows the creation and exchange of user-generated content as social media. When it comes to the typology of such applications, the current research considers the first four types of Kaplan and Haenlein's (2010) classification as follows:

- Blogs: This includes various blogging platforms such as wordpress and blogger etc.
- Collaborative/crowdsourced projects: This includes wiki sites like Wikipedia where content is created by several users through collaborative efforts or in other words, crowdsourcing.
- Social networking sites: This includes all social networking sites like Facebook and LinkedIn etc.
- Content communities: This includes platforms and applications where users can share multimedia content with each other such as Youtube, Flickr etc. This includes both photo sharing as well as video sharing platforms.

The main reasons for including the above categories in the typology of social media for the current research, and excluding virtual social worlds and game worlds are as below:

- Studies by various researchers have repeatedly focused on and identified the above types of social media as the ones that are used most extensively by teachers, faculty members and students for academic purposes in higher education (Liu, 2010; Poellhuber and Anderson, 2011; Moran, Seaman and Tinti-Kane, 2012).
- By contrast, there have been very few studies that have identified or studied the use of virtual social worlds and virtual game worlds in the context of higher education. In fact, some studies such as the one by Poellhuber and Anderson (2011) have reported that students have low-levels of self-professed proficiency with virtual worlds and social bookmarking websites like Digg, and hence do not use them frequently.

- Moreover, the focus of the current study is the use of social media for teaching and learning purposes and it was felt that virtual social and gaming worlds may not fit well into the learning context of Saudi Arabian classrooms. The application of educational virtual and gaming applications in Saudi Arabian classrooms is quite limited based on the researcher's personal experience, and it was felt that large public virtual and gaming applications would not be suitable to further the objectives of the study.
- Researchers have pointed out that Saudi Arabian classrooms tend to be quite strict and non-interactive (Alharbi, 2013), and that Saudi Arabia is one of the top internet censoring countries (Mirza and Al-Abdulkareem, 2011; Shishkina and Issaev, 2018). As such the use of platforms like virtual worlds is likely to be highly limited in Saudi Arabian classrooms, which is also confirmed by the researcher's personal experience. Hence, it was decided to exclude the virtual world platforms from the classification of social media for the purposes of the current research.

2.3 Theories of Digital Social Teaching and Learning

The advent of the digital era, the proliferation of the internet and social media into the daily lives of people and consequent changes in learning behaviour of students have led educators and instructors to rethink their approach towards teaching and learning. The neo-millennial students of today have access to technologies and devices, are capable of using them for learning and expect institutions and instructors to meet them in their own space (Dickson and Holley, 2010). With the advancement in the internet and related technologies, students can access ample amounts of information from anywhere around the world and interact with it. They are consequently no longer mere consumers of information. As students continue to evolve from mere consumers of knowledge to active producers and participants in the knowledge generation process, institutions have to redesign their own approaches to teaching and learning such that they enable these changing learning approaches of students. Consequently, relying on older models of teaching and learning may no longer serve the institutions well in the digital era. Indeed, Brown (2006) points out that there is a need for the emergence of new educational models and practices to cater to the changing approaches to learning of today's students.

2.3.1 Key Educational Theories for Digital Learning

There is a wide array of models that underpin the concepts of teaching and learning in various educational contexts. All models can be grouped in alignment with one of three key theories: associative theory, cognitive theory and situative theory (Freitas, 2013). Within the associative theory, learning is seen as accomplished through structured tasks, within the cognitive theory learning is seen as a manifestation of understanding, and situative theory deals with learning through social experience (Conole, 2010). There are several models that fit these theories with some possible overlapping, such as community of inquiry framework (Garrison, Anderson and Archer, 2000), Kolb's (1984) learning cycle, Preece's (2000) framework for online communities and Skinner's (1938) operant Conditioning theory. However, two key models are mentioned arguably more often than others in literature. These include behaviourism and constructivism (Tedman and Tedman, 2011). Behaviourism falls under the category of associative theories while constructivism is generally considered a cognitive theory.

The model of behaviourism is based on the view that behaviour can be predicted, controlled and changed by enforcing standardized practices, and rewarding positive behaviour (Tedman and Tedman, 2011). Within the education system, this implies that given the right influences and rewards, all learners can acquire identical understandings of concepts. On the other hand, the model of constructivism is based on the view that knowledge is constructed by the learner, and is a result of his/her understanding of the world through experiences (Tedman and Tedman, 2011). In this context, knowledge is essentially constructed as a result of communication and interaction with others within a social environment through the use of language as a tool.

While both the models are disputed and not applicable to all situations, it is generally posited that the idea of using social media as a tool for teaching and learning makes more sense within the constructivist paradigm. This is because social media enables the learners to have active experiences, communication and interactions with each other, all of which are essential for knowledge construction according to the constructivist model (Stabile and Ershler, 2016). To this end, it can be posited that social media can be used more easily for teaching and learning within the constructivist model.

While constructivism is adopted by many institutions worldwide, it is mostly based on the work of Vygotsky (1978). It is important to note that although Vygotsky's work was published in 1978, it was done so posthumously. Nevertheless, most of the work was in fact completed in the early part of the 20th century, i.e. long before the advent of digital technologies. Hence, constructivism is sometimes considered to be insufficient to understand, explain and adequately address different aspects of the new approaches to learning adopted by students of present generation and lacking in its ability to explain digital learning trends that developed after its inception. While it is true that some researchers have attempted to explore the links between social constructivism and technology in education (Keizer and Wright, 1997; Lunenberg, 1998), there have nevertheless been calls for these learning theories to be expanded and enhanced further to include and support the learning approaches of the digital era (Siemens, 2005; Brown and Green, 2006). Towards this, Siemens' (2005) theory of Connectivism and Wenger's (1998) Community of Practice (COPs) are sometimes promoted as the right methods to address the learning needs of the digital age by scholars.

2.3.2 Connectivism

According to Siemens (2005), "Connectivism is a learning theory for the Digital Age". Connectivism presents learning as a process that occurs based upon a variety of continuously shifting elements. Siemens (2005) also posits that the starting point for this process is the individual who has his/her network and connections, and feeds information into those. The networks in turn feed information back to the individual and the exchange continues. This active process of feeding and receiving information to and from the network leads to the generation of knowledge. Siemens (2005) lists eight core principles that form connectivism:

- The basic aim of all connectivist-based learning activities is to ensure accurate, updated knowledge
- Learners need to possess the core skill of visualizing connections between ideas, concepts and fields
- The process of learning and knowledge generation is dependent mainly on the diversity of opinions
- When information sources or nodes connect, learning occurs

- Learning is not necessarily contained in human subjects and can reside in appliances
- The capacity to further knowledge is more important than existing knowledge
- Maintaining connections is necessary to facilitate continued learning
- The process of making decisions also leads to learning. This is because often there are no right or wrong answers, and the interpretation of information depends on various factors that form the information environment.

According to Siemens (2004, p.6), "Connectivism presents a model of learning that acknowledges the tectonic shifts in the society where learning is no longer an internal, individualistic activity. Rather, "Connectivism" essentially means a state of connectedness in a networked environment. Any network requires two basic elements: Nodes and Connections. A node comprises of people, organizations, systems and other elements that can be connected to any element within the network. The Connection is a medium or a link between nodes, when a node comes in contact with the other nodes it forms a network through its connectedness.

Siemens (2005) posits that learning is a process of creating networks and the learning networks can be broadly classified into internal and external networks. Internal network is at an individual level in which the internal structure helps an individual create patterns of understanding. The goal of the external network is to connect new knowledge by connecting to different nodes in the network. The knowledge gained through the external network is fed back to the learning network which can be accessed by other nodes and learners which benefits them in acquiring new knowledge.

Boitshwarelo (2011) further summarizes the key tenets of connectivism as follows:

- Learners of a learning community are not only accessing information from the knowledge base but are contributing and helping it grow. The learning community is a group of learners with similar interests who exchange their ideas on the networks.
- Every learning community is a node that is part of a network of nodes. All the nodes are connected to each other and support autonomous, diverse and creative knowledge development.

- The learning community together is a knowledge base on its own and hence the knowledge is not bound to an individual or a location. The learning and knowledge creation is dependent on a diversity of views rather than individualistic opinions or views.
- Since multiple learning communities contribute data to the knowledge base on a regular basis there is a need to continuously evaluate the validity and accuracy of the knowledge base to ensure its reliability.
- Due to the diverse and dispersed nature of information on the internet, the knowledge creation process offers multi-disciplinary connections.

Despite the perceived benefits of connectivism in the digital age, it is not without critics. According to a study by Mehmet and Safieh (2012), the fact that connectivism is tightly coupled to technology can be a limitation in itself as technology is constantly changing, and advancements in technology can render the tenets of connectivism irrelevant. Also, the same study argued that connectivism overemphasizes the role of technology which could be detrimental in the long term, and hence its' use should be limited to the extent necessary.

Kop and Hill (2008) also argue that the contributions of connectivism are not significant enough for it to warrant being treated as a new learning theory on its own. They contend that connectivism fails to account for context, culture, external environment and changes over time. This is supported by Kerr (2007) who argues that connectivism cannot be considered a theory or model on its own due to the following reasons:

- It is too generalised to offer any concrete guidance regarding the actual process of learning.
- It contributes towards a "general world outlook."
- It bases its premise on erroneous representations of existing learning theories like constructivism, behaviourism and cognitivism.

The first point is also supported by Verhagen (2006) who argues that connectivism is relevant at a curricular level in terms of providing guidance about what students should learn, but it fails at a practical level in terms of explaining how they actually learn. The above points are also supported by other researchers such as Dorin, Demmin and Gabel (1990), Duke, Harper and Johnston (2013), and Goldie (2016) who argue that while the premise of connectivism has value, it should be used as a tool for teaching and learning rather than as an independent learning theory. Goldie (2016)

expands on this further stating that connectivism just provides a useful lens through which digital teaching and learning can be understood but there is unlikely to be a single theory that explains learning using digital technologies as a whole anyway.

Despite the criticisms, there is general acknowledgement about the role of connectivism as a concept or phenomenon in explaining the new learning trends and styles of the digital age and its autonomous learners. One of the key reasons for this acceptance is that within the traditional models of teaching, teachers have limited information about students' background, knowledge base and experiences. They also have limited flexibility. These factors can be important in understanding the psychology of the students and directing effective teaching methods tailored to their needs, and the lack of information can sometimes hinder teachers. In other words, the teachers' focus is limited to what students have to know content-wise and preparing them for it with little room for customisation (Mehmet, 2012; Mehmet and Safieh, 2012). Students' participation on the other hand, is also limited and hence lags behind in terms of them understanding the background of the topic and how it affects them in the real world. Hence some researchers consider that a "meaningful learning" is difficult to achieve with such traditional models (Mehmet, 2012; Mehmet and Safieh, 2012). They also consider that meaningful learning is only possible when active participation and active engagement on the part of learners is achieved with sufficient flexibility. Towards this, connectivism proposes a new teaching and model in which student participation, engagement and flexibility are integral parts of learning.

Indeed, Pettenati and Cigognini (2007) argue that knowledge and learning in the present era are shaped by the connections of the learner. Towards this, they also posit that connectivism describes how learning occurs within the connected digital age of today and can be very useful. Duke, Harper and Johnston (2013, p.8) summarize this by stating "While the debate over the status of George Siemens and Stephen Downes' theory of connectivism will continue to be debated for many years, it is undoubtedly an important school of thought directly applicable to the use of technology in the classroom today". To this end, the present study can also serve as a testbed to explore the use of connectivism in the context of the use of social media as a learning technology in Saudi Arabia. This is particularly relevant considering that one of the key criticisms of connectivism is that it does not account for variations in context and culture. For the purpose of ease, the current study will consider connectivism as a theory while also accepting the argument that it may not be

sufficient on its own to fully explain teaching and learning through digital technologies, especially social media.

2.3.3 Community of Practice (COPs)

Another theory or concept that is often cited as suitable for the learning needs of students in the digital age is the Community of Practice (COP) theory (Lave and Wenger, 1991; Wenger, 1998). It is considered to be suitable for the learning needs of the Gen-Y student who is essentially defined as someone that "values group and team learning, constructing understanding from many sources as opposed to a single authority" (Piktialis and Greenes, 2008, p10). As the Community of Practice (CoP) theory advocates group and team learning, it is considered suitable for the learning needs of the Gen-Y.

According to Wenger, McDermott, and Snyder (2002, p.4) Communities of Practice (CoPs) can be defined as "groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis. The core of this theory is to empower collective learning with regular interactions in their respective communities resulting in the motto of "practising for perfection" in the activities they perform.

Wenger (1998, p.3) posits that learning is a social phenomenon that refers to all the learning an individual acquires through social circumstances and experiences throughout his/her life. It happens when learners act as active participants in social practices of communities, understand the meanings and construct their own identity in relation to them. Wenger (1998) defined the four key tenets of social learning as follows:

- Meaning: communicating about the ability to experience meaning in life
- Practice: communicating about shared histories, resources and perspectives that can facilitate mutual engagement.
- Community: communicating about social configurations within which a person's enterprises are defined.
- Identity: communicating about the changes brought about by learning within the context of communities

Wenger (1998) suggested that these four components are interlinked and help define each other's importance and existence to characterize the social participation in the learning process. Further, according to Wenger (1998), three modes of belonging are important to facilitate participation and knowledge generation within learning communities, also known as "Communities of Practice" or CoPs. These modes are: Engagement, Imagination, and Alignment. Engagement refers to the willingness of community members to participant or involve themselves in the activities of their own community as well as other communities that they may have access to. Imagination helps members make sense of the activities of the community and their own belonging in it by understanding each other, locate their own position, reflect on it and develop new perspectives. Finally, alignment is the process through which the perspectives of various members, activities, actions, communications and laws are aligned within the communities to result in the desired outcomes. Simply put, engagement provides the motivation, imagination provides the understanding and alignment provides the coordination between members and communities.

Wenger, McDermott, and Snyder (2002) also proposed three characteristics of Communities of Practice (CoPs) that are necessary for a community of learning to co-exist and function efficiently. These are called the enterprise, mutuality, and shared repertoire. Enterprise refers to the joint structure in which members are able to understand the community to which they belong and hold each other accountable to its ideals. In doing so, they can keep learning at the centre of the community and contribute, learn and share knowledge. Mutuality refers to the mutual engagement between the members of the community. For successful engagement, members need to feel a sense of belonging to the community, be willing to engage with others in the community, participate in community interactions, build relationships and contribute to the overall knowledge process of the community. Shared repertoire refers to the collective and shared tools and resources of the community including, but not limited to its language, stories, styles, artefacts, files, routines, practices and sensibilities. For a learning community to be successful, the members need to collectively be aware of the shared repertoire and be able to reflect on it. This, in turn, helps the community identify its own position and move forward. The present study will use the above ideas in conjunction with the principles of connectivism to form the theoretical base that explores the role of social media among Saudi higher education students.

2.4 Social Media in Education

The concepts of social media depend heavily on social interactions and construction of knowledge through collective efforts. The same can be said of teaching and learning as there is arguably a social element to teaching and learning that cannot be denied. Indeed, Banks, Leach and Moon (1999, p.267) describe teaching in general as a situation or practice "that a teacher, together with a particular group of learners creates, enacts and experiences". Similarly, according to Vygotsky (1978), learning is embedded within social events and occurs when a learner interacts with other people, objects and events. Through these claims, the researchers offer the premise that learning is essentially a social activity in which the learner has as much an active role as the teacher, and suggest social interaction as an inevitable part of learning.

In line with the above premise, it can be said that social media could be a good fit for teaching and learning in the right circumstances and context. In particular, within certain models of learning such as connectivism and communities of practice, there is a heavy focus on social interactions as part of teaching and learning. In this context, the idea of using social media as a tool for teaching and learning not only makes sense because of its ability to foster social communities and enable interactions but also because it adheres to the growing trend of using technology in education.

2.4.1 Social Media as a Learning Technology

The idea of using social media as a learning technology comes from the acknowledgement of learning as a social process. Churcher, Downs and Tewksbury (2014) argue that although learning can be individualistic and integral to each person, it is never isolated. Rather, learning is a result of knowledge creation, which in turn is a social activity. Also, Churcher, Downs and Tewksbury (2014) argue that the creation of knowledge, which is essentially a collaborative process is best achieved in an environment that facilities this. Hence, it can be posited that social media aids in the creation of knowledge by creating online communities and facilitating interactions between users all over the world. In other words, social media, by bringing together people from all over the world to achieve common goals, can be the perfect platform for knowledge creation and sharing. Moreover, it allows people to take a more active role during knowledge creation, which leads to better ownership of the process.

With the emergence and extensive proliferation of social media in the last decade, the use of technology in education has transcended the use of computers by a long shot, and has led to online collaborative practices on a scale never seen before. Instructors have started using tools like blogs, wikis, discussion boards, and video tutorials (Barr, 2004). Many instructors have also started using podcasts, RSS feeds, simulation software and interactive whiteboards to help in the development of the skills of students (Gosper et al., 2011).

While there is debate regarding the use of the term "social media" with respect to the use of the above tools and softwares, the current study considers them as falling under the umbrella category of "social media" given that they typically have an interactive and "social" element to them, require participation from students and are used as learning technologies. Given that the focus of the current study is the use of social media as learning technologies, it was felt that a broader definition including the above tools could be considered as examples of educational use of social media.

Studies show that students themselves are prolific users of social media today and make use of it in several ways for learning. Some of these include acquisition of information, cooperative learning and communication with teachers (Bal and Bicen, 2017), knowledge exchange and learning support (Ng and Latif, 2011), and engagement in online educational communities (Sutherland et al., 2018). All these not only make it easier for students to grasp difficult concepts but also allow them to develop critical thinking skills through mutual collaboration and collective intelligence. The emergence of multimedia elements that combine text with audio and video has also provided an excellent mechanism for the development of language writing skills among students. Greenhow, Sonnevend and Agur (2016) point out that the use of technology and social media by educational institutions can help to make up for unequal resources in the students' home environments and thus level the playing fields during off-school hours. Based on this premise, they contend that hybrid models of education that combine traditional methods of teaching and learning with social media is the way forward for educational institutions.

2.4.2 Benefits and Drawbacks of Social Media as a Learning Technology

The benefits of using technology in education are well documented (Jafarian et al., 2012; Livingstone, 2012). Similarly, the benefits of interactive and collaborative models, and sociolinguistic learning models have widespread acknowledgment (Comer and Maholmes, 1999;

Howard, 2003; Chan, 2013). It can be posited that social media combines both in an effective manner given that it arguably represents some of the latest technology trends, and is all about interacting with others. Hence, blending social media with teaching and learning could indeed lead to a strong and beneficial application of the various ideas of cognitive and situative theories, such as interactive and social learning. Indeed, Kelm (2011) points out that learning happens best when it is occurring inside a social context and is collaborative, which can be achieved by combining social media with traditional teaching and learning methods.

Social media has indeed been acknowledged as an effective tool for teaching and learning in several empirical studies. According to a study by Hussain, Cakir and Candeger (2018), the careful use of social media at a University level has the potential to create opportunities for online interactions and provide instant access to multiple sources of knowledge. The study further demonstrates that the use of social media as a learning technology can facilitate critical thinking, problem solving and healthy discussions among students through the use of multimedia sources and task oriented assignments. This is corroborated by Al-Rehmi, Zeki and Saged (2017) who studied the use of social media as a learning technology in the context of learning the Quran and Hadith, and found that it promoted interactivity, engagement and collaboration, which in turn enriched the learning experiences and performance of students. This shows that social media can be effective for learning in different contexts and for varying subjects. Several other researchers have also stressed upon the high potential that social media holds as a learning technology. Greenhow, Robelia and Hughes (2009), Mix (2010) and Hew, Cheung and Ng (2010) point out that it increases student engagement and improves the quality of teaching. The researchers also indicate that using social media in learning encourages openness, user engagement and interactions. Studies have also found that social networking sites like Facebook and Twitter can aid classroom communication and openness (Junco, Heibergert, and Loken, 2011; Terantino and Graf, 2011), blogs and wikis can help to create interactive content and enable feedback (Babson Survey Research Group and Pearson, 2013), podcasts and videos can increase student engagement (Mayer, 2001), forums can foster student communities (Babson Survey Research Group and Pearson, 2013) and sites like LinkedIn can help in career progression (Duncan and Barczyk, 2013).

Social researchers also posit that social media contributes in indirect ways towards academic achievement. For instance, Smith (2009) posits that being a part of groups has a positive impact

on the mental health and well-being of individuals, which in turn leads to better academic performance. Similarly, Buzzetto-More (2012) point out that being part of positive social networks can help students learn trust, acceptance of differing views, teamwork and other positive traits. Ahn (2011) also attribute the development of technical skills and social development among youth to their use of social media.

These arguments regarding the mental health benefits of using social media for learning have found support in empirical studies as well. Greenhow and Robelia (2009) explored the role and impact of social networking websites in the lives of high school students belonging to low income families in US, and found that the networks provided emotional anchoring, fostered relationships, allowed social learning and enabled positive self-presentation. They also found that the teens used social networks to engage in communication, creative activities and literary practices. Based on the findings, they concluded that social networks facilitate student engagement and thus help the learning process. Similarly, Valenzuela et al. (2009) found that students who used Facebook to connect with their peers exhibited better civic engagement and life satisfaction. This is further corroborated by others like Schroeder and Greenbowe (2009) who concluded that social media makes it easy for students to interact and participate in discussions. Mendez et al. (2011) go to the extent of positing that students who befriend their lecturers on social networking sites were likely to get higher grades. While the findings cannot be taken at face value, they nevertheless indicate the growing influence and perceived benefits of social media in teaching and learning.

On the other side of the spectrum, researchers also point towards the drawbacks of using social media in teaching and learning. For instance, Lederer (2012) argues that social media in the classroom can be more disruptive than beneficial. She also argues that it could become a tool for cyberbullying and other malicious behaviour. The researcher also points out that social media discourages direct, face-to-face communication and while it may "create a safe harbor for students who are uncomfortable expressing themselves, students are missing valuable lessons in real-life social skill" (Lederer, 2012, p.2). Others like Connolly (2011) also warn that use of social networking tools can hinder high-level reasoning, focus and concentration, which are all essential for development of critical thinking and intellect.

Doherty (2010) and Rennie and Morrison (2013) point out additional privacy and security issues like cyber-stalking, cyber-bullying, communication with dangerous individuals, plagiarism, distribution of illegal content and Libel, which can result from the use of social media for learning. Cain and Flink (2010) explored the legal and ethical concerns of social media usage at universities in the context of pharmacy education and found that the use of social media applications like Facebook, YouTube, and Twitter introduce several legal complexities within higher education institutes. They point out several cases where widespread use of social media created conflicts between the Universities' honour codes and the users' (students and staff members) freedom of speech and right to privacy.

From these, it is clear that there is considerable debate regarding the role of social media as a learning technology with some advocating its use and some criticizing it. Yet others prefer to take a middle ground contending that it is possible to harness the benefits of social media in teaching and learning although it needs a lot of planning and risk management (Zaidieh, 2012; Dunn, 2014). The growing number of institutions that have started using/allowing social media is testimony to its increasing influence in teaching and learning despite the perceived drawbacks. The use of social media in education has been growing exponentially in the last few decades, with a majority of institutions in Western countries using it in some form or the other now to enhance teaching and learning (Greenhow, Sonnevend and Agur, 2016).

2.5 Social Media in Western Higher Education

The Western education system is said to be predominantly "student-centred" and "interactive" within which students are expected to participate actively in classrooms and engage with their own learning (Busayawan and Youngok, 2013). The "interactive" aspects of Western education have been highlighted by many researchers who contend that the classrooms encourage discussions and collaborations not just between teachers and students but also among the students themselves (Guske and Swaffield, 2011; Leung et al., 2014). To this end, there are undeniable social, interactive and collaborative elements in Western learning. They have class and group discussions, group projects, question-answer sessions and many other interactive activities through which students express their opinions, which are valued (Busayawan and Youngok, 2013). Through these, students not only "learn" from their teachers but also from their peers by exchanging ideas. Even outside the classrooms, the assignments are often focused on critical thinking, analysis and

self-learning (Midgley et al., 2012). Given this focus on social interactions, independent thinking and collaborative learning, it is not surprising that the use of social media is becoming popular in the Western education system.

2.5.1 Use of Social Media as a Learning Technology in Western Higher Education

There is growing evidence that the influence of social media in Western higher education is increasing. For instance, Barnes and Lescault (2011) found in their survey of 456 U.S. higher education institutions that all of them use social media in some form, confirming that Western higher education institutions are becoming aware of the importance of social media for student engagement. One of the studies in this area was conducted by Fogg et al. in as early as 2011 and found that students spent much more time on the informal learning environments of social networks like Facebook, interacting with their peers, than they do in formal classrooms interacting with instructors. Another study of 36,950 students from 126 US universities and one Canadian university by Educause Centre for Applied Research (ECAR) also found that 90% of students used social media to support "student centred" learning. This is corroborated by Blaschke (2014) who studied the opinions of both teachers and students in a UK University and found that students use social media to aid in specific learning activities. The study also found that they consider the use of social media as a learning technology to help in constructing new knowledge, understanding course content and supporting their individual learning approaches.

In the context of UK higher education, a study by Dunn (2014) on students of the University of Glasgow suggested that 92% of students use some form of social media to support their learning although undergraduates were much more likely than postgraduates to do so. Conversely, a more recent study by Sutherland et al. (2018) surveyed undergraduate students from a University in Australia and found that while students do use social media to engage with their University and academic communities, students in their later years of study did so much more than first year students. Nevertheless, both the studies acknowledge the role of social media in learning and student engagement.

There have also been studies that show that the use of social media as a learning technology has found support among teachers who use it to aid their own teaching as well as learning among students. A survey by Pearson Learning Solutions also found that 46% of the educators surveyed

in US actively used social media for teaching, with the percentage going up to 80% for those in higher education (Blankenship, 2011). A more recent study by Babson Survey Research Group and Pearson (2013) involving around 8,000 instructors from various fields to understand if they used social media platforms to aid teaching found that 41% of them used social media to make their sessions interesting and interactive. The discrepancies in actual figures notwithstanding, all this suggests that social media has made its way into Western higher education and is becoming popular among both students and teachers.

2.5.2 Attitudes of Western Students and Teachers towards Social Media

Despite the apparent growing influence of social media on Western education, the attitudes of teachers and students towards it is an area that seems to be riddled with conflicting schools of thoughts, with little consensus. On one hand, several studies have reported positive attitudes among teachers and students regarding the use of social media for teaching and learning. For instance, Gomez et al. (2012) conducted a study on college students and found that more than half of them had positive attitudes towards using social media for learning. Similarly, Ophus and Abbitt (2009) found that most university students are open to the idea of using social networking sites like Facebook for learning. Lewis and Nichols (2012) conducted a two year study on college students in US and found that they had positive attitudes towards the use of social media in classroom, and the attitudes improved further with actual experience of social media for learning. This is corroborated by Zgheib and Dabbagh (2013), who conducted a study in West Virginia and revealed that both teachers and students perceived social media as playing key roles in extending learning beyond classroom, familiarizing students with use of new technology, promoting reflective learning and enhancing student learning. Other studies by Hewitt and Forte (2006) and Fischman (2008) also found that students are generally comfortable interacting with lecturers and teachers on social networking sites and some even welcomed regular interactions.

Many researchers present opposing views indicating that the attitudes of teachers and students, particularly students, may not always be completely positive towards the use of social media for teaching and learning or even academic use in general. For instance, Fox and Varadarajan (2011) conducted an experiment on classroom use of Twitter, where students and teachers were asked to tweet during classroom sessions voicing their opinions and asking questions. Based on the

findings, the researchers concluded that although 80% of students felt that it facilitated participation and provided an opportunity for voicing their opinions, around 70% also felt that it was distracting and prevented note taking. On the other hand, Draskovic, Korper and Kilian-Yasin (2017) studied the use of social media for student-teacher interactions and reported that students were quite willing to use social media for interactions while staff members were relatively cautious about it. This was corroborated in a thesis by Abi Mathew (2017) who stated that students had a more positive attitude towards the use of social media, especially if participation was voluntary but instructors were more reluctant. Another study by Buzzetto-More (2015) claimedthat the attitudes towards the educational use of social media sites like Youtube was positive among students but could vary depending on factors like frequency of use and preferred learning styles of students. Yet another study by Westerman, Daniel and Bowman (2016) reported that although students had positive attitudes about social media, they preferred face to face interactions more, and did not prefer to interact with teachers on social media. Overall, there does not seem to be any consensus among academia regarding the attitudes and perceptions of students and teachers towards the use of social media for teaching and learning.

Despite the reservations and opposing viewpoints, there seems to be an increasing acknowledgement regarding the role of social media in teaching and learning, and its undeniable influence. For instance, Acar (2013) report that despite having concerns about privacy and integrity, 80% of instructors in higher education anyway use various social media channels in classrooms. On similar lines, Ophus and Abbitt (2009) found that although students may be concerned about the privacy and distraction caused by social media they are nevertheless open to the idea of using it for learning. Similarly, Madge et al. (2009) and Mendez et al. (2009) report that despite being uncomfortable interacting with instructors on social media platforms, many students are already “friends” with their instructors.

All this suggests that attitudes may not always be compatible with behaviour, and the use of social media is becoming less “optional” and more inevitable in Western education. A more likely and desirable explanation could also be that the attitudes towards social media are changing in a positive way as users are becoming more comfortable with its use, and aware of its benefits and risks. Indeed, Cain and Policastri (2011) conducted a study on the use of Facebook among students of a management and leadership course, and found that 80% of the students joined the Facebook

group. What was interesting was that joining the group was completely optional and did not offer any benefits to students. Despite this, students reported that they welcomed the experience and appreciated the informality of the platform. This indicates the growing acceptance of social media among students in the West.

2.6 Social Media in Saudi Higher Education

Before proceeding to study the use of social media in Saudi higher education, it is important to underpin the differences between Western and Middle-Eastern education systems in general. It has been pointed out by researchers like Gibbons et al. (1994) and Thorton (2014) that in applying any concept, theory or model to a particular academic situation, it is important to customize it to be culturally relevant and in line with the beliefs and values of the students/staff as well as the society at large. Hence, applying western concepts of interactions and collaboration to Middle-Eastern classrooms can be problematic for a number of reasons.

It has been highlighted time and again that unlike Western classrooms Middle Eastern classrooms are "teacher-oriented" and there is little focus or encouragement for learner participation. According to literature, the relationship between teachers and students has always been extremely formal and "strict" in the Middle-Eastern culture (Saudi Arabia, 2011). In such cultures, teachers are meant to be respected and it is neither acceptable nor easy for students to challenge their teachers or voice their opinions. Due to the strict classroom atmosphere, students may not have the opportunity to discuss issues freely with their peers. In a nutshell, educational systems in many Middle-Eastern countries, particularly Saudi Arabia, are said to follow a predominantly "associative" model of pedagogy with teachers playing the role of knowledge dispensers and students acting as mere receivers of knowledge (Alghamdi, 2014). It has also been pointed out that the lecture model of teaching and rote learning are highly common in Middle-Eastern countries like Saudi Arabia (Rugh, 2002).

Lin (2006) further points out that in general, within non-Western countries, the focus seems to be on producing to be working on producing "perfect", "zero-mistakes" students. Lin (2006) also points out that questioning teachers or expressing dissent is often viewed in these classrooms as "rebellion" that must be suppressed or punished. While things are changing in recent times, it is nevertheless evident that several of the principles of teaching and learning accepted and followed

in Western classrooms such as consideration for pupil voice, interactive learning, creativity and emphasis on dialog and questioning may not be applicable in the context of Middle Eastern classrooms.

Researchers have often linked these differences in the education system and practices to the culture of Middle-Eastern countries. There are several cultural theories that can be considered relevant in this context. Key among them are Hofstede's (1980; 2001; 2019) cultural dimensions, Geertz's (1973) interpretations of culture, Benedict's (1989) patterns of culture and Trompenaar's (1998) cultural dimensions. Arguably, the most popular among these is the cross-cultural theory of Hofstede (1980; 2001; 2019), which was originally derived after a study of participants from 72 countries world-wide. One of the main reasons for using this theory for the current research was that Hofstede (2001) has studied the culture of Saudi Arabia through these dimensions and several others have used it to underpin their own related studies.

According to the theory, people often take decisions and view situations through the lens of their culture. Hofstede (2019) summarized this in terms of six cultural dimensions but the ones most often used to describe Middle-Eastern classroom behaviour include the power distance index, uncertainty avoidance index and the individualism vs. collectivism index. The power distance index indicates the extent to which people of a society are comfortable with and accept unequal distributions of power. In countries with high power distance, authority figures have considerably more power and influence compared to their subordinates and the relationship is one of dependency and deference to authority. Middle-Eastern countries are said to score very high on this index indicating that authority figures have high power in such cultures and their word is typically accepted without argument (Hofstede, 2001; Cassell and Blake, 2012; Obeidat et al., 2012). Several researchers have linked the formal and strict classroom atmospheres of Middle-Eastern countries like Saudi Arabia to the high power distance of the culture. For instance, Alabdali (2017) posits that Middle-Eastern students view their instructors as absolute authorities and accept their univocal power. Due to this, they refrain from challenging them and remain highly formal. On similar lines, Fenner and Snyder (2017) claim that in such cultures, both teachers are students are not comfortable being friendly or talking to each other due to the perceived power disparity, and it is expected that the teachers' word is the law.

The uncertainty avoidance index indicates the extent to which members of a society are comfortable with uncertainty and willing to take risks. Cultures that score high on this index tend to have low tolerance for uncertainty and avoid risks. Due to this, they tend to follow rigid rules and structures with little flexibility to minimize the possibility of risks (Hofstede, 2019). Again, Middle-Eastern countries like Saudi Arabia are said to have a high uncertainty avoidance index, which means that they have little tolerance for risks and maintain rigid codes and beliefs (Hofstede, 2001). Alabdali (2017) posits that due to this, the expectations of students are often rigid and any variations in it may lead to confusions. Further, such students are often said to be unused to student-centred learning as they expect teachers to provide them with clear instructions, firm basis for evaluations and all the answers (Alabdali, 2017, Cray, McKay and Mittelman, 2019).

The individualism vs. collectivism index indicates the extent to which members of a society prioritize individual self-interest over the interests of the group as a whole (Hofstede, 2019). In collectivistic societies, members tend to prioritize collective welfare, value loyalty and duty, avoid conflict, and give lot of importance to the idea of "saving face" (Hofstede, 2019; Merkin, 2017). Middle Eastern countries are generally said to be highly collectivistic. Researchers have linked this to the classroom behaviour in such countries stating that students from such culture consider it disruptive to collective welfare to ask questions or challenge the teacher (Kaur and Noman, 2015; Alabdali, 2017). They also consider group harmony to be more important than expressing their own views. Fenner and Snyder (2017) further state that students may also avoid challenging teachers in order to avoid conflicts or confrontations.

While there has been criticism of Hofstede's works by other researchers, particularly for its failure to account for individual variations in behaviour (Smith, Peterson and Schwartz, 2002; Williamson, 2002), contextual factors (Blodgett, Bakir and Rose, 2008) and stereotyping based on over simplistic assumptions (Kanayama and Cooper-Chen, 2005; Ardichvili et al., 2006), it nevertheless stands to reason that cultural differences may play a role in the behaviour and attitudes of students and teachers. Consequently, ideas such as social interactions between teachers and students, student-centred learning, communication and discussions and interactive teaching, all of which are necessary for social learning and are considered normal in Western culture may not always gel well with the culture and practices in Middle-Eastern countries. Forcing it on them might lead to dissatisfaction and disharmony. This may be particularly true for countries like Saudi

Arabia where there is strict enforcement of gender rules and high levels of censorship. The lack of research in this area further adds to the uncertainty. Therefore, the extent to which social media based learning driven by models of connectivism and communities of practice would work in such countries is largely unknown.

2.6.1 Education System in Saudi Arabia

Saudi Arabia is one of the richest and most prominent countries in the Middle-East, and also one that has an extremely high student population. According to Giat (2013), 58% of Saudi Arabian population consists of students. Higher education in Saudi Arabia was formally established in 1957 when the first university – the King Saud University in Riyadh was established (KSU, 2017). Since then, the higher education system in Saudi Arabia has grown by leaps and bounds and today, it has 28 government universities across the country as well as 32 private universities. Official data shows that in 2011 there were a total of 543 colleges and 2,797 departments within these Universities (WENR, 2014). In 2013 there were 1,064,880 undergraduate students at these public universities, and about 100,000 postgraduates (WENR, 2014). The number of total students enrolled at Universities grew from 404,094 in 1999 to 1,116,230 in 2012.

Apart from these students pursuing higher education within the country, the King Abdullah Scholarship Program (KASP) operated by the Ministry of Education (MOE) also sends thousands of students abroad every year for higher education in a variety of academic fields (Saudi bureau, 2016). It is estimated that more than 60,000 Saudi students are studying abroad in USA, more than 14,000 in Canada and around 10,000 in the UK (ICEF Monitor, 2015). Indeed, Higher education plays a key role in the Vision 2030 reform plan which is intended to transform Saudi Arabia into a highly competitive, well developed country with even distribution of income among members of society and on a par with the most economically advanced nations in the world (Vision 2030, 2017). As a part of this strategy, Saudi Arabia spends about 12-13% of the state budget on education, which remains among the highest in the world despite the recent cutbacks due to oil price declines (Kottasova, 2016).

Saudi Arabia is also one of the most technologically advanced countries in the Middle East with high emphasis on the use of technology in education. Many of the key aims for development of higher education in the country are directly or indirectly related to the adoption of new forms of

technology and information systems (Ministry of Economy and Development, 2014). Most Universities in the country use digital technologies and systems for day-to-day operations, and have access to emails, digital collections and advanced library systems.

Despite the technological advancements, Saudi Arabia differs significantly from Western countries like US and UK in terms of the pedagogical models, curriculum and teaching/learning approaches followed. In line with the culture and practices of Middle-Eastern countries, Saudi Arabian classrooms are said to be very formal, strictly regulated, controlled by instructors and rule-oriented (Saudi Arabia, 2011). Alghamdi (2014) points out that within these classrooms, traditional models of teaching where the students play no active role or indulge in creative thinking are common. Other researchers studying the Saudi educational system have made similar observations noting that the current system is based on merely transmitting knowledge from teachers to students in an uncontested manner due to which students get little opportunity for critical thought or analytical skills (Al Lily, 2011; Al-Seghayer, 2011; Alghamdi, 2014). As a result, they tend to rely on rote learning and hence are often criticized of being "passive learners" in the West.

Students in Saudi Arabia also have extremely formal relationships with their teachers and staff, using formal titles to address them and deferring to their authority unequivocally (Saudi Arabia, 2011; Elyas and Basalamah, 2012). Even the teachers and instructors are said to prefer to maintain distance with students and remain authoritative. Alghamdi (2014) argues that due to this, they often tend to impose information that may not even be relevant to the students' lives or experiences. As noted previously, Hofstede (2001) has classified Saudi Arabia as a country with a very high power distance index and hence, these behaviours may be reflective of that.

Rugh (2002) also points out that apart from rote learning and memorization, the Saudi Arabian education system is also limited in allowing creativity and flexibility for teachers or students as it is completely under the centralised control of the government. Due to this, instructors have little control over classroom materials and have to rely on few traditional and government-approved textbooks, and students have to follow them. Indeed, one of the key distinguishing factors of the Saudi Arabian educational curriculum is that it is heavily influenced by religion and controlled by committees. Islam plays a major role in the curriculum (Elyas and Al-Sadi, 2013). In fact,

researchers have often criticized the excessive amount of time and effort involved in the religious aspect of the curriculum in Saudi Arabia (Aarts and Nonneman, 2005; Elyas and Picard, 2010). They consider this as an impediment to creativity, cognitivism and independent thinking.

Alghamdi (2014) argues that there are two other factors that act as impediments to creativity, critical thinking and independent learning in Saudi Arabian education: students' excessive dependence on teachers to provide the "correct" answers; and instilling in students the inability to challenge the teacher. In support of this, Alghamdi (2014) points out that even at graduate and post-graduate levels, students in many Saudi universities do not carry out independent research and are reliant on teachers for guidance and learning. Overall, the associative model of pedagogy supported by lectures, memorization and rote learning are said to be the dominant methods used in Saudi higher education, which in turn leaves little room for social interactions or discussions within classrooms.

The Saudi Arabian classrooms are also significantly different from the West due to the gender segregation practice of the country, which manifests itself within the education system as well. Students in Saudi Arabia are strictly separated by gender, with separate universities and classrooms for male and female students (Saudi Arabia, 2011). Women are bound by guardianship rules for a lot of their daily activities. In fact, Saudi Arabia can be considered different even from other Islamic countries like Dubai and Kuwait in its strict insistence on segregation of genders and banning of gender-mixing. Considering that even the most structured and well-designed use of social media in Universities requires large amounts of social interactions, a certain amount of flexibility and informality, breaking of gender barriers, and independent thinking, these unique aspects of the Saudi Arabian education system could be barriers to the adoption of social media within its higher education institutions.

2.6.2 Social Media as a Learning Technology in Saudi Higher Education

Saudi Arabia is a country where the use of social media in general is said to be very high (Mohammed, 2019). According to the latest statistics provided by Global Media Insight (2019), the number of active social media users in Saudi Arabia is around 23 million. Of these, the majority are users of Youtube (73%), followed by Facebook, Instagram, Twitter, LinkedIn and Pinterest. The statistics further show that users in Saudi Arabia also use social media apps like WhatsApp,

Snapchat and WeChat. The overall social media statistics for the country in 2019 are as shown below in Figure 2.2:

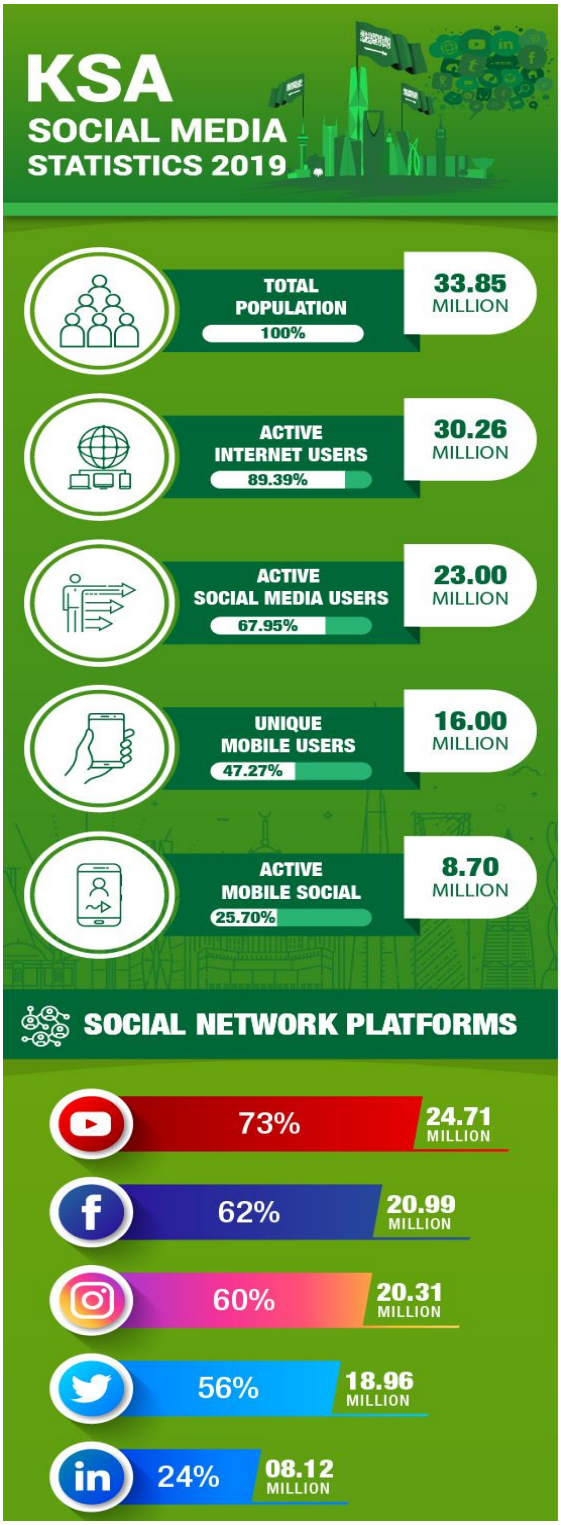

Figure 2.2 Social Media Statistics for Saudi Arabia (Global Media Insights, 2019)

More recent reports indicate that the use of social media has increased even more since then, with the latest statistics released by Communications and Information Technology Commission (CITC) revealing that the use touched 91.7% of the total population in 2018 (Mohammed, 2019). The statistics further reveal that people from the younger generation are the most prolific users of social media in Saudi Arabia, to the extent that some call them addicted (Jaffery, 2018).

Even in the academic context, some studies report high use of social media among students. For instance, a study by Alsuraihi et al. (2016) found that the number of Saudi medical students who use social networks in their education is 87.7%, out of which 93.8% used YouTube and 65.9% used Facebook for educational purposes. 74.4% of the respondents in that study claimed that the teachers have been utilizing social media in their teaching. Another study by Alabdulkareem (2014) similarly found that many college students have started using social media for classroom learning in recent times. Fawareh (2016) conducted a study to explore the willingness of students to use social media as a learning technology, and found them to be willing and participative.

Despite these statistics, the extent of social media use as a learning technology in Saudi higher education remains unknown, mainly due to the lack of targeted research. Studies exist, but these are not comprehensive, as most of them are either discipline, university or social media website specific (in the sense that they focus on one or two specific social media networks or tools), or in the context of non-academic use of social media. In general, there are very few studies that have studied the use of social media as a learning technology within the Saudi Arabian educational context. Although some researchers have studied the relationship between educational practices and culture in higher education (Becher and Trowler, 2001; Umbach, 2007), there is a lack of targeted analysis that connects the use of social media to culture, particularly in the context of Saudi Arabia. Due to this, predicting the extent to which social media could be used as a learning technology in Saudi higher education or the attitudes of teachers and students towards it is quite difficult. The general picture suggests that social media in Saudi educational institutions may not work the same way as it works in Western institutions.

Given the strict nature of educational system in Middle East, it has been pointed out time and again that there is little to no social interaction involved, particularly between genders (Elyas and Basalamah, 2012; Alghamdi, 2014). This gives rise to the assumption that students may not be comfortable interacting with teachers or their peers, particularly if they belong to the opposite

gender even online or on social media. Indeed, researchers point out that students from certain cultures may feel lost when they interact online because they tend to seek the same kind of structure and rules that they have during face to face interaction (Wang, 2007). This may act as an impediment to the use of social media as a learning technology. The success of social media in Saudi Arabian education also becomes questionable considering that social media is typically used to support "student centered" learning. In general, they key advantage of social media is that it is more flexible than typical content systems in supporting student-centred activities such as building communities, building bonds, promoting interactions, supporting collaborative information discovery and sharing content. Alhazmi and Rahamn (2013) argue that social media can support different models of learning like "constructive learning, social learning, real life learning, collaborative learning, interactive learning, and informal learning", none of which are considered to be common in Saudi Arabian classrooms. They also point out that interactions between learners is a significant part of learning through the use of social media. Again, while this can be beneficial in the Western system where social interactions and discussions in classroom are common, its applicability in the Saudi Arabian system remains doubtful given the teacher-centric methods generally followed as well as the assumption that students look to their teachers for all the answers.

It is also likely that the use of social media in Saudi higher education could be hampered due to the strict censorship rules of the culture driven by religious concerns. Mirza and Al-Abdulkareem (2011) report that the Saudi Arabian government is concerned about the negative influence of internet and social media on the religious and moral values of youth, due to which Saudi Arabia remains one of the top internet censoring countries of the world (USA Today, 2014). This is supported by Ezzi, Teal and Izzo (2014) who note that watching Westernized videos may go against the Islamic values of the culture, and hence unpopular as a means of instruction. This suggests that the use of popular social media platforms such as Youtube may not bode well in Saudi Arabian classrooms. Finally, the use of social media as a learning technology may be hampered by the fact that the medium of instruction in Saudi Arabian higher education institutes is typically Arabic, and there are very few media tools developed or targeted at Arabic users specifically.

It must be acknowledged that the above assumptions regarding the use of social media as a learning technology in Saudi Arabia as well as the attitudes and behaviour of Saudi Arabian students with

respect to social media remain speculative at best owing to the lack of targeted research, and the reality may be quite different. It is possible that the virtual and anonymous nature of social media makes it easy for students to participate freely. Indeed, a study by Tubaishat (2008) shows that although female students are reluctant to participate in face-to-face classroom discussions with members of the opposite gender, they are far more comfortable in doing so online. Others like Elyas and Basalamah (2012) also report that the power dynamics that are at play in traditional classrooms may not hold well in online environments. Ezzi, Teal and Izzo (2014) also found in their study of the impact of Islamic culture on behaviour of Saudi Arabian students that the influence of cultural norms is reducing. According to their findings, present-day students in Saudi Arabia consider themselves as part of the "connected generation" and have favourable attitudes towards the use of social media like online videos. Another study by Alabdulkareem (2015) similarly reports that teachers and students in Saudi Arabia today are willing to use social media in education, and they believe it will enhance their educational experiences. While this research was in the context of smartphones, it nevertheless provides indications towards the changing attitudes of students. This is further corroborated by Alqahtani (2016) who claims that present-day students in Saudi Arabia are enthusiastic about the use of technology and social media in education. Given all these assumptions and contradictions, to arrive at any reliable conclusions regarding the use of social media as a learning technology in Saudi Arabian higher education, further research is required.

2.7 Factors Influencing Social Media Usage

From the research so far, it is seen that although the use of social media in Western universities seems to be increasing, there is little consensus regarding its benefits or the attitudes towards it. Also there seem to be several variations in the assumptions regarding the way teachers and students actually use it. While some studies claim that they are very enthusiastic and use it frequently, others claim that many refuse to use it despite seeing the value. For instance, in the study conducted by Ajjan and Hartshorne (2009), it was reported that a vast majority of students acknowledged the value and benefits of social media as a learning technology, yet almost half the participants neither used it for learning nor had any plans to do so. Other studies by Ortega and Aguillo (2012) and Holmberg and Thelwall (2014) have reported that some students who sign up for the sites use it very infrequently whereas others use it very frequently. Similarly among teachers, respondents in

some studies acknowledged the benefits of social media in teaching and learning but their intention to use and actual use was reported to be limited (Ajjan and Hartshorne, 2008). The likely explanation for this is that apart from the perceived benefits or drawbacks, there are other factors that may influence the use of social media as a learning technology. Towards this, several researchers have pointed towards academic discipline and gender as key among the "other" factors that influence social media usage (Thelwall and Kousha, 2014).

2.7.1 Academic Disciplines and Social Media

Several studies have demonstrated that the use of social media by researchers belonging to different disciplines exhibit varying patterns. For instance, Thelwall and Kousha (2014) conducted a study on the use of academic social networking site "academia.edu" and found that it was dominated by students from humanities. On similar lines, Ortega and Aguillo (2012) studied the usage patterns on Google Scholar Citations and found that it was dominated by information scientists. Similar studies by other researchers also indicate skewed results. Haustein et al. (2014) found that scientometricians typically had a very low presence on academic social media sites like Google Scholar Citations and Twitter. Oh and Jeng (2011) studied the usage patterns of researchers and their disciplines on the academic content site "Mendeley" and found that it was dominated by researchers from computer science while the percentage of researchers from arts, literature and law was very low. This is contradicted by Jeng et al. (2012) who found no statistically significant differences between academic disciplines in terms of their intentions to use Mendeley.

Even in terms of actual usage of the sites, Holmberg and Thelwall (2014) found differences based on the academic disciplines of researchers. According to the findings of their study, biologists are much more passive about using the social media even when they have a presence on it. On the other hand, biochemists were found to use Twitter much more frequently than researchers in other disciplines. Variations were found even in terms of the purpose of use. Digital humanity researchers were found to use social media more frequently for conversations whereas economic researchers used it for sharing information and links. The results also suggested that biochemistry, astrophysics and digital humanities' researchers were more likely to use social media sites like Twitter for academic communication whereas those belonging to disciplines like economics and history used it less frequently in the educational context. Differences were also found in the academic usage of social media by instructors in a survey conducted by the Babson Survey

Research Group and Pearson (2013), according to which instructors belonging to mathematics and computer science used social media the least for teaching while those belonging to humanities and arts used it the most.

These differences between the social media usage of students and teachers belonging to different disciplines becomes more relevant in the context of the words of Becher and Trowler (2001) who argue that "the growth in knowledge and the consequent explosive growth in disciplines and their fragmentation into sub-disciplines is probably the most important, but often-overlooked, change affecting HE in recent years". Consequently, any changes in the context of higher education needs a holistic approach where disciplinary differences are taken into account. Research in this area remains extremely limited and most of them are focused on specific sites like "Mendeley". Moreover, there is very little research that explores the subject specifically in the context of non-Western countries, and none that does so for Saudi Arabia.

2.7.2 Gender and Social Media

With significant research on the factors affecting the use of social media, and major developments in the area of women's education, a lot of focus in recent times has also been on understanding the relationship between gender and technology use in general, and social media use in particular. Mishra and Monippally (2014) contends that the way men and women use social media is different simply because the way they communicate is inherently different. This view has found support in several empirical studies.

Mazman (2011) conducted research on the usage purposes of social networks with a focus on the differences between females and males with respect to their use of Facebook and found certain differences. According to the findings, male members typically use social networking sites like Facebook to establish new friendships and relationships while female members use it to maintain existing ones. This is supported by Tüfekçi (2008) who arrived at very similar findings. One of the reasons for this could be that females are generally more concerned with online privacy and security (Mazman, 2011), due to which they are reluctant to communicate with strangers on social media. In fact, Mazman (2011) pointed out that female users tend to hide their identity and personal information online due to privacy concerns, and are reluctant to disclose these to people they do not know well. Bölükbaş and Yıldız (2005) and Fallows (2005) also point out social pressure and

traditional roles enforced on women by society as some of the other reasons for this. This could be particularly relevant for women in extremely conservative societies like Saudi Arabia. Indeed, Palmer (2012) points out that gender roles on social networking sites mirror the expectations of the societies that the users belong to, since such sites are all about communication and there is a reciprocal relationship between language and culture.

While the above studies present interesting insights into the relationship between the use of gender and social media, their implications in the academic context is not clear, given that there are hardly any studies that explore the issue in this context. One of the very few studies in this area was conducted by Gerlich, Browning and Westermann (2010) who actually arrived at findings contradictory to the ones conducted in a non-academic context. The researchers studied the gender differences in social media usage and their implications for education, and found that there was no difference between males and females in terms of social media usage or attitudes towards it. A more recent study by Nisiforou and Laghos (2015) arrived at similar conclusions where the researchers found no statistically significant differences between the usage of social media by male and female participants. The researchers attribute this to old gender gaps being no longer valid at least when it comes to the use of social media as a learning technology.

Given that these go against the findings of several previous studies related to gender differences in social media usage, it presents interesting possibilities. On one hand, as the researchers indicate, traditional gender gaps could be shrinking. On the other hand, it is possible that the behaviour and attitudes towards social media are different when it comes to their use in educational context despite the influences of gender. Regardless, it indicates potential for further use of social media as a learning technology aimed at larger student bodies. Yet again, to arrive at definite conclusions, further research is required, particularly for a gender-segregated society like Saudi Arabia.

2.8 Conclusion

From the review of literature so far, it is clear that the use of social media is becoming increasingly common in Western education. Also, students and teachers in Western universities see its potential as a learning technology to a large extent and either use it or are willing to use it for teaching and learning. This is because social media aligns itself well with the social and collaborative learning practices typical to Western classrooms.

Yet, the potential for the use of social media in Middle Eastern countries like Saudi Arabia remains to be seen, given the lack of research. Within Saudi Arabian classrooms, the environment is said to be strict and formal, with little scope for interaction between students and teachers or even the students themselves. Studies report that the teachers typically follow a lecture based teaching model, and students rely on memorization, rote learning and the knowledge of teachers for their learning. Moreover, the gender segregated classrooms and government censorship may also act as barriers to the use of social media in Saudi Arabian education. There are also indications to the contrary where a few studies have found positive attitudes and a willingness among students to use social media for learning. Consequently, the implications for the use of social media as a learning technology in Saudi higher education are unclear, given the lack of targeted research. As a result of these findings through the review of literature, the next chapter will explore the use of social media as a learning technology specifically in the context of Saudi Arabian higher education, with a focus on the behaviour and attitudes of students, the use of social media by teachers and staff, the role of culture, and the possible influence of factors like gender and academic discipline.

In order to do so, the study will use the principles of connectivism as the theoretical lens. As discussed previously, connectivism emphasizes the concepts of social learning and gaining knowledge through collective intelligence of learning communities. This is easily accomplished through social media. Additionally, to strengthen their communities, enhance their learning and spread or share knowledge, students and teachers are also required to traverse through different learning communities, participating and contributing to each as they go. This again is easily accomplished through social media. Students can gain knowledge by forming and participating in learning communities using social media tools easily available, and spread the knowledge by participating in other communities. Hence, connectivism is often considered useful while studying social-media based teaching and learning.

Accordingly, the principles of connectivism are used as the basis to guide the current research and provide theoretical context to it. Within this context, students belonging to personal social media networks are parts of the learning communities that these networks create, and are bound to each other and to other communities. In other words, the personal networks are informal platforms where students can connect with their peers, teachers and university. When students connect to their networks and start sharing and gaining knowledge, virtual learning communities (VLC) are

formed in a way. Each student may be part of one or more such learning communities and each community may have one or more members. Learning happens when students traverse through the communities, sharing and gaining knowledge in the process. Social media is the tool that facilitates this networking, and helps in the formation of communities.

Wenger's (1998) Communities of Practice (CoP) is also used to provide further theoretical context to the research. This is because online communities of practice are generally manifestations of connectivism as a concept (Boitshwarelo, 2011; Bates, 2014). In fact, Boitshwarelo (2011) argues that the formation of online communities of practice is what enables connectivism to take its course. Accordingly, CoP concepts such as engagement (why), imagination (what) and alignment (how) are used to understand the behaviours and attitudes of participants in terms of their use of social media as a learning technology. Further, the characteristics of CoPs proposed by Wenger such as enterprise, mutuality, and shared repertoire are used to understand what motivates students to engage in social learning, to keep the communities going, and to share knowledge. The role of teachers and University within these communities is also explored as these groups may facilitate or hinder the learning process through their own usage or avoidance of social media, participation in communities, contribution to knowledge and other activities. Overall, the idea is to explore the use of social media as a learning technology within the higher education context by using the theoretical lens of connectivism, communities of practice and the various principles and ideas associated with these.

CHAPTER 3

3.0 RESEARCH METHODOLOGY

3.1 Introduction

The previous chapter introduced the conceptual background of social media usage in general, and the use of social media as a learning technology in higher education in particular. The use of social media in Western higher education and the corresponding attitudes and behaviours of teachers and students towards it were explored. These were then contrasted with the use of social media in Saudi Arabian education, and the differences were highlighted. The chapter also explored studies which predict a relationship between gender and social media usage as well as academic discipline and social media usage. Through the literature review, it was revealed that there are benefits as well as drawbacks to the use of social media in education, and to ensure optimal usage the attitudes and behaviours of users need to be studied in greater depth. It was also discovered that there is a lack of studies in this regard, particularly in the context of higher education in conservative countries like Saudi Arabia.

Drawing from the premise established by these findings, the present chapter will discuss the details of the research methodology used in the study to fulfill the research objectives. It provides the details of the research purpose and expected outcomes, research setting, research design and data gathering methods and data analysis methods. Finally, the chapter highlights the ethical issues of the study that may affect the researcher, participants and the overall research process.

3.2 Methodological Approach

Before finalizing the details of methodology, it is important to identify the researcher's position with respect to the emergence of knowledge and the nature of reality. In other words, it is necessary to reflect on both epistemological and ontological considerations with respect to the research. In general, epistemological considerations are classified into (a) positivism, according to which only knowledge that is gathered by collecting facts, tested using hypotheses and confirmed by senses, is valid and accurate (b) interpretivism, according to which reality can vary depending on the participants' views, positions, researcher's beliefs and circumstances and (c) realism, which is a mixture of the two (Robson, 2011). On the other hand, ontological considerations are classified

into objectivism and constructivism (Robson, 2011). According to objectivism, behaviours and social phenomena are independent of social actors while according to constructivism, they are dependent on, and influenced by the actors experiencing them.

The current research subscribes to the view that behaviours, particularly those that are tied to mutable phenomena like technology, culture and context are neither absolute nor fixed; they are constantly changing and being reshaped according to ideas and understanding of people as well as the meanings attached by them. At the same time, the researcher also believes that it is possible to measure and represent with reasonable certainty the realities behind these to a certain extent by systematically exploring the ideas, perceptions and attitudes of people related to them. This is based on the idea that people generally exhibit recognizable behavioural patterns depending on the interpretations of the world around them and the sense that they attach to the happenings in it. Research attempting to study the inner world of subjects and human behaviour in general must also account for their volatility, complexities, uncertainties and subjective reality. Consequently, such research must probe the differing context and ideas of people to arrive at meaningful conclusions. To this end, the researcher believes that such research must also be guided to an extent by subjective enquiry.

Based on the above premise, the current research adopts the epistemological position of realism by considering reality as a combination of facts and feelings. In other words, while the current research embraces the systematic standardization of research processes and instruments advocated by the positivistic approach, it also acknowledges the need for the exploration of inner world and subjectivity advocated by interpretivism, in order to achieve an accurate representation of the participants' reality. It is because of this reasoning that it was decided to gather first-hand data from Saudi Universities as the researcher believes that it is necessary to systematically measure the facts related to a given context and situation, and also consider subjective aspects of the issue to arrive at true understanding. Further, it was decided to treat students, teachers and administrators as separate groups of participants as the behavioural patterns as well as subjective feelings and attitudes are likely to be different for these groups. To arrive at a holistic understanding of the issue, the researcher believes it necessary to examine the data from these groups separately as well as in unison.

In terms of ontological position, the research adopts the view of constructivism that knowledge is not independent of the learner, and that behaviours are dependent on the perceptions and attitudes of people experiencing them. At the same time, the researcher also acknowledges that subjective perceptions do not always prevent the existence of independent phenomena and it is possible to measure them to some extent independently. To this end, the research adopts a stance of pragmatism in that the research design and methodologies are developed according to the needs of the research in a way best suited to answering the research questions. This position, according to Johnson and Onwuegbuzie (2004, p.17), "offers a practical and outcome-orientated method of inquiry that is based on action and leads" as well as helps the researchers "better answer many of their research questions".

3.2.1 Researcher Reflexivity

In considering the approach for any research, it is important to acknowledge the researcher's own role and position with respect to the research. There are varying opinions regarding the involvement of researcher in research, particularly qualitative. Some like Robson (2011) claim that the familiarity of a researcher with the research topic and their subjective opinions may introduce biases. Others like Maxwell (2005) contend that it may actually be beneficial to planning. Corti et al. (2015) agree that sometimes the prior experiences and subjective opinions of a researcher may be necessary by pointing out three potential areas of benefit of researcher involvement: (1) social qualia (researcher's subjective experience with the topic can lead to improved accuracy), (2) improved mental models of the phenomenon which may stimulate new research questions and (3) an enhanced ability to be reflective about the given topic.

Regardless of one's own belief in this regard, the impact of researcher's involvement on qualitative research cannot be denied. Acknowledging this impact becomes more pertinent in cases such as the present study, where not only is the topic of personal interest to the researcher, but the researcher herself used to be a student in one of target Universities and hence is quite familiar with the education system of Saudi Arabia as well as the practices of the University.

In such scenarios, when a researcher has a personal familiarity with the topic of the study and/or shares experiences of the participants of the study, several measures are recommended for harvesting the benefits of the familiarity or experiences while minimising the negative effects, key

among them the process of reflexivity (Gouldner, 1971; Berger, 2013; Dowling, 2006). Gouldner (1971, p.16) defines reflexivity as the "analytic attention to the researcher's role in qualitative research". It is essentially a process of introspection on the role that subjectivity plays in a research. Researchers recognize and examine their own characteristics, background, location, values and assumptions, and reflect on how these aspects might affect their research (Hesse-Biber, 2007). They also examine the changes to their own values and assumptions brought about by the research, and further reflect on how these changes impact the research (Palaganas et al., 2017). Hence reflexivity is a constant, continuous and ongoing process throughout the research.

In case of the current research, it is posited that the personal interest, background and experience of the researcher would add value to the research by allowing the researcher to understand participant views adequately, and allowing participants to open up to the researcher with ease. Also, to mitigate any possible disadvantages and biases that may be introduced due to the researchers' familiarity and experiences, the research adopts a flexible design with a triangulation strategy to cross-verify findings. Despite all this, the role of reflexivity, particularly during the qualitative phase of the study cannot be overlooked. It cannot realistically be assumed that the researcher would remain completely neutral and detached during the process, or that her own experiences would have no influence on the participants. Hence, an active, reflexive process is essential to ensure the credibility and validity of findings.

In trying to remain reflexive, van der Riet (2012) recommends that researchers must remain aware of their own behaviours and actions at all times throughout the research. She also posits that they should be careful not to make the research findings seem more positive than they really are. To achieve this, several researchers recommend processes such as maintaining introspective journals, peer critiques or supervised reflexivity (van der Riet, 2012; Patnaik, 2013; Palaganas et al., 2017). The current researcher will follow the approach of maintaining introspective journals and documentations throughout the research. The choice is based on the fact that the process of exploring self is an intense and lengthy process, and attempting to involve others in it would require a lot of additional time and effort. Given that the research is only partly qualitative in nature, the researcher feels that maintaining introspective journals would suffice to achieve sufficient levels of reflexivity. It is also the approach followed by others like Patnaik (2013) and

Palaganas et al. (2017). The journals would provide an open narrative on the following types of reflexivities:

a. **Personal reflexivity**: According to Patnaik (2013), personal or introspective reflexivity involves an introspection of the self by the researcher in order to understand how his/her own experiences might influence the research. It is an active and sincere attempt by the researcher to recognise how their experiences might lead to biases and bracket those biases in order to prevent or minimise their influence on the research process. Palaganas et al. (2017) call this "personal reflexivity" and further recommend that the researchers should also note how the process has transformed their own views professionally and personally. Reay (2007) agrees to this stating that the researcher should give a complete and honest account of the research process as possible, particularly in analysing their own position in relation to the research. As per these recommendations, the researcher of the current research has spent time noting her own ideas, thoughts and interpretations of the participants' words and actions before, during and after data gathering in order to reflect if these might be creating biases or influencing the findings. This is in line with the three stage "bracketing" approach recommended by Dowling (2006) that allows researchers to deal with their own attitudes and biases at various stages of the research. Accordingly, the researcher made note of personal insights, pre-existing knowledge and experiences in order to be able to monitor opportunities for personal biases, suspend them and focus on the participants' lived experiences fully.
b. **Methodological reflexivity**: Apart from personal reflexivity, several researchers like Rogers et al. (2005) and Dowling (2006) recommend maintaining records of methodological reflexivities. This helps to ensure that standard processes and procedures have been followed during the course of the research, and also to identify the ethical, social and other considerations that may be governing the research. Accordingly, the researcher of the current study maintained reflections of the methodological decisions of the research and monitored the ideas and assumptions behind them. This helped in identifying the reasoning behind these decisions, ironing out any issues, maximizing the benefits of the researcher's own position and generally strengthening the research rigour.
c. **Epistemological reflexivity**: Apart from reflecting on personal engagement with the research topic and the methodological decisions, it is also important to reflect on the

epistemological foundations of the research. In doing so, the researcher explores how the research questions have framed or limited the area of enquiry, the ways in which the enquiry could have been conducted differently and how those different methods might have led to a different understanding of the phenomenon (Dowling, 2006; Patnaik, 2013; Palaganas et al., 2017). This reflexivity is particularly important in the context of the current research since there are many conflicting ideas and a poor understanding of Saudi culture. The researcher therefore made a sincere attempt to constantly reflect on the theoretical approaches and perspectives related to the research. She reflected and recorded the assumptions about knowledge that were made during the course of the research, the implications of those assumptions on the findings and the potential alternate understandings of reality that might have emerged. She also discussed them at times with her supervisors to get their feedback.

3.3 Research Purpose, Objectives and Questions

The main aim of the current research is to investigate the behaviour and attitudes of higher education students in Saudi Arabia towards the use of social media as a learning technology, and the factors that may impact the use. In order to do so, the thesis addresses three central objectives revolving around understanding:

(a) the snapshot in time of social media as learning technology in higher education in Saudi Arabia

(b) the behaviours and attitudes of students towards the use of social media as a learning technology in higher education, and the factors that impact them and

(c) the implications of using social media as a learning technology in Saudi Arabian higher education.

These objectives are then addressed by focusing on individual elements through the research questions. The research questions developed to fulfil the objectives and the expected outcomes are outlined below:

Research Question 1: How are academics/teachers in higher education institutions in Saudi Arabia using social media in teaching and in their interaction with students?

It is expected that answering this question will provide details on the various social media websites, tools and apps used by teachers in the selected Universities, the frequency of their usage, the reasons behind the usage (or non-usage), the ways in which they are being used to support teaching and learning, and their perceived benefits and drawbacks. The findings of this question are expected to contribute towards the fulfilment of the first objective, which is to understand the snapshot of social media at the current point time as a learning technology in higher education in Saudi Arabia.

Research Question 2: How are higher education institutions in Saudi Arabia using social media?

It is expected that answering this question will provide details on the various social media websites, tools and apps used and supported by the selected Universities, the purposes behind the usage, the social media policies of the universities, the reasons behind the selected universities using or not using social media and their goals behind the same. The findings of this question are expected to contribute towards the fulfilment of the first objective, which is to understand the snapshot in time of social media as learning technology in higher education in Saudi Arabia.

Research Question 3: Are there any differences in the attitudes of students and staff with respect to the use of social media as a learning technology?

It is expected that answering this question will provide details on the differences or gaps in the ways teachers differ in their usage of and attitudes towards social media in education from students. This will highlight factors that may be important to students but are being overlooked by teachers. It will also show if there are any factors responsible for these gaps, which in turn may shed light on ways to bridge the gaps. The findings of this question are expected to contribute towards the fulfilment of the first objective, which is to understand the snapshot in time of social media as learning technology in higher education in Saudi Arabia. It is also expected to contribute towards the fulfilment of the third objective, which is to understand the implications of using social media as a learning technology in Saudi Arabian higher education, and the issues that need to be addressed with regards to the same.

Research Question 4: How are higher education students in Saudi Arabia using social media as a learning technology?

It is expected that this question will provide details on the various social media websites, tools and apps used by students in the selected Universities, the purposes of usage, the frequency of usage, the reasons behind the usage (or non-usage), the perceived benefits and drawbacks, and their overall views regarding the use of social media as learning technologies. The findings of this question are expected to contribute towards the fulfilment of the second objective, which is explore the overall behaviours and attitudes of students towards the use of social media as a learning technology in Saudi higher education.

Research Question 5: Does the academic discipline of higher education students in Saudi Arabia have an impact on their behaviour and attitudes towards social media as a learning technology?

It is expected that answering this question will provide details on the way students from different academic disciplines in the selected Universities use social media to support their studies, the differences in usage if any and the reasons behind the differences. The findings of this question are expected to contribute towards the fulfilment of the second objective, which is understand the overall behaviours and attitudes of students towards the use of social media as a learning technology in higher education and the factors that may be impacting them.

Research Question 6: Does the gender of higher education students in Saudi Arabia have an impact on their behaviour and attitudes towards social media as a learning technology?

It is expected that answering this question will provide details on the way male and female students in the selected Universities use social media to support their studies, the differences in usage if any and the reasons behind the differences. Further, given that Saudi Arabia is a conservative and gender-segregated society, this question is expected to shed light on cultural issues that may be playing a role in the use of social media. Overall, the findings of this question are expected to contribute towards the fulfilment of the second objective, which is to understand the overall behaviours and attitudes of students towards the use of social media as a learning technology in higher education and the factors that may be impacting them.

Research Question 7: How do the existing and intended usage patterns of social media by institutions, teachers and students in Saudi Arabia bode for the future of social media as a learning technology in Saudi Arabian higher education?

It is expected that this question will provide details on the way social media is being used currently as a learning technology by students, and the ways in which this is being supported or hindered by teachers and Universities. This in turn is expected to contribute towards the fulfilment of the third objective, which is to understand the implications of using social media in Saudi Arabian higher education in order to develop best practices for implementing social media as a learning technology in Saudi Arabia.

The above objectives and questions together guide the two-phase data gathering consisting of a dominant quantitative element followed by a secondary qualitative element. The quantitative element comprises of multiple anonymous online questionnaire-based surveys aimed at three different group of participants i.e students, teachers and administrators of the chosen universities. The aim of the quantitative strand is to provide a general overview of how social media is being used by the different categories of users to support teaching and learning activities in Saudi Arabian higher education. The results of the quantitative data gathered thus are presented in chapter 4. The aim of the qualitative strand is to understand the issue in further detail by having in-depth conversations with selected participants of the survey. The results of the qualitative data gathered thus are presented in chapter 5. Further details regarding the various elements of the two strands of data gathering are presented in the forthcoming sections.

3.4 Research Setting

This section will provide the setting and context for the current research by providing an overview of the chosen Universities for data gathering, the use of social media within them and a justification for the choice of the Universities.

3.4.1 Chosen Universities

The present study is focused on three out of Saudi Arabia's 28 public Universities: King Saud University (henceforth referred to as KSU), Princess Nourah bint Abdul Rahman University (henceforth referred to as PNBAU) and Imam Muhammad ibn Saud Islamic University (henceforth referred to as IMISIU). The reasons behind choosing three Universities are multifold. Firstly, according to various studies, online surveys are typically said to have lower response rates than paper surveys, varying between 20% and 45% (Nulty, 2008). Hence, to obtain a sufficiently large dataset that would allow for generalisations, it was considered necessary to approach

participants from multiple universities. Secondly, these chosen universities have branches in various cities of Saudi Arabia which will help not only to maximize the number of participants but also to avoid any location-specific biases such as access to technology and speed of internet among others. Thirdly, by choosing different universities it is hoped that the data gathered would be free from biases that may arise due to university-specific factors, given that different universities may have different levels of social media integration, which in turn may affect the behaviours and attitudes of students. Finally, all three selected universities are major public Universities in Saudi Arabia, quite reputed, large and conglomerate, offering academic courses in a variety of disciplines. Above all, the Universities also have a visible social media presence and studies have pointed out in different contexts that the students of these Universities do use social media (Al-Husain and Hammo, 2015; AI Kutbi, 2015; Al Ateeq et al., 2016; Alshahrani and Ally, 2016). Hence, overall it is hoped that these Universities can serve as representations of typical large, diverse, technologically advanced and social media –enabled Universities in Saudi Arabia.

KSU: King Saud University, founded in 1957, is the oldest and the second largest university in Saudi Arabia (KSU, 2017). Despite having departments for both males and females, this university has slightly less enrolled students than the Princess Nourah bint Abdul Rahman University, though it has the largest campus. It has more than 5,000 employees, 24 colleges and 18 libraries. The number of students was estimated at 55,000 as of March 2015. It was ranked among the best 300 universities in the world in 2011, standing at No. 261, a feat never before achieved by any Middle-Eastern university (Shanghai ranking, 2011).

PNBAU: The Princess Nourah bint Abdul Rahman University is a public university for females established in the capital city in 1970 (Princess Nourah bint Abdul Rahman University, 2016). Originally founded as a college, it was the very first higher educational institution for Saudi women. As of 2013, the university had more than 52,000 students and 3,767 academic staff. Today, it is the largest university for women in the world, with more than 60,000 students attending more than 100 member colleges (Almansour and Kempner, 2016).

IMISIU: The Imam Muhammad ibn Saud Islamic University, also known as Al-Emam University was founded in 1953 as an Islamic education college and is the oldest higher education institution in Riyadh, predating all universities. It was granted University status in 1974 (IMAMU, 2016). It has 24,000 students and 1,300 staff members. Although the number of students is lesser in this

University compared to the other two Universities, it was chosen because it is comparable to the other two in terms of the courses offered, range of academic disciplines and the technological infrastructure. Today, besides Islamic studies, it also has departments for various social science fields including law, Arabic language and media studies. There are a total of 11 colleges belonging to the University.

Social Media Profile of the Selected Universities:

Given that the current research intends to explore the use of social media as a learning technology at an institutional level, it is important to identify the current position of the Universities with respect to their use of social media. In other words, it can be assumed that the level of engagement of the Universities with their students on social media reflects their attitudes about the use of social media to some extent. To this end, the profiles of the Universities on various social media sites and apps can stand as a cipher for their engagement and attitudes towards social media usage.

All the three Universities maintain profiles on popular social media platforms such as Twitter, Facebook and LinkedIn. However, the use of social media within the Universities as a teaching and learning technology remains largely unknown. Most of the visible social media activities of the Universities are centered on student outreach and marketing activities. There is little to no information on the use of social media within the classrooms by students and teachers of the Universities or its use as a learning technology, confirming the need for the current research. The generic social media statistics of the Universities as on 1st January 2017 is presented below in Table 3.1:

Table 3.1 Social Media Statistics of Selected Universities

	(KSU)	(PNBAU)	(IMISIU)
Twitter	29,500 tweets, 221,000 followers. Member of Twitter since 2009	8,007 tweets, 893,000 followers. Member of Twitter since 2013. Fairly active daily tweets	1,442 tweets and 104,000 followers. Member of Twitter since 2014 and tweeting almost every day
Linkedin	60,273 followers	7,430 followers	4,760 followers with regular posts and weekly activity
Facebook	205,185 "likes" and 208,992 followers, 810 reviews, average rating is 4.2/5. The University is active on Facebook, making posts every working day.	4,343 followers	16,000 followers.
Instagram	24,838 followers, 575 photos.	17,600 followers, 616 photos	Unknown
YouTube	Members since 2011, 1,132 subscribers, 416 videos.	Unknown	Unknown

3.5 Chosen Research Methodology

The researcher hopes to generalise the results generated by the present study to the larger student population, and this needs some form of representative sampling within the framework of a quantitative methodology. A quantitative methodology will also prove useful in providing a sense of direction and context to participants. It will also allow to generalise the results to some extent to other Universities in Saudi Arabia by yielding to statistical testing. Hence, a quantitative element

was considered necessary. The study also aims to fully explore the behaviours and attitudes of participants, in this new and under-researched field of social media in higher education. Additionally, it is hoped that the snapshot of social media at the current point in time as a learning technology in higher education in Saudi Arabia can be explored in depth by talking to teachers and administrators from the selected universities who have the relevant background and experience. This can only be accomplished through a qualitative element.

Hence, the combined strengths of quantitative as well as qualitative methods are required to answer the research questions meaningfully. Indeed, in situations where one method may not be sufficient to answer all the research questions, researchers often suggest using both quantitative and qualitative methods to ensure that answering the research questions takes priority over theoretical considerations (Saunders, Thornhill and Lewis, 2009). Hence, a mixed-method research approach was considered appropriate to answer the research questions in the most effective manner.

There are different ways to combine methods in research. The combination of quantitative and qualitative methods was chosen as it was believed that this combination would provide the best way to answer all the research questions while yielding sufficiently generalisable results at the same time. The choice of the research objectives and questions, and consequently the methodology was also driven by the researcher's position regarding the nature of the topic. The researcher believes that although social phenomena like culture and human behaviour are subjective, it is possible to arrive at reasonably valid and generalisable conclusions regarding these phenomena by combining multiple methods. This is indeed the stance taken by several researchers including Webb et al. (1966) who argue that "once a proposition has been confirmed by two or more independent measurement processes, the uncertainty of its interpretation is greatly reduced". Hence, the researcher believes that by combining different methods, the research objectives would be fulfilled in the most appropriate, reliable and objective manner.

The use of mixed-methods in social research has been supported by many other researchers due to its purported advantages. According to Denzin (1978), the mixed-method research helps in increasing the validity and reliability of results as the errors of one method do not overwhelmingly influence the observations or results of the overall research. Similarly, Bryman (2008) notes that the use of mixed-methods research implies that the results of a particular type of method can be strengthened or validated by cross-checking against the results of another type of method. This is

supported by Creswell and Clark (2007) who point out that methodological triangulation can help to combine the strengths of quantitative methods such as large sample size, identification of trends and result generalisation with the strengths of qualitative methods such as details and depth.

There have been several advocates for the use of mixed-method approach in social research in particular as well. Chaumba (2013) opines that the complexity of social problems often makes the use of mixed-methods essential as the use of such methods helps to leverage the strength and minimize the weaknesses of individual methods in themselves. This is corroborated by Patton et al. (2018) who posit that rigorous and holistic ways are often required to study the challenges and complexities of social phenomena and human behaviour, and both quantitative and qualitative methods are often useful in these regards.

Hopson and Steiker (2008) posit that the use of mixed-methods research allows generalisation of findings with specific and measurable outcomes while also accounting for the subjective aspects present in social research. Cowger and Menon (2001) propose three key advantages of using mixed-methods in social research: the increased validity of results due to the use of multiple methods, the opportunity to leverage the strengths of individual methods and above all, the "congruence" with the general principles of social work to understand things from a holistic point of view. Others like Johnson and Christensen (2007), Watkins and Gioia (2015) and Hansen et al. (2016) have similarly advocated the use of mixed-methods research in social work to enhance the validity and usefulness of findings.

Above all, there is a growing body of evidence that indicates the usefulness of mixed methods in social research in practice. For instance, a study by Antle and Collins (2009) explored the experiences and perspectives of a breast cancer support group using a combination of survey and interview questionnaires, and came up with measurable outcomes related to recovery and functioning indices. In addition, they also came up with explanations regarding perceived social support and obstacles to recovery thus providing a holistic view of the situation. Another recent study by Lane et al. (2020) explored the attitudes of African American women towards birth control using a mixed mode methodology consisting of quantitative and qualitative elements. Through this, the researchers presented measurable data regarding the use of birth control, as well as explanations of attitudes to help in the provision of culturally responsive reproductive services.

The use of mixed-methods is also seen in studies related to information behaviour, the use of technology and learning. Al-Moumen, Morris, and Maynard (2012) conducted a research that explored the information-seeking behaviour of graduate students at a Kuwait University using a mixed-method research consisting of surveys, semi structured interviews and online interviews. Through this, they confirmed the impact of internal and external factors on information seeking behaviour in the Middle-Eastern context. Similarly, a study by Jamali and Asadi (2010) explored the information seeking behaviour of scientists, and the role that google plays in their behaviour using mixed-method research consisting of surveys and semi-structured interviews. Through this methodology they found measurable data as well subjective explanations for the changing trends in information seeking behaviour.

In the context of teaching and learning, Chan et al. (2009) conducted a research regarding the the amalgamation of nursing and social work to support patients better. Through the use of a mixed-method approach consisting of surveys and interviews, they identified measurable ratings of the learning approaches as well as the students' perceptions regarding learning. Based on these, they provided recommendations for a holistic approach that goes beyong a single profession to provide better patient care. In another social study related to learning, Alqahtani (2011) explored the language-related needs of Saudi Arabian students studying in British Universities, and the impact of culture on the problems faced by them. Through the use of mixed-method research consisting of survey questionnaires, interviews and observation techniques, the researchers successfully examined the unique and specific nature of barriers faced by Saudi Arabian students in UK, and also the role of culture in creating the barriers. Given that the current study too deals with the Saudi Arabian context and the role of culture within it, this is particularly relevant.

Other studies by Butler (2006) and Abel and Campbell (2009) have similarly used the mixed-methods approach in the context of teaching and learning to measure learning outcomes as well as student perceptions. All these confirm the usefulness of mixed-methods in the study of behavioural areas where both objective assessment as well as subjective interpretation might be necessary. They also deal with social research in the field of technology and learning, which is also the focus of the current study.

Finally, Watkins and Gioia (2015) have also pointed out that the use of mixed-methods in social research has been gaining momentum steadily even at a conference level, with more and more

studies using this methodology appearing in the Society for Social Work Research (SSWR) conferences over the years. This further confirms the usefulness of mixed-methods in social research, thus validating the choice of a mixed method approach.

The chosen mixed method strategy for the current research has two distinct data gathering phases to accommodate the quantitative and qualitative strands. The first phase includes the quantitative strand, which is the main or dominant strand, and the second phase includes the qualitative strand, which plays a secondary or supporting role, in line with the "sequential explanatory design" (Creswell, 2009). The design can be visualized as below in Figure 3.1:

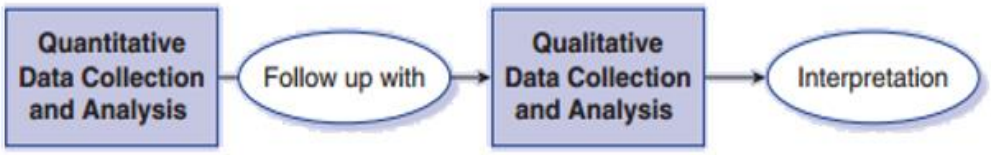

Figure 3.1 Sequential Explanatory Design (Creswell, 2009, p.69)

In the present study, the above model is implemented by administering a quantitative online survey to students, teachers and administrators from the selected Universities. This process is followed by qualitative interviews with selected participants from all the three groups to understand the issues in further depth.

3.6 Research Design

Based on the above premise of using a sequential explanatory mixed methodology, the study employs a four-phase sequential research design. The four phases of the design include: preliminary activities, data collection, data analysis and interpretation of findings. The below Figure 3.2 depicts the various elements of these phases:

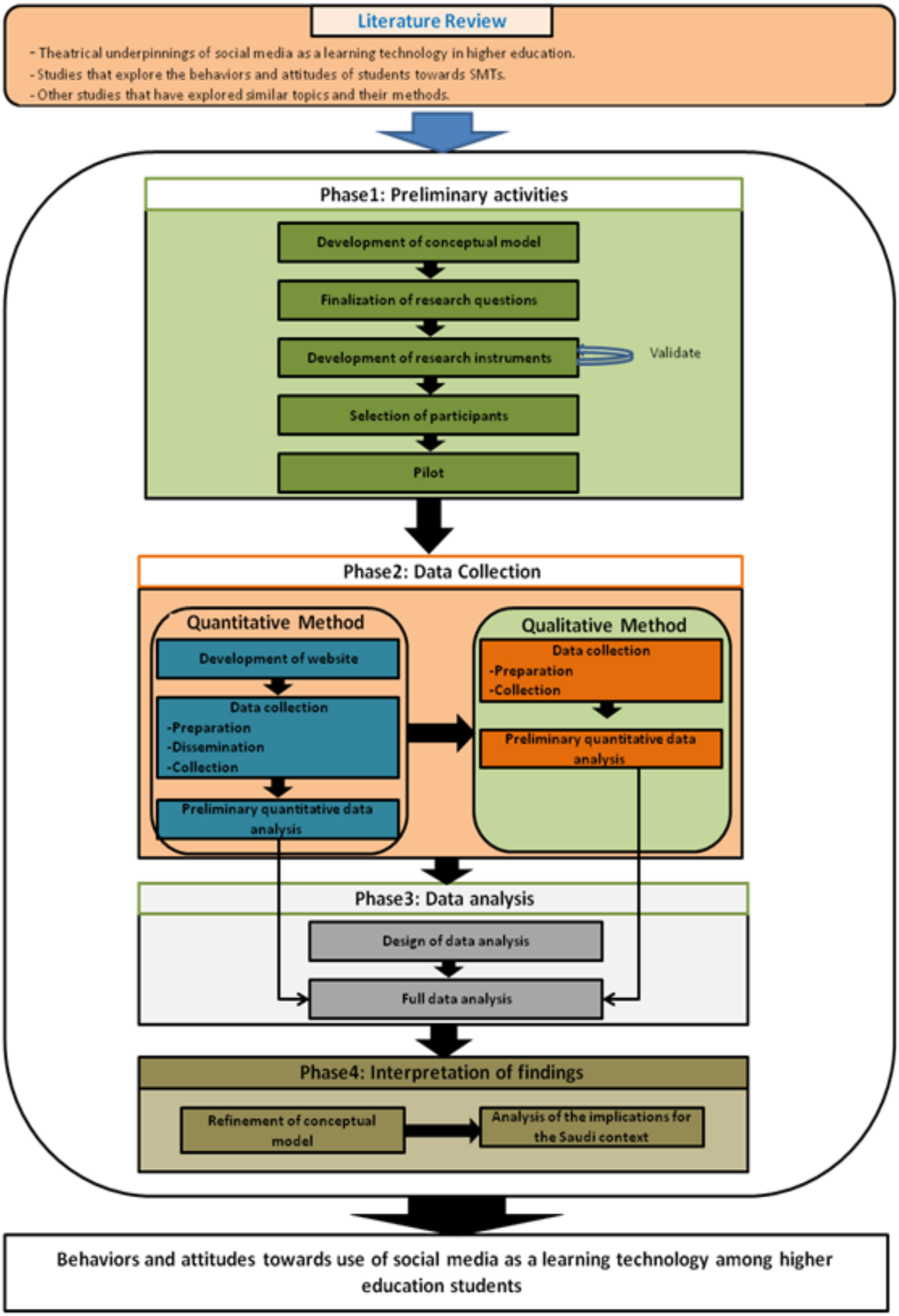

Figure 3.2 Research Design

3.6.1 Phase 1 - Preliminary Activities

The preliminary activities comprise mainly of the pre-data collection activities, which inform the data collection, analysis and interpretation of findings in the later phases. This phase consists of three key activities: development of a conceptual model, finalization of research questions, development of research instruments, and selection of participants. Each of these are explained in further detail in the next few sections.

3.6.1.1 Development of Conceptual Model

The sequential explanatory design typically follows a theoretical lens, which guides the process and procedures of the study, informs the research direction and questions, and helps to implement the instruments of the study. Accordingly, the current study conforms to the theoretical lens in the form of a conceptual model that is mainly based on the principles of connectivism proposed by Siemens (2005) and the concepts and characteristics of Communities of Practice (CoP) proposed by Wenger's (1998).

Within this theoretical framework, it is visualized that as per the principles of connectivism, the personal social media networks of students play a key role in their learning by connecting them to learning communities, enabling them to traverse through these communities, while allowing social interactions, exchange of knowledge, understanding and mutual support. For instance, a student requiring information on a particular topic may post it on his own Facebook or Twitter page. His peers who see it may redirect him to other pages, sources or communities. Others who are in the networks may also see the post due to the tagging concept, and comment on the student's page recommending other communities. The principles of connectivism provide the theoretical context through which this entire process can be understood. Further, the ideas of engagement, imagination and alignment related to CoPs can shed light on how students interact with and within the communities during the process to enable their own learning. The characteristics of CoPs such as enterprise, mutuality, and shared repertoire are thus considered relevant to understand how the communities based on social media aid learning.

It is also visualized that the teachers and the Universities play a role in the process by participating in (or avoiding) these communities. The teachers can engage, contribute, share resources and monitor the learning processes in the communities. The Universities provide technical support and

infrastructure, enable or disable access to specific websites, apps or features, assist users and design social media policies. They may also control funding, training and other resources for social media usage within the institutes. Additionally, both teachers and administrators may consider the feedback of students within the communities and act on it. All these may facilitate the learning process of students through the use of social media or create barriers for it. Hence, the principles of connectivism and CoPs are also relevant to understand the behaviours, attitudes and overall roles of teachers and Universities in learning.

Based on the above premise, the principles, concepts and ideas of connectivism and CoPs are mapped to the research questions in order to answer them successfully. The mapping between the principles and concepts, and the research questions form the conceptual model of the research as shown below in Figure 3.3:

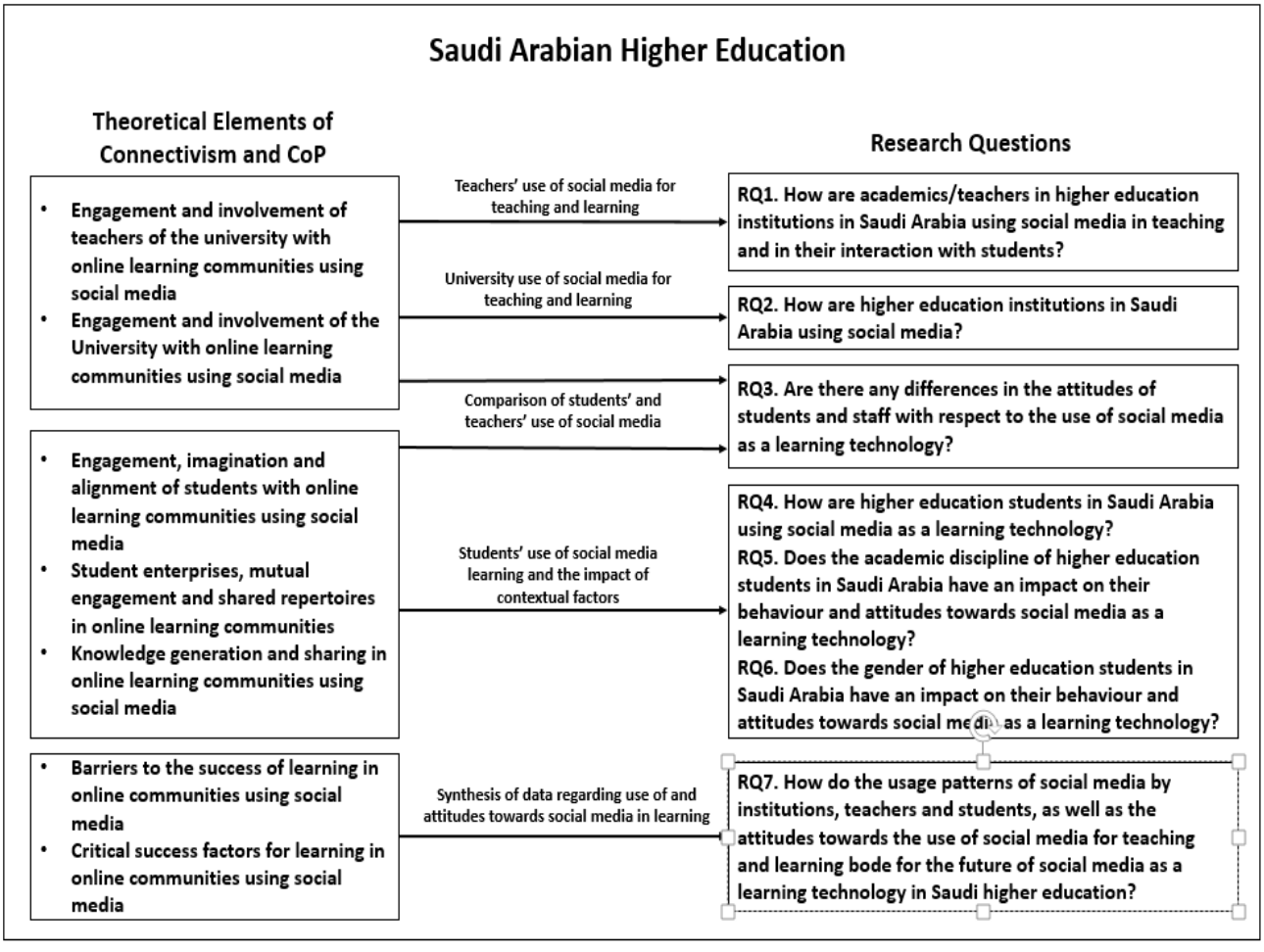

Figure 3.3 Conceptual Model

The research instruments are also developed with the principles and concepts in mind, and explore the behaviours and attitudes of students accordingly.

3.6.1.2 Development of Research Instruments

The main purpose behind the design of the conceptual model was to create a theoretical guide that provides the direction for the research methodology. Once this was accomplished, the research questions were developed and attempts were made to choose the most suitable methods and instruments for answering each research question individually. First, it was determined whether each question would be answered more meaningfully using a quantitative approach or a qualitative approach. Then, the various methods within the approach were explored for potential advantages and drawbacks to arrive at the most suitable method. Based on this, the instruments were finalized as below in Table 3.2:

Table 3.2 Design of Research Instruments

Research Question	Methods/Instruments
Research Question 1: How are academics/teachers in higher education institutions in Saudi Arabia using social media in teaching and in their interaction with students?	• Quantitative survey of teachers • Qualitative interview of teachers
Research Question 2: How are higher education institutions in Saudi Arabia using social media?	• Quantitative survey of administrators • Qualitative interview of administrators
Research Question 3: Are there any differences in the attitudes of students and staff with respect to the use of social media as a learning technology?	• Collation of data from quantitative survey and qualitative interviews of students and teachers
Research Question 4: How are higher education students in Saudi Arabia using social media as a learning technology? **Research Question 5:** Does the academic discipline of higher education students in Saudi Arabia have an impact on their behaviour and attitudes towards social media as a learning technology? **Research Question 6:** Does the gender of higher education students in Saudi Arabia have an impact on their behaviour and attitudes towards social media as a learning technology?	• Quantitative survey of students • Qualitative interview of students
Research Question 7: How do the existing and intended usage patterns of social media by institutions, teachers and students in Saudi Arabia bode for the future of social media as a learning technology in Saudi Arabian higher education?	• Collation of data from all other questions

The reason behind the choice of surveys as the quantitative instruments is that surveys can provide a lot of data about participants in a limited amount of time (Mitchell and Jolley, 2012). With the advent of computers and internet, online surveys are becoming increasingly common and popular, which further increases their reach and decreases the time spent on gathering data (Bailey, 2008). They also offer the ability to simplify complex questionnaires by making the system skip to the next relevant question based on participants' previous choices. Additionally, data gathered through online surveys is much easier to collate and store compared to paper or telephonic surveys. It is also easier to recognize invalid or duplicate responses in case of online surveys (Bailey, 2008). Online surveys also eliminate any biases due to the presence of researcher as they are self-completed by participants without researcher interference. Based on this premise, self-administered online surveys were chosen as the appropriate quantitative instrument for the study. Questionnaires were accordingly designed targeting various groups of participants in the selected institutes. Based on a pilot round (the details of which are discussed in the forthcoming sections), the questionnaires were further refined and finalized, and are available in Appendix B, D and F for teachers, administrators and students respectively.

In order to gather qualitative data to supplement the quantitative data, semi-structured interviews were chosen as appropriate instruments. This is because when it comes to gathering qualitative data, interviews are often claimed as the best methods to serve the purpose (Morreale, 2010). Bogner, Littig and Menz (2009) outline several advantages of interviews that make them a popular choice to gather expert opinions. They point out that interviews provide a more concentrated, efficient and faster way of data gathering compared to other methods such as observations. They also point out that interviews reduce the practical difficulties related to access and privacy, and allow the researcher to gather a large quantity of good quality data within a relatively short duration. Due to these advantages, interviews were chosen as the qualitative data gathering instruments and accordingly semi-structured interview guides were developed to guide the process. The main reason behind choosing semi-structured interviews as opposed to fully structured or unstructured interviews is that semi-structured interviews allow the researcher to focus on the topic at hand without compromising on the flexibility of qualitative data gathering (Cohen and Crabtree, 2006). Researchers can ask pre-determined questions that focus on the topic at hand but are free to modify the order or wordings of questions and/or add or remove questions based on context and need. According to Cohen and Crabtree (2006), this combination of focus

and flexibility is extremely important when researchers may not get more than one chance to interview the participants. Hence, semi-structured interviews were deemed most appropriate. The interview guides were refined and modified until they were deemed suitable for actual data-gathering phase. The interview guides are available in Appendix C, E and G for teachers, administrators and students respectively.

An alternative to interviews would have been focus group discussions, which essentially are interactive discussions with a focus on a specific issue with a pre-determined group of people (Hennick, 2013). The use of focus group discussions is quite popular in social research mainly because they produce fairly accurate findings within a short timeframe and reasonable costs (Krueger and Casey, 2000). Given the interactive nature of such discussions, they also help to uncover a wide range of experiences and participant perspectives. One of the main advantages of using focus group discussions for the current research would have been that they would have encouraged enabled participants to share their views with each other, thereby providing more effective data for comparing and constrasting the differences in attitudes between male and female students, younger and older students and other groups, all within a single sitting.

Despite these advantages, the use of focus groups was considered inappropriate for the current research due to several reasons. Key among them was the fact that it would have been nearly impossible to get male and female students in Saudi Arabia to participate in a discussion together given the strict gender segregation rules of the country. In addition, it would have also been difficult to get the participants together for a discussion at a common place and time given the diversity of their academic and personal backgrounds, and even their physical locations. Further, it was also considered likely that the participants would not have felt comfortable sharing their issues in a group setting, since the collectivistic culture of the country emphasizes “saving face” (Hofstede, 2019; Merkin, 2017).

Indeed, Krueger and Casey (2000) point out that focus group discussions may work in some settings but not in others. They posit that trust among participants and lack of social pressure is necessary to yield a good focus group discussion. This was considered unlikely to be achieved with the participants of the current study given that many of them would not even know each other. Indeed, during the process of interviews, some participants asked and were reassured about the confidentiality and anonymity of their data, both of which are not possible to maintain in focus

group discussions as pointed out by Sim and Waterfield (2019). It would have also been difficult to create appropriate expectations of the discussion among the participants, given the unpredictability of the directions such discussions may take. Considering all these issues, it was decided to use one-on-one interviews to gather the qualitative data.

3.6.1.3 Selection of Participants

After the research objectives, questions and instruments were finalized, the next step was to select suitable participants for the study. Based on the objectives and questions, it was deemed necessary to include three distinct group of participants for the current study namely students, teachers and administrators belonging to the three selected universities.

As discussed in the previous sections, it was decided to recruit participants from three key universities in Saudi Arabia – KSU, PNBAU and IMISIU. Accordingly, for the survey of students, participants were recruited from these three Universities. The participants are male and female, and belong to a variety of academic disciplines. This is important as the study intends to explore the impact of academic discipline and gender on the students' use of social media.

While a random sampling approach would be the best technique to arrive at results that are generalisable to a wider population (Tashakkori and Teddlie, 2003), in the present scenario, it would be extremely challenging to arrive at a truly "random" sample of participants. The researcher does not have access to a master list of email addresses of students, teachers, and administrators belonging to the three universities from which participants can be drawn randomly, and the universities are naturally unwilling to share personal information of participants. In fact, Wright (2006) points out that random sampling is generally a problematic technique as far as online surveys are concerned due to factors like a participant having multiple email addresses, multiple responses from same participants, invalid or inactive email addresses and other issues. While researchers can use methods such as requiring participants to enter unique codes assigned to them in order to access the survey, such measures can drastically reduce the response rates, particularly in surveys where the participants have no substantial incentives to undergo extra steps. Given these limitations, a non-random sampling technique consisting of a combination of convenience and purposive sampling was chosen for the recruitment of students for the survey.

The initial sample for the survey was drawn through a purposive sampling of students from the selected universities. Purposive sampling is a method in which the researcher uses a particular set of criterion or purpose to select participants for the research (Tashakkori and Teddlie, 2003). The criteria for selection in the current scenario is that the participants should belong to one of the three selected Universities, and should be higher education students. Within the boundaries of this criteria, participants were recruited through various methods such as email requests and social media requests facilitated by the deans/ coordinating personnel of the selected Universities. In order to administer the survey, a website has been developed, and the URL for the website was included in these requests to enable ease of access. Once the requisite number of responses were received, the survey was closed.

While the non-random sampling techniques adopted may reduce the validity and generalisability of data, efforts are made to overcome this as far as possible by comparing and analysing the demographic information of the respondents with the underlying population characteristics. In particular, information such as age, gender and academic discipline of participants are collected during the survey and analysed in detail. This helps to identify the limitations of the findings in terms of any imbalances in demographic characteristics. Also, the deviations, if any, can be addressed to an extent by selecting a uniform mix of participants purposively for the follow-up interviews. After the survey data was gathered, the demographic profiles were taken into account to choose a further purposive sample of students for the interviews. In other words, a uniform mix of participants from different demographic profiles and academic backgrounds was chosen for interviews in order to arrive at balances results.

A similar approach is adopted for the recruitment of teachers and administrators as well. The teachers and administrators are recruited from the three selected Universities. After obtaining suitable permissions, the survey invitation and accompanying emails were circulated among the teachers and administrators of the Universities by the deans/coordinating personnel of the Universities. Once the survey data gathering was completed, a smaller sub-sample of participants was drawn from those who participated in the survey based on their profiles and willingness to engage in further interviews. The interview data gathered thus was used to supplement as well as complement the findings of the surveys.

Before commencing the participant selection, it was necessary to obtain the requisite approval from the selected Universities. Towards this, the following documents were sent to them:

- A letter from supervisors to confirm the importance of conducting this study.
- A letter from the Saudi Cultural Attaché to each university asking them to facilitate conducting the study.
- A covering letter from the researcher to the Deanship of Graduate Studies and Scientific Research of the selected Saudi Universities.
- The relevant questionnaires in Arabic and English.

After receiving and validating the above documents, the Deanship of Graduate Studies and Scientific Research in the selected Saudi Universities gave their permission to the researcher to conduct the study within the Universities.

3.6.1.4 Pilot

After obtaining the requisite approvals and designing the research instruments, a pilot study was conducted among 51 students belonging to the three selected Universities as well 10 teachers and 5 administrators each. The idea behind the pilot was to build a general background towards conducting the research meaningfully as well as ensure the validity and appropriateness of the chosen instruments. The pilot was also considered necessary to preempt any issues with respect to the administrative procedures, availability of participants and suitability of instruments. The details of the pilot study including the source of instruments, the design of instruments, evaluation of instruments, translation of instruments, selection of pilot participants and data collection are presented in this section.

Source of Instruments: Prior to designing the instruments, it was necessary to finalise the structure of the instruments as well as the questions that would be included in each instrument. Towards this, a search was conducted to identify instruments that have been used so far in similar studies and inspiration was drawn from them. Searches were made in research databases such as EBSCO and NAEP as well as other sources like MindGarden to find what has been used in similar studies. Based on these searches, several studies using similar methodologies and sufficiently close to the current study were identified as sources of inspiration. For instance, Alwagait, Shahzad and Alim (2014) conducted a study on the impact of social media as a learning tool on the academic

performance of higher education students in Jordan through a survey of students. The survey asked students about their social media usage, the most popular social media among them, and their perceptions regarding its positive and negative impact on their academic performance.

Another study by Jahan and Ahmed (2012) similarly explored the perceptions and attitudes of students towards the academic use of social media using a quantitative survey. The survey asked participants about their social media usage, their opinions regarding academic use of social media, and their perceptions regarding the same as an academic tool. The purpose of both studies is similar to that of the current study in that they try to explore the attitudes of Saudi students towards the use of social media. Hence, several questions from the surveys (such as usage patterns, participation in academic usage of social media, positive/ negative perceptions regarding the same etc) were identified as relevant for the current study.

The instruments of a research thesis by Hussein (2013) was also identified as relevant for the current study. This thesis aimed to analyse the potential of social computing tools in enhancing collaboration among students in the Gulf States and in solving some of the problems faced by Gulf Universities. It used a mixed methodology including surveys and interviews of students and staff to fulfil the aims. Again, since the aims and the proposed methodology of this thesis are similar to that of the current study to some extent, several parts of the quantitative instrument (such as usage patterns, perceived benefits and drawbacks of academic usage of social computing, concerns regarding use of social computing, and perceived impact of the same) and qualitative instrument (in-depth perceptions regarding use of social computing tools, potential of social computing tools as learning technologies) used in it were identified as relevant for the current study.

Another study that was identified as a source of inspiration for the qualitative instrument was by Al Lily (2013), who researched the extent to which social fabric shapes the use of technologies in Saudi education system. This study used a “naturalistic enquiry” approach including observations and semi-structured interviews to study the views of staff members in a Saudi University. To this end, Al Lily (2013) probed participants about their emotions, feelings, experiences and behaviour regarding the use of technologies at their University. The purpose of the study is similar to the current study in that both attempt to understand the use of technology in education in the context of social settings. Also, the study explored the ways in which social fabric affected male and female instructors in their use of technology, indicating the mediating role of gender, which is also being

considered in the context of the current study. Hence, the questions and themes used by Al Lily (2013) were taken as sources of inspiration for the design of qualitative instruments for the present study. Finally, studies analysed during the literature review were revisited to check for the suitability of instruments used in them.

While it is acceptable and even recommended to look at other studies and instruments while finalizing the methodological details of a study, according to Mertens (2005), such details are often context-specific and must therefore be used with caution. Accordingly, an analysis of these criteria was undertaken and it was determined that while the aforementioned studies provided a wealth of information, they were different from the current study in certain aspects. For instance, the study by Alwagait, Shahzad and Alim (2014) study was about the perceptions of students only with respect to the specific issue of academic performance. The study by Jahan and Ahmed (2012) was aimed at students in Bangladesh, which is quite different from Saudi Arabia in terms of culture and educational system. Hussein's (2013) thesis was about the potential or projected use of social computing tools and not current use of social media. Al Lily's (2013) study was about the use of technologies in general within a social context and not the use of social media specifically.

Given the differences, it was deemed that while these studies provided valuable inspiration, the instruments used in them could not be used without changes in the context of the current study. In such cases, Mertens (2005) recommends drawing inspiration from existing resources but adapting them according to the needs of the study. Accordingly, common questions regarding the participants' demographics, their general and academic usage of social media, the popularity of various social media, concerns regarding their usage and the participants' perceptions regarding their usage were retained from the previous instruments. To this, it was decided to use additional questions focusing on the use of social media as learning technologies, their use and concerns specific to the Saudi context (such as impact of gender segregation), and the potential impact of gender/discipline on their use. These were then tallied with the conceptual model as well as the objectives of the research to design the final version of the pilot instruments customised for the current study.

Design of Instruments: As indicated in the previous section, the instruments for the study were designed based on existing studies dealing with similar topics and instruments, the conceptual model of the current study as well as the objectives of the research. Separate survey questionnaires

and interview guides were developed for students, teachers and administrators as detailed in the previous sections. The survey questionnaires were almost completely multiple-choice with closed-ended responses except a couple of questions with yes/no responses. According to Hakikur (2007) and Jolliffe, Forsyth and Stevens (2013), multiple-choice questions provide simple, unambiguous and effective means of collecting objective data and yield easily to scientific analysis.

In designing the survey questionnaires, three main principles were taken into account: minimizing biases to the extent possible, ensuring appropriateness and minimizing costs as recommended by Kitchenham and Pfleeger (2002). In order to minimize biases, care was taken to ensure that questions and responses were clear and not influenced by the researcher's own views regarding the topic. In order to ensure appropriateness, it was ensured that the questions and responses were as minimally complex as possible without compromising the quality of data. It was also ensured that the statements are neutral and inoffensive. In terms of cost-effectiveness, it was ensured that the design and development of the questionnaires were completed within the allocated time, and that they were not unnecessarily time-consuming for the participants.

In designing the interview guides, key principles of good interviews such as focus on research objectives, use of exploratory and explanatory questions, neutrality and logical order of questions/prompts were followed as per the recommendations of Davies and Hughes (2014). The questions were non-standardised and designed by the researcher based on the conceptual model and the objectives of the research. The questions were all open-ended and intended to be used only as a rough guide to direct the process. The guides were divided into several relevant sections in order to keep the conversations clear, concise and focused.

Evaluation of Instruments: After completing the questionnaires and before translating them to Arabic, the English questionnaires had to be evaluated to make sure they were clear, concise, understandable and answerable. Several researchers like Kitchenham and Pfleeger (2002) and Saris and Gallhofer (2007) argue that the evaluation of the questionnaire is an important part of the research process as they allow researchers to ensure that the contents are unbiased, appropriate, reliable and effective. They also allow early identification and correction of potential confusions, conflicts, ambiguities and other issues.

In order to evaluate the questionnaires, the help of a group of participants as well as two experts was enlisted. The participants included three students and a teacher and an administrator each, recruited from the researcher's personal pool of contacts. Each participant was provided with a copy of the questionnaire to read as well as an evaluation form available in Appendix H. The evaluation form asked participants about the clarity and ease of understanding of the questionnaire, their comfort with the questions and their opinions about the design of the questionnaires. The participants provided a few comments in response. The comments were mostly related to the length of the questionnaires (some participants felt it was too long), the scales used to measure the responses (the original questionnaires had multiple-choice responses to some questions that the participants felt were tedious) and the wordings of some questions. These comments were analysed and addressed, and the questionnaires were refined and updated.

The questionnaires were also presented to two experts from KSU, who agreed to look at them and provide suggestions for improvement. Some of the suggestions derived through this activity included changes to wordings, ranking systems, inclusion of the "other" option, removal of unnecessary or repeated questions and reducing the length of questionnaires. Changes were accordingly made to the questionnaires. Last but not the least, the questionnaires were also presented to the researcher's own supervisors and their suggestions and feedback were incorporated accordingly to arrive at fine-tuned versions of questionnaires.

Translation of Instruments: After finalizing the questionnaires, they were translated into Arabic. The idea behind this was to ensure that participants have a better chance of understanding the questions, and thereby increasing the number of participants. Given that Saudi Arabia is a predominantly Arabic-speaking country, with Arabic typically being the medium of instruction even in higher education institutes, it was considered necessary to translate the questionnaires for all groups of participants into Arabic. The participants were given the option to select the English or the Arabic version depending on their language of preference.

In order to translate the questionnaire, an Arabic staff member from the Department of Arabic Language at Prince Nourah University was requested to help. The faculty member and the researcher translated the questionnaires simultaneously and the two versions were compared. Any differences or anomalies were ironed out after further discussions. Then the questionnaires were sent to an additional 3 Arab language staff members from different Universities, who further

recommended corrections and changes on the translated versions. Based on their comments, the questionnaires were further refined. The questionnaires were then retranslated back to English using Google translate tool and any issues were rectified. While there were slight differences in the retranslated version, the researcher and the staff members all agreed that the differences were minimal and the essence of the questions and responses remained intact. The overall process helped in producing an accurate Arabic version of the questionnaires.

Selecting Pilot Participants: The target population for the student pilot study included 51 male and female students belonging to the three selected Universities in Saudi Arabia studying in different disciplines. The participants were chosen from the researcher's pool of contacts as the main goal was to determine the feasibility of the study and the suitability of instruments rather than generating accurate or generalisable results. Hence, to speed up the process, participants were chosen using a non-random convenience sampling technique by emailing the personal and professional contacts of the researcher as well as contacting them on social media platforms such as Whatsapp and Facebook. Nevertheless, care was taken to contact students belonging to the selected universities, and studying in different disciplines to ensure that the sample set is as close to the intended participant groups as possible.

The participants of the teacher and administrator surveys included 10 teachers and 5 administrators. Again, the participants belonged to the researcher's personal pool of contacts and agreed to take part in the pilot as a favour. It was considered impractical to attempt to recruit more participants for the teacher and administrator surveys as both groups are likely to be busy and unwilling to participate in the same process twice.

Pilot data collection: The pilot data collection was conducted over a period of three weeks. Requests were sent to participants over email, Whatsapp and Facebook. Overall, the researcher requested participation from around 100 contacts by sending them the survey invite, of which 58 students responded. After analysing the responses from the surveys, one participant from each of the selected Universities was chosen for a further round of interviews. The interviews were conducted face to face or by telephone depending on the availability, schedule and convenience of the participants. For the teacher and administrator pilots, the researcher contacted her personal contacts from the Universities over telephone, and all of them agreed to help. The survey link was

forwarded to them over email. After obtaining their response, 2 teachers and 1 administrator were contacted for the follow-up interviews.

Findings of the Pilot Surveys and Interviews: The key objective behind the pilot study was to gauge the suitability of the instruments and process for obtaining the requisite data rather than generating any actual results or findings. To this end, the pilots were successful in generating several important insights into the methodology and processes. With respect to the survey, all the participants answered almost all the questions, indicating that the questionnaire is understandable and not too lengthy. A couple of questions that most participants had skipped were identified and either eliminated or changed based on the feedback of participants. Further, based on the analysis of findings, some of the questions were thought to be repetitive and hence eliminated or clubbed with other questions to make the questionnaire more concise. Further, based on the responses, some of the social media websites, apps and tools that none of the participants claimed to use were removed from the list of options. A few additional questions were added to the interview guides based on survey responses that were deemed to require further investigation. These areas were explored during the interviews and confirmed that the interview guides are poised well to address them. The interviews also confirmed that the guides are designed to fulfil the research objectives, and changes were made to the guides as deemed necessary based on the interview responses. These yielded the final, fine-tuned versions of the survey and interview instruments.

3.6.2 Phase 2 – Data Collection

After the first phase of preliminary activities, the second phase of the research design includes the actual data collection. This is organized into two distinct stages as per the tenets of the sequential explanatory design. The first stage includes the quantitative data gathering through the surveys and the second stage includes the qualitative data gathering through the interviews.

3.6.2.1 Quantitative Data Collection

The quantitative data collection entails administration of anonymous, online surveys to all three groups of participants namely students, academics and administrators. As indicated previously, the questionnaires were developed in English and translated to Arabic, and participants were given the choice of taking the survey in whichever language they choose.

Given that the number of target participants was huge, sending information sheets and consent forms through email and obtaining digital consent was considered impractical and inefficient. As an alternative, a website was developed to administer the quantitative surveys. The information sheets and consent forms were made available on the website for participants' perusal and participants indicate consent by clicking a button on the website. This provides a faster and much more efficient way of handling the digital data.

The website was developed using wordpress with HTML, and is accessible at: https://falgharni.wordpress.com/. It provides options for participants to indicate their consent, and take the surveys in either English or Arabic. The actual surveys are hosted on Qualtrics and the website redirects the participants to it. The full details and screenshots of the website are available in Appendix I.

The quantitative data was gathered by sending the website link to students, academics and administrators from the three Universities: KSU, PNBAU and IMISIU. The emails containing the website link were sent by the Dean/coordinating personnel of the Universities to the participants from various departments. The initial target of respondents for the surveys was to be around 500 students, around 100 teachers and 30 administrators from Universities. Around two months were allocated for quantitative data collection. At the end of the process, the data in Qualtrics was subjected to some preliminary analysis to get an idea of the trends and patterns. Based on these, some minor changes were made to the interview guides again before commencing the qualitative data collection.

3.6.2.2 Qualitative Data Collection

The qualitative data collection entailed semi-structured interview conducted with the three groups of participants selected as a sub-set of the survey participants. The participants were recruited for the interviews based on several criteria: their demographic profiles, the nature of their responses and their willingness to participate in the interviews. All these were deemed through their survey responses. Once a sufficient number of participants representing a range of these criteria and are willing to be interviewed were identified, the process of interviews commenced.

At the end of the survey, participants who were willing to help with further interviews were asked to provide their email and/or phone numbers, and were contacted using those details accordingly.

Appointments were set for face-to-face or telephonic interviews at a date, time and location of the participants' convenience. The concept of data saturation was followed in that interviews were continued up to a point where the researcher felt that no further insights can be gleaned through additional interviews (Richards, 2009).

The interviews were directed by the semi-structured interview guides developed for the three participant groups. The rough structure and timings identified in the guide were followed in order to keep the discussion focused. However, the researcher ensured that the discussion progressed freely and that participants had adequate opportunities to present their views. The interviews were conducted in English or Arabic depending on the participants' choice. The informed consent form was again presented to the participants, and their approval obtained for audio-recording the interviews for future use. The recordings were then done using the password-protected mobile phone and laptop of the researcher. The interviews were conducted over a period of two months.

3.6.3 Phase 3 - Data Analysis

The third phase of research includes the analysis of qualitative and quantitative data, which is divided into two distinct stages: the design of data analysis plan and the actual analysis. In the design stage, a detailed plan for the analysis of data collected is developed. This includes analysis of quantitative data as well as qualitative data. The analysis stage includes the actual analysis of the data as well as presentation of findings. The two stages are necessary to turn the unordered set of data into orderly and comprehensive information and findings effectively.

3.6.3.1 Design of Quantitative Data Analysis Plan

According to Simpson (2015), having a clear data analysis plan is very important in order to guide the process of the actual analysis from start to end. In other words, the data analysis plan serves as a roadmap for the actual analysis and helps to answer the research questions in the best possible way. Accordingly, data analysis plans were developed for both quantitative and qualitative data analysis.

For quantitative data, the analysis is done using the statistical software SPSS. According to Macfie and Nufrio (2006), no other quantitative methods of analysis bring as much precision and control to the process as statistical methods do. They clarify main tendencies, patterns and variations in

data with high levels of accuracy. Moreover, statistical tests are the only way to draw accurate inferences from the sample that can be generalised to the underlying population.

The quantitative data analysis plan does not follow any particular template. Rather, it is customised according to the needs of the current research and is based on recommendations of researchers like Simpson (2015), Pallant (2016) and Jablonski and Guagliardo (2016), as well as the rules and restrictions of the statistical software SPSS version 25. The plan is divided into six steps. The first step involves preparation of the codebook, the second step involves determining the nature of the variables in terms of whether they are dependent or independent, the third step involves defining the rules for preparation of the data file, the fourth step involves mapping the variables defined in the first two steps to the research questions, the fifth step of the plan involves determining the statistical tests that need to be conducted on these variables in order to answer the research questions. The sixth and final step involves planning the schedule for all the analysis activities. The first three steps are outlined in further detail in Appendix J. The last three steps are outlined below.

Mapping Variables to Research Questions: The third step involves identifying the variables needed to answer each research question of the study from the above data set and mapping them to the corresponding questions. Doing so helps in identifying the necessary statistical tests that need to be conducted on those variables, and ensuring that the research questions are answered to the extent possible. Accordingly, the mapping between the variables and the research questions of the study is provided below:

1. Research question 1 seeks to investigate the use of social media by teachers in Saudi higher education institutes. The quantitative aspect of this question would need an investigation of the academic usage, frequency, the reasons behind the usage (or non-usage), and the perceived benefits and drawbacks of social media among teachers in the selected universities. Additionally, it would also need details of the social media usage and social media policy of the Universities, which would be covered in the administrator surveys.
2. Research question 2 seeks to investigate the use of social media by Universities in Saudi Arabia. The quantitative aspect of this question would focus on the use of social media by the selected Universities, their social media policy, their reasons behind establishing a

social media presence, their potential social media target users, their intentions behind use of social media, frequency of social media updates and concerns about social media usage. All these aspects are covered in the administrator surveys. Further, three variables from the teachers' survey namely their University's support for social media usage, their University's social media policy and limitations for social media usage within their University would also be investigated to answer this question.

3. Research question 3 seeks to understand the differences in the usage patterns and attitudes of students and staff. The quantitative aspect of this would need a comparative investigation of the usage patterns, frequency, types of social media used and the differences in perceptions with respect to benefits and drawbacks.
4. Research question 4 seeks to investigate the usage of social media by students in Saudi higher education institutes. The quantitative aspect of this would need an investigation of the academic usage, frequency, the reasons behind the usage (or non-usage), and the perceived benefits and drawbacks of social media among the students in the selected universities.
5. Research question 5 is regarding the impact of gender on social media usage. The quantitative aspect would deal with the self-reported perceptions of students and teachers regarding the influence of their gender on their social media usage, as well as the relationship between gender and various aspects of their social media usage.
6. Research question 6 is regarding the impact of academic discipline on social media usage. The quantitative aspect would deal with the self-reported perceptions of students and teachers regarding the influence of their academic discipline on their social media usage, as well as the relationship between academic discipline and various aspects of their social media usage.
7. Research question 7 seeks to identify the future of social media in Saudi higher education institutions. This would be an exploratory analysis based on results of previous questions.

Determining the Statistical Tests: The next step in the preparation of the quantitative data analysis plan is to determine the statistical tests that need to be run on the variables in order to answer the research questions. Based on the work done in the previous section and the findings expected from the analysis, several tests have been identified for each research question. In order to determine the tests, the dependent variables have been tested to check if they have a normal

distribution or not by looking at the frequencies. Given that dependent variables for students dataset were considered to be a normal distribution, it was decided to use parametric tests for students. The dependent variables for teacher and administrator datasets were found to have a non-normal distribution, and it was therefore decided to use non-parametric tests for teachers and administrators.

Based on the discussion so far, the overall mapping of research questions to variables and tests can be visualised as below in Figure 3.4:

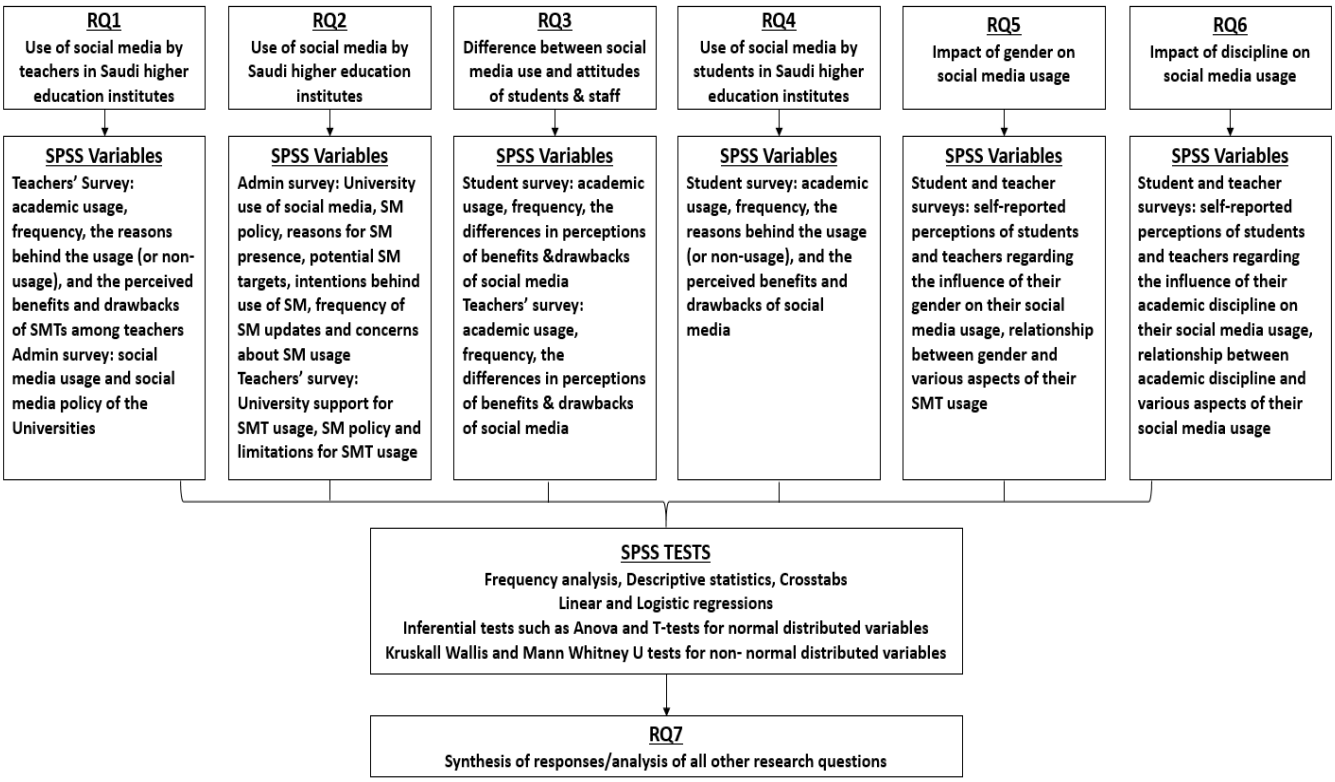

Figure 3.4 Mapping between Research Questions, Variables and SPSS Tests

Sequence of Activities for Quantitative Analysis: The final step in designing the data analysis plan is to estimate the sequence of various activities of data analysis. This is necessary to ensure that the activities are completed on schedule, and to identify and correct any overruns on time. It was therefore planned that the data analysis activities would be completed in the below order:

- Analysis of student data
- Analysis of teachers' data

- Analysis of administrators' data
- Cumulative analysis and identification of key points
- Refining of interview guides based on analysis

3.6.3.2 Design of Qualitative Data Analysis Plan

While quantitative data is more easily manageable, qualitative data analysis needs a more thorough and profound design in order for it to be complementary with the design of quantitative data (Creswell, 2009). While this type of data lacks the statistical approach of quantitative data, it allows the researchers to explore the topic subjectively and in-depth. One of the most popular and commonly used qualitative analysis technique is thematic analysis. According to Braun and Clarke (2006, p.5), "thematic analysis provides a flexible and useful research tool, which can potentially provide a rich and detailed, yet complex account of data". Given its flexibility and theoretical freedom, it can be an ideal analysis tool to supplement and complement the findings of quantitative data analysis. Moreover, the literature covering the problem is scarce, owing to the fact that social media is a relatively new field and hence not much research has been done before in the area. For such cases, Hsieh and Shannon (2005) recommend a conventional thematic approach to qualitative analysis.

The analysis plan for qualitative data includes four steps, again customised according to the needs of the current research, and the recommendations of researchers like Braun and Clarke (2006) and Fereday and Muir-Cochrane (2006). The first step involves transcribing and organizing the data, the second step involves identification of codes from the raw data, the third step involves consolidation of codes into categories and themes, and the fourth step involves planning the timelines for the analysis. During the process, the research questions and the results of the quantitative analysis were repeatedly consulted in order to determine if sufficient qualitative data had been gathered to answer the questions raised during the quantitative analysis as well as the overall research questions. Based on this, the first three steps were repeated in a cyclical manner and interview participants contacted for further clarifications as needed. Further details about the first three steps are provided in Appendix J.

Sequence of Activities for Qualitative Analysis: The last step in the qualitative data analysis plan was to finalise the sequence of various activities of the analysis. Again, this is necessary to

ensure that the activities are completed on schedule, and to identify and correct any overruns on time. It was therefore planned that the data analysis activities would be completed in the below order:

- Analysis of student interviews
- Analysis of teachers' interviews
- Analysis of administrators' interviews
- Cumulative analysis and identification of key points

3.6.3.3 Actual Data Analysis

The actual data analysis was conducted after the data analysis plan was in place. For quantitative data analysis, data collected from the online anonymous surveys was downloaded from the Qualtrics site. Then, the Arabic data was translated back to English and all the data was merged together to create a single dataset. The two versions were not expected to cause any clashes or issues in translating as all the questions are multiple-choice and can be identified by their response numbers. Hence, the translation of responses was a straight-forward process except for cases where the participants chose the "others" option, in which case the same process of translation and validation would be used as the one used for the translation of questionnaires. The data was then organized into tables defined by data properties and institution/university of the students to enable easy comparisons later on. Then, the process of quantitative data analysis followed the plan outlined in the previous section. The actual details of the quantitative analysis as well as the interpretation of findings are discussed in Chapter 4.

For qualitative data, the process of analysis began with the transcription of pre-recorded audio data of interviews into written notes. This was accomplished through a series of steps.

- Transcribe the English interview data into verbatim notes using a software like Microsoft OneNote or word
- Transcribe the Arabic interview data into verbatim notes using a software like Microsoft OneNote or word
- Make any pronunciation or grammar corrections if needed

- Review the notes with participants to ensure that there are no misunderstandings or assumptions on part of the researcher
- Translate Arabic text into English following the same process of translation and verification as the one for questionnaire translation
- Identify and organize the data corpus
- Conduct the thematic analysis as per plan

The entire process was conducted in a cyclical manner with codes and themes being revisited and revised as new findings emerge, until a satisfactory thematic relationship diagram i.e. a visual representation of the themes and the relations between them emerges. Then the quantitative and qualitative findings were linked to each other, and to the overall aim. The actual details of the qualitative analysis as well as the interpretation of findings are discussed in chapter 4.

3.7 Validity and Reliability of Instruments

In any given research, to ensure the validity and reliability of results, the first step is to ensure that the instruments used to gather the data are valid and reliable. Heale and Twycross (2015, p.66) define validity in quantitative research as "the extent to which a concept is accurately measured" while reliability is defined as "the extent to which a research instrument consistently has the same results if it is used in the same situation on repeated occasions". Some of the measures used for ensuring validity of instruments in the current research are as follows:

- **Face validity**: In case of the current research, the researcher used the help of her supervisors as well as 3 additional subject experts to validate the questionnaire for face validity. She also enlisted the help of an Arabic staff member from the Department of Arabic Language at Prince Nourah University to ensure that the English and Arabic versions of the questionnaire measure the same concepts.
- **Content validity**: To achieve this, the researcher enlisted the help of supervisors, 3 additional subject experts and an Arabic language expert. The experts made suggestions to improve the content validity of the questionnaire and also advised the researcher on which questions to be included or removed from the final version.
- **Convergent validity**: In case of the current research, surveys and interviews are used in triangulation to arrive at the final results.

- **External validity**: Achieving this depends to a large extent on the accurate representation of the population in the sample dataset, and then applying statistical tests to obtain generalisability. Attempts were made during the actual data gathering to obtain a representative sample. Whenever an imbalance in any demographic characteristics was detected, attempts were made to balance it to the extent possible.

Apart from validity, it is also important to ensure that the research instruments are reliable or in other words, consistently measure what they are supposed to measure. The purpose of reliability tests is to ensure that the instruments yield the same results under repeated trials (Andrew, Pedersen and McEvoy, 2011). The following measures were used to ensure the reliability of the instruments:

- **Internal consistency reliability**: The original version of the survey questionnaires were subjected to the Cronbach alpha test to measure their internal consistency. During the process, it was discovered that several questions were not suitable for the test. Most of the questions were multiple-choice, and since Cronbach's alpha is used to measure scale consistency, it could not be applied to those questions. For the questions that had Likert scale responses, the test was applied after gathering the pilot results, and the internal consistency was found to be high.

  For the remaining questions, it was decided to refine and revamp the questionnaires to make it more suitable for Cronbach's alpha tests. This was shown to the supervisors and a statistical expert to make sure that the instrument is suitable for the test. Further Cronbach's alpha tests are conducted on the modified questionnaire after a sufficient number of responses are gathered in the next phase.
- **Test-Retest reliability**: Further, attempts were also made to measure the reliability of instruments using the concept of "Test-Retest reliability", which refers to the consistency or stability of scores at different periods of time (Kurpius and Stafford, 2005; Bolarinwa, 2016). The test-retest measure was employed partially in case of the current research by enlisting the help of 3 students who took the survey twice over a period of 6 days. Due to the lack of time and resources, statistical tests could not be conducted to ensure consistency. A manual check of results indicated that over 80% of participant responses remained the same over the two tests. While this is a crude way of measuring reliability, it nevertheless gives some indication that the instrument is consistent in measuring responses.

Due to the busy schedule of administrators and teachers, the survey could not be administered to them twice.

Attempts have also been made to minimize reliability errors by reducing participant biases (by ensuring them of privacy and data security), reducing researcher errors through proper planning and contingency plans, and reducing researcher biases by maintaining objectivity.

All the above methods are more suitable for establishing the validity and reliability of quantitative instruments. Establishing validity and reliability of qualitative instruments is far more complex and less precise (Denzin and Lincoln, 2005). This is particularly true when it involves instruments like semi-structured interview guides that are not fixed and may change during the course or data collection. Denzin and Lincoln (2005) recommend methods like multiple checks, participant feedback on instruments, peer evaluation and expert advice to maximize the validity and reliability of qualitative instruments. All these have been followed in case of current research. Additionally, according to Denzin (1978), the use mixed-method design helps in increasing the validity and reliability of results as the errors of one method do not overwhelmingly influence the observations or results of the overall research. This further strengthens the argument for the use of mixed method design in case of the current research.

3.8 Research Ethics

Several steps have been taken in order to ensure that the entire process of research follows accepted ethical standards. The ethical forms required by the University of Brighton have been filled and submitted, and approval was obtained for the research. In doing so, guidance has been sought from supervisors at various stages to ensure that ethical standards of the University are adhered to. According to the requirements of the University, all data gathering requests need to be accompanied by the participant information sheet and consent forms. As mentioned previously, for the quantitative survey, these have been hosted online on the survey website. Participants were required to indicate consent by clicking on a button stating that they agree to participate in the study. They cannot proceed to the actual study unless they do so and hence this indicates explicit consent. During the interview, participants were again presented with the information sheet and consent forms, and their signature was obtained on the latter. The information sheets as well as consent forms are presented in English and Arabic to participants to ensure there are no gaps.

The survey or interviews did not attempt to elicit personal or identifying information of the participants in any form at any point. All details are kept confidential and stored on password protected files in Dropbox, with only the researchers and her supervisors having access to it. Once the research is complete and the thesis is submitted, the files will be deleted.

3.9 Conclusion

This chapter has provided an overview of the research questions that this study will address and the details of the methods, processes and techniques employed to do so. It has also showcased the research design and its four steps: preliminary activities, data collection, data analysis and interpretation of findings. Based on the need and objectives of the research, a mixed mode methodology consisting of quantitative surveys and qualitative interviews was chosen for the research. The participants include students, academics and administrators from the three selected Universities in Saudi Arabia: KSU, PNBAU and IMISIU. This chapter has provided in-depth details of the preliminary activities and outlined the data collection and analysis procedures. The remaining chapters of this research will provide further details about the data collection, analysis and interpretation of findings.

CHAPTER 4
4.0 QUANTITATIVE AND QUALITATIVE DATA ANALYSIS

4.1 Introduction

This chapter will present the analysis of quantitative and qualitative data that will help in answering the research questions and fulfilling the objectives of the study. Firstly, the chapter will begin with the quantitative analysis of student data followed by qualitative analysis. This will help to answer questions related to the usage, behaviours and attitudes of higher education students in Saudi Arabia in terms of using social media as a learning technology. It will also help to answer the questions related to the impact of gender and academic discipline on usage and attitudes towards social media. Then the chapter will present the quantitative analysis of teacher data followed by qualitative analysis. This will help to answer the questions related to the snapshot of social media as a learning technology at this point in time among teachers of higher education institutions in Saudi Arabia, and the ways in which their attitudes and behaviours differ from that of students. Finally, the chapter will present the quantitative analysis of administrator data followed by qualitative analysis. This will also help to answer the questions related to the picture of social media as a learning technology at this point in time among higher education institutions in Saudi Arabia. The quantitative analysis will answer some questions descriptively and some through inferential analysis whereas the qualitative analysis will answer the questions through thematic analysis.

4.2 Quantitative Analysis of Student Data

This section will outline the details of the quantitative analysis of student survey data. The process of quantitative data analysis followed the plan outlined previously. The key aim of the quantitative analysis of student data is to answer the questions related to the usage patterns, behaviours, attitudes and influencing factors with respect to the use of social media as a learning technology among the student respondents. To this end, this section will mainly generate data to answer research questions 3, 4, 5 and 6 through the use of descriptive analysis and inferential analysis. The variables of the analysis are parametric, continuous, and normally distributed Hence, Parametric tests have been used. The variables that would be discussed include the demographic details of students, their everyday use of social media and attitudes towards it, their use of social

media as a learning technology and attitudes towards it, the impact of gender and academic discipline on their use of social media as a learning technology, and their perceived benefits and drawbacks of the use of social media as a learning technology.

4.2.1 Number of Responses

The student survey yielded a total of 1065 responses, where 829 were from the English survey and 236 from the Arabic survey. 27 responses were filtered out as invalid. The invalid responses included responses with blanks for key demographic questions, responses from students who chose "other" for their University of study, responses from non-higher education students and responses that had missing values for more than 50% of the questions. Nevertheless, the responses that claimed that they do not use social media were considered valid as it is important to understand the reasons behind the non-usage. After this process of filtering, the student survey yielded a total of 1038 valid, usable responses. As mentioned earlier, the survey was stopped at this point as it was deemed that this sample set contains sufficient number of responses to provide a representation of the underlying population as well as a reasonable balance of demographic characteristics.

4.2.2 Demographic Distribution of Students

Of the 1038 valid responses, 59.34% (N=616) participants are female and 40.66% (N=422) are male. The ratio of male to female participants is skewed in favour of females. This is likely due to two key factors: firstly, the researcher was able to enter and speak to students, put up posters and conduct other data gathering activities in the women's departments of the Universities much more easily compared to the men's department due to the gender segregation practices of Saudi Universities. Secondly, one of the selected Universities i.e. PNBAU is an all-female University. Further analysis shows that respondents from PNBAU make up close to 29% of the total respondents. Given this ratio, it is understandable that the number of female respondents is higher, and hence the ratio is deemed acceptable. The results and findings of the analysis must be considered in view of this skewed ratio. Therefore, wherever there is a link between gender and other variables, it is acknowledged that the results may be more representative of the views of females than males.

Since the idea of the research is to study the behaviour and attitudes of Saudi students towards social media, any responses from non-Saudi students were filtered out. Consequently, Saudi students make up 100% of the study population. The distributions of age, University and level of study of participants are shown below in Table 4.1:

Table 4.1 Age, University and Level of Study Distribution of Students

Distribution		N	Percentage
Age	18-20	257	24.8%
	21-23	328	31.6%
	24-26	194	18.7%
	27-29	96	9.3%
	>= 30	163	15.7%
University	PNBAU	300	28.9%
	KSU	383	36.9%
	IMISIU	355	34.2%
Level of Study	UG	484	46.6%
	PG (M)	379	36.5%
	PG (Doc)	175	16.9%

The students also belong to various academic disciplines. The highest percentage of students belong to the discipline of business administration at 27% followed by art and Humanities and Social Science, 14.3% and 10.3% respectively as shown below in Table 4.2:

Table 4.2 Students Distributions across Academic Disciplines

Academic discipline Grouping	Academic discipline	N	Percentage	Grouping percentage
Arts	Arts	148	14.3%	**15.9%**
	Architecture and Planning	17	1.6%	
Science	Business Administration	280	27.0%	**44.3%**
	Agricultural Sciences	51	4.9%	
	Basic Sciences	38	3.7%	
	Health Sciences	36	3.5%	
	Computing and Information Sciences	33	3.2%	
	Engineering	21	2.0%	
Social Science	Humanities and Social Science	107	10.3%	**39.8%**
	Sport Science	94	9.1%	
	Tourism & Antiquities	79	7.6%	
	Law and Political Science	66	6.4%	
	Education	37	3.6%	
	Languages & Translation	30	2.9%	

For the sake of simplicity, the academic disciplines of students have been classified into three main groups which are Arts, Science and Social Science. This classification was arrived at after discussing with the administrators of the selected Universities, who informed that this is the most common classification followed within Saudi Universities. Another reason for the grouping is that some of the academic disciplines have very few cases which makes it difficult to perform certain statistical tests on them, given that they do not fulfil the minimum frequency criteria. It is acknowledged that the results may not be reflective of individual differences between disciplines as some disciplines have more responses than others.

In order to do the frequency analysis of the values based on the above classification, the responses were transformed and recoded into groups in SPSS. Three groups were created as per the classification, and each of the responses under academic discipline was allocated to one of these groups. Based on the regrouping, it was found that largest group of students belong to the broad group of Sciences (N=459), then by students in the Social Science group (N=413) and finally by students in the Arts group (N=165).

4.2.3 Students' Social Media Usage

This section will fulfill the objective of exploring the behaviour and attitude of students towards the use of social media as a learning technology and help to answer research questions 3, 4,5 and 6 which are related to the social media usage patterns and attitudes of students, impact of gender and academic discipline. Before exploring the students' academic use of social media, their everyday use of social media has been explored to get an overall idea about their behaviour. Descriptive and inferential tests have been used to answer the research questions.

4.2.3.1 Students' Everyday Use of Social Media

This section will discuss the students' everyday use of social media in terms of the average time spent online, the purpose behind their use of social media, the particular types of social media they use, and the frequency with which they use the social media in their daily life. Also, inferential tests have been run to see if there are any differences or relations between the dependent variables and the demographic variables (gender, age, university, level of study and academic discipline).

Average time spend online: When participants were asked about the amount of time that they spent online, close to 70% of students said that they spend more than 5 hours online, 12.5% spend 3-4 hours, 10.2% spend 1-2 hours and 7.5% spend less than an hour per day. This show that majority of students spend a large amount of time online on a daily basis which is prerequisites for using social media.

Of the range of statistical tests applied, a Kendall's tau coefficient showed a statistically significant negative correlation between age and time spent online with $T = -.142$ and $p < 0.001$. This indicates that there is an inverse relationship between age and time spent online. In other words, the amount of time spent online by participants is decreasing with their age.

Everyday use of social media: When participants were asked if they have used any type social media in their life, a majority of them comprising around 96.9% (N=1006) replied in the affirmative. This indicates that the use of social media among participants is very high. This could be the result of self-selection bias since the survey was voluntary, and participants who did not use social media would probably not have chosen to respond as they would not be interested in questions about social media usage. But given that the use of social media is extremely common nowadays among the younger generation anyway, it is quite likely that the results are representative of reality.

Of the range of statistical tests that were run, a Chi-Square test between age and everyday use of social media showed a statistically significant association, $\chi^2(4) = 33.45$, $p<0.001$. Hence, there is a statistically significant association between age and everyday use of social media. Additionally, level of study was also found to be associated with everyday use of social media, the association was significant at $\chi^2(2) = 26.51$, $p<0.001$. This is seen in further detail in the cross-tabulation table which shows that while the everyday use of social media is high among all age groups, it is highest among 21-23 year olds with 99.4% of them using it and lowest among above 30 year olds with 90.2% among them using it. Further, the cross-tabulation shows that the use is lowest among Postgraduate students pursuing their doctorate or M.Phil at 90.9%, which confirms that the use of social media is relatively lower among older students compared to their younger counterparts as seen in in Table 4.3 below:

Table 4.3 Everyday Use of SM versus Age and Level of Study

Everyday Use of SM	Age						Level of Study			
	18-20	21-23	24-26	27-29	>= 30	Total	UG	PG (M)	PG(Doc)	Total
Yes	248 (96.5%)	326 (99.4%)	191 (98.5%)	94 (97.9%)	147 (90.2%)	1006 (96.9%)	473 (97.7%)	374 (98.7%)	159 (90.9%)	1006 (96.9%)
No	9 (3.5%)	2 (0.6%)	3 (1.5%)	2 (2.1%)	16 (9.8%)	32 (3.1%)	11 (2.3%)	5 (1.3%)	16 (9.1%)	32 (3.1%)
Total	257 (100%)	328 (100%)	194 (100%)	96 (100%)	163 (100%)	1038 (100%)	484 (100%)	379 (100%)	175 (100%)	1038 (100%)

This indicates that the everyday use of social media is lower among the oldest students compared to other age groups, which is in line with the results of the earlier test that showed a negative relation between age and time spent online. It must be noted that the relationship here is not linear, and the use of social media is not decreasing uniformly with age. Rather, it is lower among students who are above 30 years of age. Again, the relation between level of study and everyday use of social media is not linear. Rather, the use is lower among students who are above 30 years of age and/or pursuing their doctorate or M.Phil degrees. Hence, it can be posited that while the general time spent online decreases with age, when it comes to social media, it is a particular group of older users who seem to be spending less time using them compared to others. This is perhaps because such students are busier than their younger counterparts and hence do not spend as much time on social media. This is explored further in the interviews.

Purpose of social media usage: The participants were then asked about the purpose behind their use of social media. The analysis shows that all participants use it for purposes of social entertainment at 83.5%, communication at 80.9%, business work 16.8% and academic work at 83.9%. This show that students use social media almost equally for academic, entertainment and social purposes.

A cross tabulation of the purpose of usage by gender shows that the usage statistics are almost similar across male and female students, although male students seem to use social media at a slightly higher rate for entertainment, communication and business while female students use them at a slightly higher rate for academic work. On the other hand, a cross tabulation of purpose of usage by age shows that only 1.3% of students in the age range of 18-20 years use social media for business work whereas 79.5% of them above the age of 30 do so. This is not surprising given

that students above the age of 30 are likely to be already working or looking to join the workforce soon compared to younger students. This is further confirmed by the cross tabulation of purpose of usage by level of study, which shows that only 41.4% of post graduate students (Doctorate or M.Phil) use social media for entertainment whereas 77.7% of them use it for business work. On the other hand, 91.1% of undergraduate students use it for entertainment and only 7.4% use it for business work as seen below in Table 4.4:

Table 4.4 Students' Purpose of social media Usage by Gender, Age and Level of Study

Purpose of SM usage	Gender		Age					Level of study		
	Female	Male	18-20	21-23	24-26	27-29	>=30	UG	PG (M)	PG(Doc)
Social entertainment	481 (81.7%)	346 (86.1%)	229 (95.4%)	288 (89.4%)	167 (87.9%)	84 (90.3%)	59 (40.4%)	420 (91.1%)	342 (91.7%)	65 (41.4%)
Communication	473 (80.3%)	329 (81.8%)	204 (85.0%)	258 (80.1%)	160 (84.2%)	76 (81.7%)	103 (71.2%)	348 (83.3%)	306 (82.0%)	112 (71.3%)
Business work	88 (14.9%)	78 (19.4%)	3 (1.3%)	32 (9.9%)	7 (3.7%)	8 (8.6%)	116 (79.5%)	34 (7.4%)	10 (2.7%)	122 (77.7%)
Academic work	498 (84.6%)	333 (82.8%)	159 (66.3%)	271 (84.2%)	184 (96.8%)	90 (96.8%)	127 (87.0%)	334 (72.5%)	361 (96.8%)	136 (86.6%)

The above analysis shows that the purpose of social media usage seems to change among participants depending on their age and progression in studies. Combining this with the results of the cross tabulation of age/level of study versus everyday use, it can be surmised that not only are students above 30/students pursuing advanced degrees use social media to a lesser extent but they also use them for different purposes compared to their younger counterparts.

Types of everyday social media used: Further, participants were asked about the particular social media they use in their daily life. The responses belonged to four main categories: social networking sites, blogs, crowdsourced projects and content communities. Each category had several sub-categories under it and participants were free to choose one or more options. Frequency analysis of the sets show that 88.0% of participants use social networking sites, 90.5% use blogs, 94.8% use crowdsourced projects and 94.4% content communities.

The above data shows that the students' usage of different social media is remarkably similar, and all of them are highly used. Further, the frequency analysis shows that among social networking sites, the use of Facebook is highest among participants at 81.7%. Among blogs, the use of Twitter

is highest at 81.7%. Among crowdsourced projects, Wikipedia ranks highest at 78.7% and among content communities, the use of YouTube is highest at 61.4%. Among blogs Tumblr recorded zero usage and among content communities Flickr recorded zero usage as shown below in Figure 4.1:

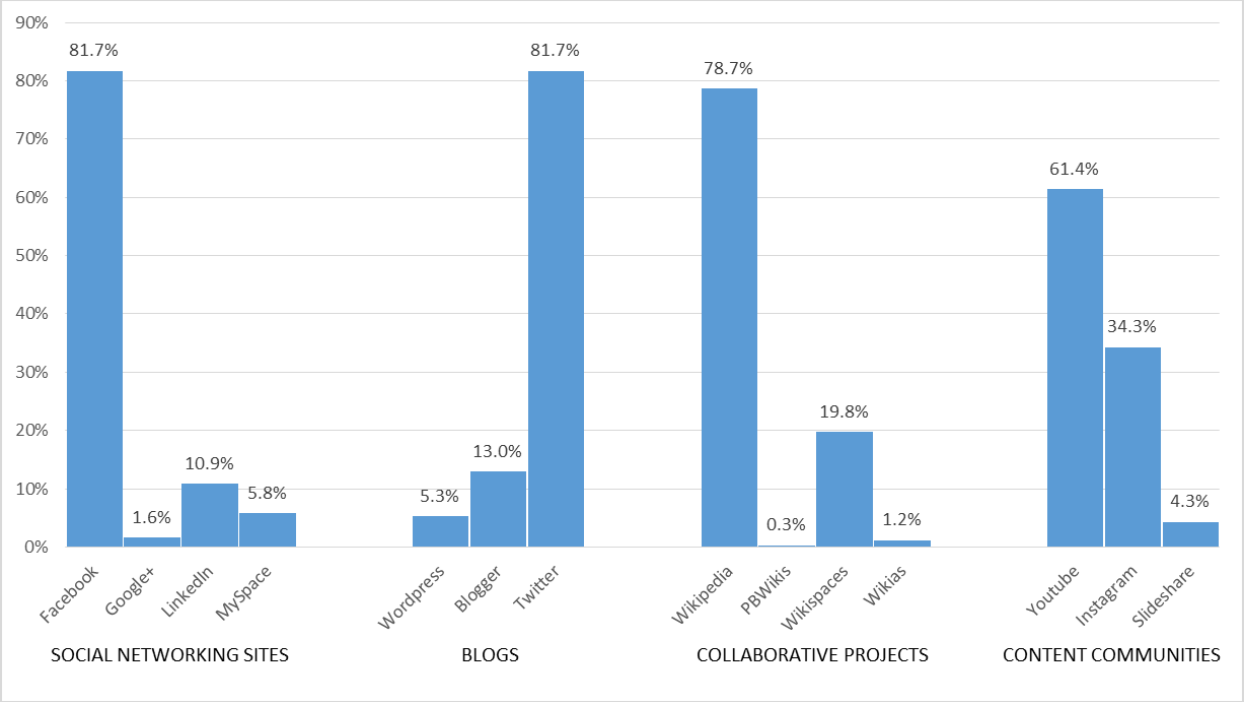

Figure 4.1 Students' General Social Media Usage

From the above analysis it is clear that some social media currently dominate over others' in terms of participant preference. Overall, Facebook, Twitter, Wikipedia and YouTube seem to be most popular among students for everyday usage. But the data is cross-sectional, and it is likely that preferences would change over time. It may be interesting to explore the changing preferences over a period of time in further studies.

Frequency of everyday social media usage: Further, students were asked about the frequency with which they use the social media in their daily life. The analysis shows that majority of participants use social networking sites and content communities on a daily basis, and blogs and crowdsourced projects on a weekly basis. Overall, the frequency of everyday usage of different types of social media can be visualized as seen below in Table 4.5:

Table 4.5 Students' Frequencies of Everyday Usage of Social Media

Frequency of SM Usage	Daily	Weekly	Monthly	Once per Term	Once per Year	Never
Social Networking Sits	750 (75.1%)	103 (10.3%)	13 (1.3%)	13 (1.3%)	21 (2.1%)	99 (9.9%)
Blogs	160 (16.0%)	745 (74.6%)	45 (4.5%)	2 (0.2%)	0 (0.0%)	47 (4.7%)
Crowdsourced Projects	182 (18.3%)	748 (75.0%)	49 (4.9%)	1 (0.1%)	0 (0.0%)	18 (1.8%)
Content Communities	557 (55.9%)	355 (35.6%)	36 (3.6%)	10 (1.0%)	0 (0.0%)	39 (3.9%)

From the above, it is clear that most students use most social media either on a daily or a weekly basis. It is further evident that the use of social networking sites is quite high among students, with over 75% of participants claiming to use it on a daily basis. Yet, the percentage of students who said they "never" use it is also highest for social networking sites at almost 10%.

Of the statistical tests run, a one-way Anova test showed statistically significant variations between various age groups with respect to their frequency of use of social networking sites with $F(4,994) = 52.96$, $p<0.001$ and content communities with $F(4,992) = 8.34$, $p<0.001$. Further analysis using Tukey Post Hoc tests shows that the differences are mainly between the above-30 group and the other groups of students ($p<0.001$). An analysis of means (as seen below in Table 4.6) shows that the participants over 30 years of age have means that are higher than the means of other groups for frequency of use of social networking sites and content communities. This essentially means that they use these two types of social media much more than other groups, which is interesting. It again confirms the fact that this group of users differs from others in their usage patterns of social media. Given that they use social media for business purposes a lot more than other groups, it is likely that they find these two types of social media more useful for those purposes. This is explored further in interviews.

Table 4.6 Frequency of Social Media Use Among Age Groups

SM	Social networking sites			Blogs			Crowdsourced Projects			Content Communities		
Age	**N**	**Mean**	**Std. D**	**N**	**Mean**	**Std. D**	**N**	**Mean**	**Std. D**	**N**	**Mean**	**Std. D**
18-20	241	1.39	1.19	241	2.15	.98	241	1.99	.63	240	1.51	.942
21-23	326	1.57	1.41	326	2.14	1.3	325	2.0	.93	326	1.7	1.34
24-26	191	1.49	1.29	191	1.93	.48	191	1.88	.51	191	1.55	.812
27-29	94	1.34	1.0	94	2.02	.63	94	1.82	.41	93	1.4	.516
>= 30	147	3.34	2.1	147	2.03	.60	147	1.88	.70	147	2.05	1.01
Total	999	1.75	1.59	999	2.0	.98	998	1.94	.72	997	1.6	1.06

4.2.3.2 Students' Academic Use of Social Media

After establishing their everyday social media usage patterns, students were then asked about their academic use of social media specifically. The idea was to identify the ways and means through which they are using social media as a learning technology. Accordingly, this section will discuss the students' academic use of social media, the purpose behind the use, the particular types of social media students use to support their studies, and the frequency with which they use the social media for academic purposes. Also, inferential tests have been run to see if there is any differences or relation between these dependent variables and the demographic variables (gender, age, university, level of study and academic discipline).

Academic usage of social media: Close to 93% (929) of participants said that they use social media to support their studies. This indicates that while most of the participants who use social media in their daily life also use them for academic purposes, there is a subset of those who do not. There is also a discrepancy here in that only 83.9% (831) of participants had earlier said that they use social media for "academic work". A possible reason for this could be the way the questions were worded. In this particular question, participants were asked if they use social media to "support their studies in any way". It is possible that some participants use them in ways that they do not strictly consider academic work but still supportive of their studies. This is explored in the interviews.

Of the tests run, a Chi-Square test for age versus academic use of social media showed statistically significant associations, $\chi^2(4) = 38.67$ and $p<0.001$. Further, Chi-Square test for level of study versus academic use of social media showed statistically significant associations, $\chi^2(2) = 37.06$, $p<0.001$. Similar to the everyday use of social media, the academic use of social media also seems to be lowest among participants above 30 years of age as seen below in Table 4.7:

Table 4.7 Academic Use of Social Media Among Age and Level of Study Groups

Academic Use of SM	Age						Level of Study			
	18-20	21-23	24-26	27-29	>= 30	Total	UG	PG (M)	PG (Doc)	Total
Yes	219 (90.9%)	307 (94.2%)	188 (98.4%)	93 (98.9%)	122 (83.0%)	929 (93.0%)	429 (92.1%)	367 (98.1%)	133 (83.6%)	929 (93.0%)
No	22 (9.1%)	19 (5.8%)	3 (1.6%)	1 (1.1%)	25 (17.0%)	70 (7.0%)	37 (7.9%)	7 (1.9%)	26 (16.4%)	70 (7.0%)
Total	241 (100%)	326 (100%)	191 (100%)	94 (100%)	147 (100%)	999 (100%)	466 (100%)	374 (100%)	159 (100%)	999 (100%)

From the above, it can be seen that the patterns of academic usage among students above 30 years of age is similar to their everyday usage. It is interesting to note that the academic use is also comparatively lower among the 18-20 year olds. While 96.5% of them admitted to the use of social media for everyday purposes, only 90.9% of them claim to use it for academic purposes. This aids the theory that the purpose of usage varies depending upon age and also that the use of social media, unlike the time spent online, is not linearly related to age. Further, similar to everyday use, academic usage of social media also seems to be lowest among those pursuing their doctorate or M.Phil degrees, thereby adding credence to the theory that this particular group of older users differ in their usage patterns from others. But it is also low among undergraduate students, again indicating that youngest group of students use it less for academic purposes.

Overall, it appears that the undergraduates use social media the most for social purposes, postgraduate students doing their Masters use it highly for social as well as academic purposes while doctoral/M.Phil students use it more for business and academic purposes. This is also reflected in the relations between the ages of participants and their social media usage patterns.

Types of social media used for academic purposes: Further, participants were asked about the particular type of social media that they use to support their studies. Similar to everyday usage, the options included four main categories: social networking sites, blogs, crowdsourced projects and content communities with sub-categories under each. The responses were also coded as four separate multiple response sets. Their frequency analysis show that 87.5% of participants use Social Networking Sits, 88.7% use blogs, 88.1% use crowdsourced projects and 89% use content communities.

Similar to everyday usage, the students' academic use of different social media shows high usage. Among the use of social networking sites, the use of Facebook is highest at 53.7% followed by LinkedIn at 43.1%. For the Blogs, the use of Blogger is highest at 54% followed by Twitter at 39.4%. For crowdsourced projects, Wikipedia remains at the top with 63.7%. For content communities, YouTube is at the top at 35.4% as shown below in Figure 4.2:

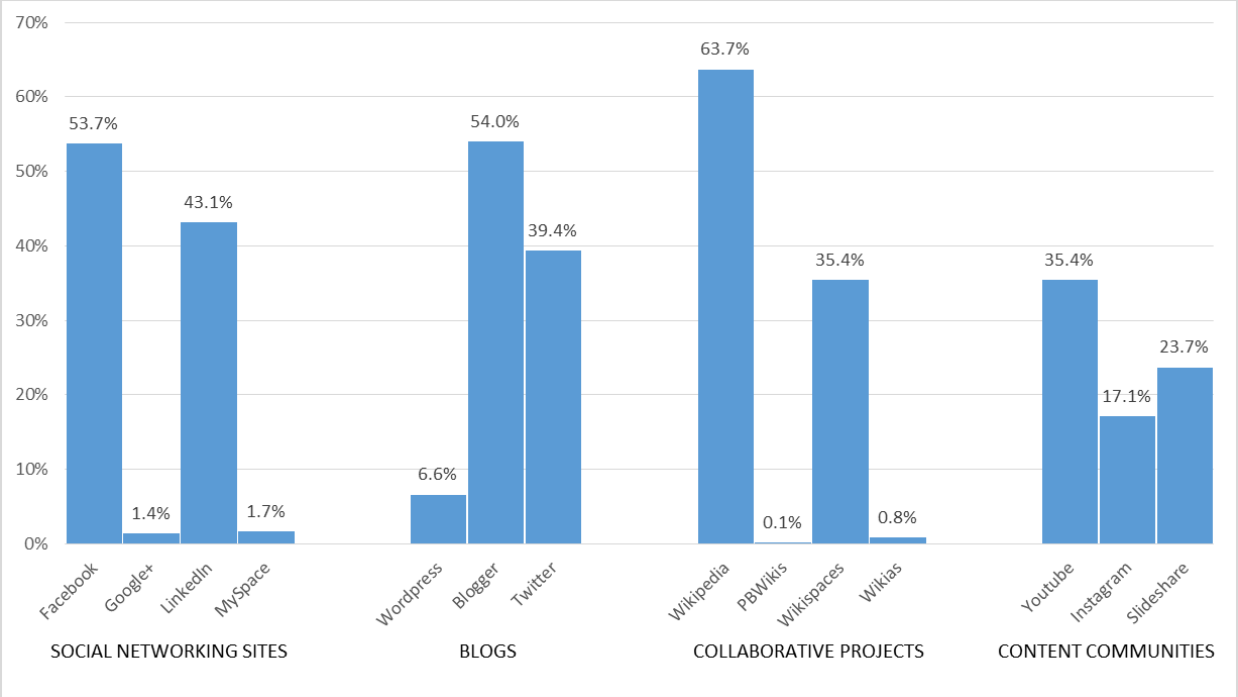

Figure 4.2 Students' Academic Usage of Social Media

It must be noted that although the use of Facebook is still the highest among all social networking sites, it is considerably less compared to its everyday usage. For everyday purposes, 81.7% participants had indicated that they use Facebook and only 10.9% had said that they use LinkedIn. This indicates that participants use social networking sites differently for everyday and academic purposes. The same is also seen in case of blogs where 54% of participants said they use Blogger and 39.4% said they use Twitter compared to 13% who previously said they use Blogger and 81.7% who previously said they use Twitter in their daily life. Similarly, 61.4% of participants said they use YouTube for everyday use whereas only 35.4% said they use it in studies. Slideshare was only used by 4.3% of participants for everyday use and none of the participants used Flickr in their daily life at all. Overall, the differences in usages of each social media for everyday and academic purposes are as shown below in Table 4.8:

Table 4.8 Comparison of Social Media Everyday and Academic Use Among Students

Type of social media	SM	Percentage of student using SM for Academic Purpose	Percentage of students using for Everyday Purpose
Social Networking Sites	Facebook	53.7%	81.7%
	Google+	1.4%	1.6%
	LinkedIn	43.1%	10.9%
	MySpace	1.7%	5.8%
Blogs	WordPress	6.6%	5.3%
	Blogger	54%	13.0%
	Twitter	39.4%	81.7%
	Tumblr	0.0%	0.0%
Crowdsourced Projects	Wikipedia	63.7%	78.7%
	PBWikis	0.1%	0.3%
	Wikispaces	35.4%	19.8%
	Wikias	0.8%	1.2%
Content Communities	YouTube	35.4%	61.4%
	Instagram	17.1%	34.3%
	Slideshare	23.7%	4.3%
	Flickr	2.1%	0.0%

Similar to everyday usage, Wikipedia and YouTube seem to be popular for academic use as well. On the other hand, social media such as Flickr, Blogger, Slideshare, Wikispaces and LinkedIn which are not used or used minimally for everyday purposes are used quite a lot by participants for academic purposes. Some like Google+ and MySpace are not used much by participants either for everyday or academic purposes. This shows that the types of social media used by students varies by intention.

Frequency of use social media for academic purposes: Students were further asked about the frequency with which they use the social media for academic purposes. Similar to frequency of social media usage for everyday purposes, majority of participants said they use social networking sites on a daily basis, and the remaining on a weekly basis. Overall, the frequency of academic usage of different types of social media can be visualized as below in in Table 4.9:

Table 4.9 Frequencies of Academic Usage

Frequency of Use	Daily	Weekly	Monthly	Once per Term	Once per Year	Never
Social Networking Sits	711 (74.8%)	111 (11.7%)	16 (1.7%)	12 (1.2%)	19 (2.0%)	82 (8.6%)
Blogs	80 (8.4%)	844 (88.8%)	20 (2.1%)	3 (0.3%)	0 (0.0%)	4 (0.4%)
Crowdsourced Projects	194 (20.4%)	736 (77.3%)	14 (1.5%)	0 (0.0%)	0 (0.0%)	8 (0.8%)
Content Communities	395 (41.5%)	520 (54.6%)	29 (3.1%)	4 (0.4%)	0 (0.0%)	4 (0.4%)

Again, the use of social networking sites is the most frequent among students for academic usage, with close to 75% of participants claiming to use it on a daily basis. It must also be noted that most participants use all types of social media either on a daily or a weekly basis, with very few claiming to use it less frequently than that.

Similar to everyday usage, a one-way Anova test showed statistically significant variations between various age groups with respect to their frequency of use of social networking sites with $F(4,946) = 32.55$, $p<0.001$ and content communities with $F(4,947) = 13.07$, $p<0.001$. The analysis of means (as seen below in Table 4.10) showed that the variations were mainly due to the above-30 year olds using social networking sites and content communities more frequently compared to other groups. This is an interesting finding that is explored further in interviews.

Table 4.10 Mean of Academic Use among Age Groups

Age	SNS			Blogs			Crowdsourced Projects			Content Communities		
	N	Mean	Std. D	N	Mean	Std. D	N	Mean	Std. D	N	Mean	Std. D
18-20	223	1.37	1.16	223	2.06	.55	224	1.89	.50	224	1.50	.55
21-23	323	1.62	1.41	323	1.91	.32	323	1.84	.71	323	1.68	.68
24-26	189	1.49	1.29	189	1.98	.34	189	1.83	.40	189	1.59	.55
27-29	93	1.42	1.25	93	1.95	.22	93	1.90	.57	93	1.53	.52
>= 30	123	3.04	2.02	123	1.89	.58	123	1.77	.47	123	1.97	.68
Total	951	1.70	1.51	951	1.96	.42	952	1.84	.57	952	1.64	.63

Further, a one-way Anova test showed statistically significant variations between level of study with respect to their frequency of use of social networking sites with $F(2,948) = 68.54$, $p<0.001$ and content communities with $F(2,949) = 19.26$, $p<0.001$. Essentially, the post-doctoral students using social networking sites and content communities more frequently compared to their counterparts from other levels (as seen below in Table 4.11), further supporting the previous idea that older students use it differently from their younger counterparts.

Table 4.11 Mean of Academic Use among Level of Study

Level of Study	SNS			Blogs			Crowdsourced Projects			Content Communities		
	N	Mean	Std. D	N	Mean	Std. D	N	Mean	Std. D	N	Mean	Std. D
UG	466	1.52	1.36	466	2.15	1.24	466	2.03	.85	465	1.66	1.25
PG (M)	374	1.37	1.14	374	2.00	.64	373	1.86	.52	374	1.49	.75
PG(Doc)	159	3.30	2.11	159	2.03	.67	159	1.87	.68	158	2.03	.99
Total	999	1.75	1.59	999	2.08	.98	998	1.94	.72	997	1.65	1.06

4.2.3.3 Attitude of Students towards Academic Use of Social media

This section will discuss the attitude of students towards the use of social media as a learning technology. Towards this, it will discuss the years of experience, dependency on social media to support studies, enhancement of studies through social media, specific study-related activities that students use social media for, importance of features of social media, benefits of social media for studies, barriers to the use of social media in their studies, impact of gender and impact of academic discipline. Inferential tests have been run to see if there is any differences or relation between these dependent variables and the demographic variables (gender, age, university, level of study and academic discipline).

Years of experience: In order to gauge the attitude of participants towards the academic use of social media, first they were asked to indicate their number of years of experience using social media. A frequency analysis shows that close to 92% of participants who responded have more than 4 years of experience, 2.5% have 3-4 years of experience, 5.6% have 1-2 years of experience and 0.1% have less than one year of experience. This is unsurprising and shows that a vast majority of participants have good experience using social media and hence their experience or lack thereof is unlikely to have a significant impact on their attitudes towards usage.

Dependency on social media: Further, participants were asked to rate their dependency on social media for studies on a scale of 1 to 5. A frequency analysis shows that participants consider themselves to be neutral at 48.2%, very dependent at 43.9%, extremely dependent at 1.6%, slightly dependent at 6.2% or not at all dependent at 0.1%. This is an interesting finding as it shows that almost all participants consider themselves to be dependent at least to some extent on social media.

Of the range of statistical tests applied, a one-way Anova showed that there is a statistically significant difference between participants from different Universities with respect to their dependency on social media for studies with $F(2,946) = 12.63$ and $p < 0.001$. Further investigation using Tukey Post Hoc (Appendix Q) shows significant differences between KSU and the other two, with students from KSU claim a lesser dependency on social media for their studies compared to the other two as seen below in Table 4.12. The understanding of this will be further explored in the interviews.

Additionally, a one-way Anova also shows statistically significant differences in dependency between academic discipline groups with $F(2,945) = 14.93$ and $p < 0.001$, with students from the "Science" group claiming a higher dependency compared to the "Arts" and "Social Science" groups as seen in Table 4.12 below, which is also confirmed by Tukey Post Hoc tests (Appendix Q). This could be due to various reasons like the needs of the discipline or higher technological competence among science students. Again, whether this is significant or not is explored in the interviews.

Table 4.12 Mean of Dependency of University and Academic Discipline Groups

Universities	N	Mean	Std. D	Academic Discipline	N	Mean	Std. D
PNBAU	284	3.44	.623	**Art**	158	3.23	.607
KSU	345	3.28	.650	**Science**	443	3.52	.636
IMISIU	320	3.52	.608	**Social Science**	347	3.35	.623
Total	949	3.41	.636	**Total**	948	3.41	.636

Use of social media to enhance studies: When participants were asked to indicate the extent to which they felt the use of social media enhances their studies, 69.2% of them agreed that it enhances their studies, 5.3% strongly agree and 17.1% were neutral. It is interesting to note that not a single participant indicated disagreement with the statement, and those who did not agree were simply neutral. Comparing this with the results of the previous question about dependency, it can be surmised that even those who do not consider themselves dependent on social media for their studies agree that it enhances studies.

A one-way Anova shows a statistically significant differences between level of study and perceptions of enhancement with $F(2,947) = 20.16$ and $p < 0.001$, with undergraduate students indicating less agreement about social media enhancing their studies compared to the other two groups as seen in Table 4.13 below, which is confirmed by Tukey Post Hoc tests (Appendix Q). This could be related to the fact that undergraduate students also use social media less for academic purposes, so in essence they could be using social media less for studies as they do not consider their use to add much value to their studies. On the other hand, it is also possible that since they use it less, they are not able to see the value that other groups are seeing.

A one-way Anova test also shows a statistically significant difference between the academic discipline groups and the perceptions of enhancement with $F(2,946) = 7.29$ and $p < 0.05$, whereas the "Arts" group considers the enhancement of studies through social media to be the least as seen in Table 4.13 below, which is confirmed by Tukey Post Hoc tests (Appendix Q). Given that the previous question showed the "Arts" group consider themselves to be least dependent on social media for their studies, it is possible that the two are related. They could be less dependent as they see less value in using social media, or they might be seeing less value as they do not depend on social media too much. Regardless, it appears likely that the two are related.

Table 4.13 Means of Perceptions of Enhancement of Studies by Social Media among Level of Study and Academic Discipline Groups

Level of Study	N	Mean	Std. D	Academic Discipline	N	Mean	Std. D
UG	446	3.77	.458	**Art**	159	3.75	.524
PG (M)	370	3.98	.464	**Science**	443	3.92	.442
PG(Doc)	134	3.96	.512	**Social Science**	347	3.86	.491
Total	950	3.87	.477	**Total**	949	3.87	.478

Study related activities: When participants were asked to choose the specific study-related activities that they use social media for, majority of them 85.2% said that they use it mainly for information seeking activities, whereas contacting others (students and teachers) is at the bottom of the list at 14.5% as seen in Table 4.14. Yet, communication was high on the list of purposes when they were asked about everyday usage of social media. This indicates that perhaps the ways in which the respondents use social media for everyday purposes is different from the ways in

which they use it for academic purposes. It is also possible that they do communicate with others on social media for academic discussions but do not consider it an activity that is necessarily supportive of their studies. These questions are explored in the interviews.

Table 4.14 Specific Activities used with Social media

Activities	N	Percentage
Discussions/ Assignments / Project Collaboration	790	82.8%
Knowledge / Information Sharing	777	81.4%
Contacting with teacher	138	14.5%
Activities / event update	434	45.5%
Search for books, articles and other academic information	813	85.2%
Contacting with student	138	14.5%

Overall, the data indicates that information seeking, sharing and academic discussions are the key activities for which participants use social media.

Features: Participants were also asked about the importance of various features when using social media for academic purposes. In order to do this, they were asked to rate their opinions regarding a range of statements on a scale of 1 to 5 where 1 indicated complete disagreement and 5 indicated complete agreement.

A frequency analysis shows that participants do not consider any of the features to be extremely important, but more than 50% of participants consider cost-free/low cost and native language support to be important or extremely important. The mean scores given to various factors by the participants is shown below in Table 4.15:

Table 4.15 Frequency and Mean of Importance of Features for Students

Importance of Social media Features	Not at all important	Unimportant	Neutral	Important	Extremely important	N	Mean	Std. D
Cost-free/low	9 (1.0%)	36 (3.9%)	368 (40.4%)	494 (54.2%)	5 (0.5%)	912	3.49	.632
Supports my studies	8 (0.9%)	31 (3.3%)	482 (51.9%)	402 (43.3%)	5 (0.5%)	928	3.39	.607
Offers attractive features	117 (12.5%)	76 (8.1%)	496 (53.0%)	237 (25.3%)	9 (1.0%)	935	2.94	.933
Support in my native language	10 (1.0%)	52 (5.8%)	300 (33.4%)	534 (59.4%)	3 (0.3%)	899	3.52	.663
Privacy settings	34 (3.7%)	104 (11.4%)	460 (50.5%)	306 (33.6%)	7 (0.8%)	911	3.16	.777
Friend and family are already users	129 (15.5%)	178 (21.4%)	258 (31.0%)	258 (31.0%)	10 (1.2%)	833	2.81	1.075

The fact that a lot of students consider native language support to be more important than other features is interesting as it indicates that the preferences of non-English students may be different to that of English students when it comes to the use of social media.

A Cronbach's alpha test has been conducted on these multi- feature statements to measure the importance of various features when using social media for academic purposes. The statements provided an alpha coefficient of 0.706, which is considered acceptable by most standards (Pallant, 2016). Based on this, it could be said that the statements have a good internal consistency and can be useful to measure the importance of social media features with sufficient reliability.

Of the range of tests applied, a one-way Anova showed statistically significant differences between the age groups with respect to the importance of various features with $F(4,948) = 214.36$, $p<0.001$. Hence, to understand it in further depth, one-way Anova tests were conducted between age and each of the individual statements related to importance of social media features. The results yielded interesting findings. Tukey Post Hoc tests (Appendix Q) showed that the differences were significant mainly between the above-30 year olds and other groups for each of the statements related to the importance of features. In other words, participants above 30 years of age differed from others with respect to each statement in a statistically significant way. Further investigation of the means shows that participants above 30 years of age rated all the features to be significantly less important than other groups with means as shown below in Table 4.16:

Table 4.16 Mean of Importance of Various social media Features by Age Groups

Features	Age														
	18-20			21-23			24-26			27-29			>= 30		
	N	Mean	Std. D	N	Mean	Std. D	N	Mean	Std. D	N	Mean	Std. D	N	Mean	Std. D
Cost-free/low	216	3.42	.61	314	3.60	.53	179	3.59	.60	85	3.58	.60	118	3.16	.80
Supports studies	216	3.47	.54	317	3.44	.55	183	3.48	.55	92	3.43	.58	120	2.89	.76
Offers attractive features	209	3.33	.62	323	3.16	.66	188	3.07	.71	93	2.94	.90	122	1.49	.97
Support native language	213	3.52	.60	305	3.61	.55	177	3.60	.60	89	3.66	.58	115	3.07	.94
Privacy settings	211	3.51	.54	306	3.30	.57	184	3.17	.63	92	3.16	.77	118	2.15	.94
Used by Friend and family	161	3.61	.58	280	3.18	.83	181	2.67	.83	93	2.56	.93	118	1.25	.76

This indicates that the students above 30 years of age give less importance to various features of social media compared to other groups. This could be due to various reasons: they are perhaps

busier and hence have less time to evaluate the features or they are perhaps more or less competent in evaluating the features. Given that they use social media to a lesser extent compared to other groups, it is also possible that they just do not give so much importance to their choice. These aspects are explored in the interviews. Nevertheless, the data above further confirms the fact that the above-30 year old students differ from other groups not only in their usage of social media but also their attitudes towards them.

In fact, this is also confirmed by the one way Anova test between levels of study groups and importance of various features which showed that there is a significant difference between the level of study groups with respect to the importance of various features with $F(2,950) = 453.06$, $p<0.001$. Further analysis of means shows that students pursuing their doctoral or M.Phil degrees give less importance to all the features of social media compared to others as seen below in Table 4.17:

Table 4.17 Mean of Importance of Features among Level of Study Groups

Features	Level of Study								
	UG			PG (M)			PG (Doc)		
	N	Mean	Std. D	N	Mean	Std. D	N	Mean	Std. D
Cost-Free/low	432	3.56	.579	352	3.53	.594	128	3.19	.801
Supports my studies	436	3.45	.530	361	3.46	.586	131	3.02	.754
Offers attractive features	432	3.27	.624	370	3.05	.747	133	1.56	1.003
Support in my native language	427	3.58	.574	346	3.60	.587	126	3.10	.933
Privacy settings	423	3.43	.541	359	3.20	.663	129	2.19	.950
Friend and family are already users	347	3.49	.715	357	2.70	.823	129	1.29	.814

Benefits of social media for studies: In this section, participants were asked about their perceptions regarding the benefits of social media for studies. Similar to the previous question, they were asked to rate their opinions regarding a range of statements on a scale of 1 to 5 where 1 indicated complete disagreement and 5 indicated complete agreement. A frequency analysis shows that participants do not disagree completely with any statement, and majority of them either agree about the stated benefits or are neutral. The frequency analysis and the mean scores given to various benefits by students are shown below in Table 4.18:

Table 4.18 Benefits of Social media for Studies with Mean

Benefits	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	N	Mean	Std. D
Social media provides interactive way of learning	1 (0.1%)	10 (1.1%)	465 (48.9%)	454 (47.8%)	20 (2.1%)	950	3.51	.565
Social media helps reach and contact teachers and peers easily	0 (0.0%)	5 (0.5%)	362 (38.0%)	534 (56.1%)	51 (5.4%)	952	3.66	.584
Social media supports collaborative work	1 (0.1%)	3 (0.3%)	284 (29.9%)	565 (59.5%)	97 (10.2%)	950	3.79	.617
Social media encourages student participation and motivation	1 (0.1%)	6 (0.6%)	405 (42.6%)	437 (46.0%)	102 (10.7%)	951	3.67	.676
Social media helps in interacting with the opposite sex	0 (0.0%)	3 (0.3%)	157 (16.5%)	520 (54.6%)	272 (28.6%)	952	4.11	.671

From the above, it is evident that close to 29% of students express extreme agreement with the fact that social media help them interact with the opposite sex, with a mean score of 4.11. This is significant considering that Saudi Arabia is a gender segregated society and hence interacting with the opposite sex face-to-face is not very common. Perhaps social media is helping to bridge the gap in that regard.

A Cronbach's alpha test have been conducted on these multi-benefits statements to measure the perceptions regarding the benefits of social media for studies. The statements provided an alpha coefficient of 0.730, which is considered acceptable. Based on this, it could be said that the statements have a good internal consistency and can be considered to measure the perceptions regarding the benefits of social media for studies with sufficient reliability.

Since the statements show high internal consistency and hence reliability, the average of the statements was considered initially in order to establish the relations between various demographic variables and the perceived benefits of social media features. After calculating the average, the relationship with each demographic variable was tested with the average. None of the tests showed any statistically significant or interesting patterns.

Barriers for the use of social media: Students were then asked about the perceived barriers to their use of social media in their studies. They were asked to rate a range of statements regarding barriers on a scale of 1 to 5 with 1 indicating complete disagreement and 5 indicating complete agreement. The frequency analysis and the mean scores given to various barriers are shown below in Table 4.19:

Table 4.19 Barriers to using Social media in Studies with Mean

Barriers	Strongly disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree	N	Mean	Std. D
Privacy issues	1 (0.1%)	7 (0.7%)	408 (42.8%)	454 (47.6%)	84 (8.8%)	954	3.64	.654
Lack of support by the university	57 (6.0%)	26 (2.7%)	391 (40.9%)	410 (42.9%)	71 (7.4%)	955	3.43	.899
Distraction and wastage of time	0 (0.0%)	6 (0.6%)	301 (31.6%)	547 (57.3%)	100 (10.5%)	954	3.78	.629
Security issues	59 (6.2%)	23 (2.4%)	201 (21.0%)	594 (62.2%)	78 (8.2%)	955	3.64	.902
Limited internet bandwidth	218 (22.8%)	82 (8.6%)	252 (26.4%)	349 (36.5%)	54 (5.7%)	955	2.94	1.26
Unfamiliarity with the functionalities/features	370 (38.7%)	107 (11.2%)	205 (21.5%)	262 (27.4%)	11 (1.2%)	955	2.41	1.27

From the above, it is seen that close to 40% of the students strongly disagree that unfamiliarity with the functionalities or features of social media is a barrier. This indicates that most students are well-versed in the use of social media. It is also seen that most of them consider security issues and distractions as the key barriers to the use of social media in studies.

Further, A Cronbach's alpha test was conducted on these multi-barrier statements to measure the perceptions regarding the perceived barriers to use of social media in studies. The statements provided an alpha coefficient of 0.700, which is considered acceptable.

Since the group of statements show high internal consistency and hence reliability, their average was considered in order to identify the relationships with demographic variables. An independent samples t-test showed a significant difference between the average of barriers and gender with $t(622.75)= -8.023$, $p < 0.001$. In order to explore this further, independent samples t-tests were conducted to test differences between genders and each of the barriers. The results showed statistically significant differences between male and female students for all the barriers with $p<0.001$ in each case. Further investigation of the means showed that female students are more concerned about all the barriers compared to male students as seen below in Table 4.20:

Table 4.20 Mean and Barriers to Social Media Usage among Gender Groups

Independent sample t-test	T	Df	Sig.(2-taild)	Gender	N	Mean	Std. Deviation
Privacy issues	-6.854	924.87	.000	**Male**	380	3.48	.546
				Female	574	3.75	.695
Lack of support by the university	-5.005	515.23	.000	**Male**	381	3.23	1.183
				Female	574	3.56	.610
Distraction and wastage of time	-5.237	952	.000	**Male**	380	3.65	.560
				Female	574	3.86	.658
Security issues	-6.719	482.73	.000	**Male**	381	3.37	1.215
				Female	574	3.82	.545
Limited internet bandwidth	-4.519	735.36	.000	**Male**	381	2.71	1.349
				Female	574	3.09	1.175
Unfamiliarity with the functionalities/ features	-4.401	953	.000	**Male**	381	2.19	1.242
				Female	574	2.56	1.283

From above in particular, it is seen that female participants seem much more concerned about privacy and security issues compared to male participants. This is significant for several reasons. For one, it is in line with previous literature that points out that that females are generally more concerned with online privacy and security (Mazman, 2011). For another, Saudi Arabia is a conservative society and it has also been pointed out that social pressure and traditional roles enforced on women by society often translate into their online presence as well (Bölükbaş and Yıldız, 2005; Fallows, 2005). It is possible that female students in Saudi Arabia have higher concerns about the use of social media due to these societal and cultural expectations. This is explored further in interviews.

Further, A one way Anova test between the perceived barriers and Universities shows statistically significant differences between the Universities with $F(2,952) = 4.262$, $p < 0.05$. Further investigation using Tukey Post Hoc tests (Appendix Q) shows that the main difference is between PNBAU and the other two Universities, which is again interesting because PNBAU is an all-female University.

This reaffirms that female participants are perhaps more concerned about the barriers compared to their male counterparts. One-way Anova tests with each of the perceived barriers further reveal that the differences are significant for four barriers: privacy issues, lack of University support, distractions and wastage of time and security issues. An analysis of means shows that PNBAU scores higher than the other two Universities for all the above mentioned barriers indicating that students from Princess PNBAU are more concerned about these issues as seen in in Table 4.21.

Table 4.21 Perceived Barriers to use of Social media by University with Mean

Barriers	Anova Test			University								
				PNBAU			KSU			IMISIU		
	Df	F	Sig.	N	Mean	Std. D	N	Mean	Std. D	N	Mean	Std. D
Privacy issues	2,951	6.85	.001	285	3.74	.69	348	3.65	.67	321	3.55	.58
Lack of support by the university	2,952	4.49	.011	285	3.55	.61	349	3.34	.97	321	3.42	1.02
Distraction and wastage of time	2,951	3.78	.023	285	3.84	.67	348	3.79	.65	321	3.7	.57
Security issues	2,952	5.01	.007	285	3.77	.58	349	3.62	1.0	321	3.54	1.0
Limited internet bandwidth	2,952	.71	.488	285	3.0	1.2	349	2.88	1.29	321	2.94	1.27
Unfamiliarity with the functionalities/features	2,952	.75	.471	285	2.46	1.26	349	2.34	1.27	321	2.44	1.31

Impact of gender: Indeed, when participants were asked if their gender influences their use of social media in any way, a majority comprising 84.1% (802) of participants said yes. But a cross-tabulation with gender did not show any statistically significant results indicating that both male and female participants equally felt that their gender influences their use of social media. The exact ways in which it influences cannot be determined from the quantitative data available and hence is explored in the interviews. Cross-tabulations with other demographic variables like age, University, academic disciplines and level of study did not yield any interesting insights.

Impact of academic discipline: Participants were asked if their academic discipline influences their use of social media. In this case a majority comprising 78.7% (751) of participants said no. A cross-tabulation with academic discipline groups showed statistically significant differences between the groups, with almost all the participants in the "Arts" group (95.6%) saying no, whereas 75.9% from science saying no and 74.5% from social science saying no.

Further cross-tabulations with other demographic variables did not yield any interesting insights. The point of views of participants who said yes and no as well as participants from various academic disciplines are explored further in the interviews.

4.2.4 Key Findings of Students' Quantitative Data Analysis

Based on the analysis of the student data, certain patterns have emerged in terms of their use of social media. These findings will be discussed in detail in the forthcoming chapters. A bird's eye view of the key findings is provided hereby.

To begin with, the analysis shows that majority of the student respondents do use social media. While this could be a result of the self-selection bias, it also indicates the increasing use of social media among higher education students in Saudi Arabia. All types of social media are used by majority of students either daily or weekly at least, further indicating their popularity among Saudi students.

The analysis did not show any statistically significant association between gender and actual use of social media (both everyday and academic) or the frequency of use. Some differences were found in the purposes for which male and female students use social media. Male students seem to use social media slightly more for entertainment, communication and business while female students use it slightly more for academic purposes. This is in line with the findings of researchers like Mishra and Monippally (2014), who posit that men and women use social media differently. But it goes against the findings of others like Gerlich, Browning and Westermann (2010) and Nisiforou and Laghos (2015) who posit that there are no differences between males and females in terms of social media usage or attitudes towards it due to shrinking gender gaps. The findings of the current study show that while both male and female students use social media equally, they do differ in the ways they use social media, thus indicating that the results in Western contexts may not always be applicable for the Saudi Arabic context.

The analysis also shows that the age of participants has an impact on the ways in which they use social media. In particular, students above 30 years of age and pursuing their Doctoral or M.Phil degrees seem to differ significantly in their usage and attitudes towards social media compared to their younger counterparts. While younger students seem to use it more for entertainment, older students seem to use it more for studies and career. The older students also use social networking sites and content communities more compared to their younger counterparts. Further, the older students also use social media less frequently compared to their younger counterparts which could be attributed to their likely busier schedules and is explored further in the interviews. Older

students do not give too much importance to various features. Overall, age and level of study seem to be key factors influencing the usage of social media among participants.

On the other hand, no statistically significant associations were found between academic discipline and usage of social media. This goes against the findings of researchers like Ortega and Aguillo (2012) and Holmberg and Thelwall (2014) who found that academic disciplines have an impact on the use of social media. Again, this indicates that the usage patterns of Western students are different from those of Saudi students.

Further, the analysis reveals that social networking sites are most frequently used by students. In terms of individual social media, Facebook, Twitter, Wikipedia and YouTube are most popular among students for everyday usage while Wikipedia, Blogger and YouTube are most popular among students for academic usage. The differences in the type of social media used for everyday and academic purposes is interesting and seems unique to Saudi students. The reasons behind the usage of particular social media for academic purposes is explored further in the interviews.

In terms of the purpose behind the usage of social media, contacting others is low on the list for all students whereas information seeking, sharing and academic discussions are the key activities for which they use social media. Most of the students claim to be dependent on social media for their studies. This is in line with the findings of Groff (2013) who claim that today's students are highly dependent on technology and digital media.

An interesting finding revealed during the analysis is that most of the participants agree that the use of social media helps them interact better with members of the opposite sex. Further, female participants indicate more concern about privacy and security issues compared to their male counterparts. This indicates the usage patterns and concerns of participants from conservative cultures like Saudi Arabia where gender segregation is the norm. These aspects are explored further in the interviews.

4.3 Qualitative Analysis of Student Data

The process of quantitative data analysis was followed by qualitative analysis in accordance with the data analysis plan outlined previously. After transcribing, translating and verifying the interview data, open codes were created for each interview. The codes for all the student interviews

were then consolidated into a single Excel sheet, and grouped into categories through a process of axial coding. Selective coding was applied in order to build the categories into themes through a process of theoretical integration. The forthcoming sections outline the categories and the themes that emerged through the process. The analysis is structured using the core themes (selective codes) of the data as headings and categories (axial codes) as sub-headings. Wherever relevant, examples are provided from the interview transcripts to illustrate the words that led to the identification of the categories. The participants are represented by the letter "S" (for student) followed by a number. For example, the first participant is represented as S1, second participant as S2 and so on.

Overall, the analysis of qualitative data yielded four themes and 11 categories. Each of the categories has one or more sub-categories under it. Together, the main themes and categories can be visualized as shown below in Figure 4.3:

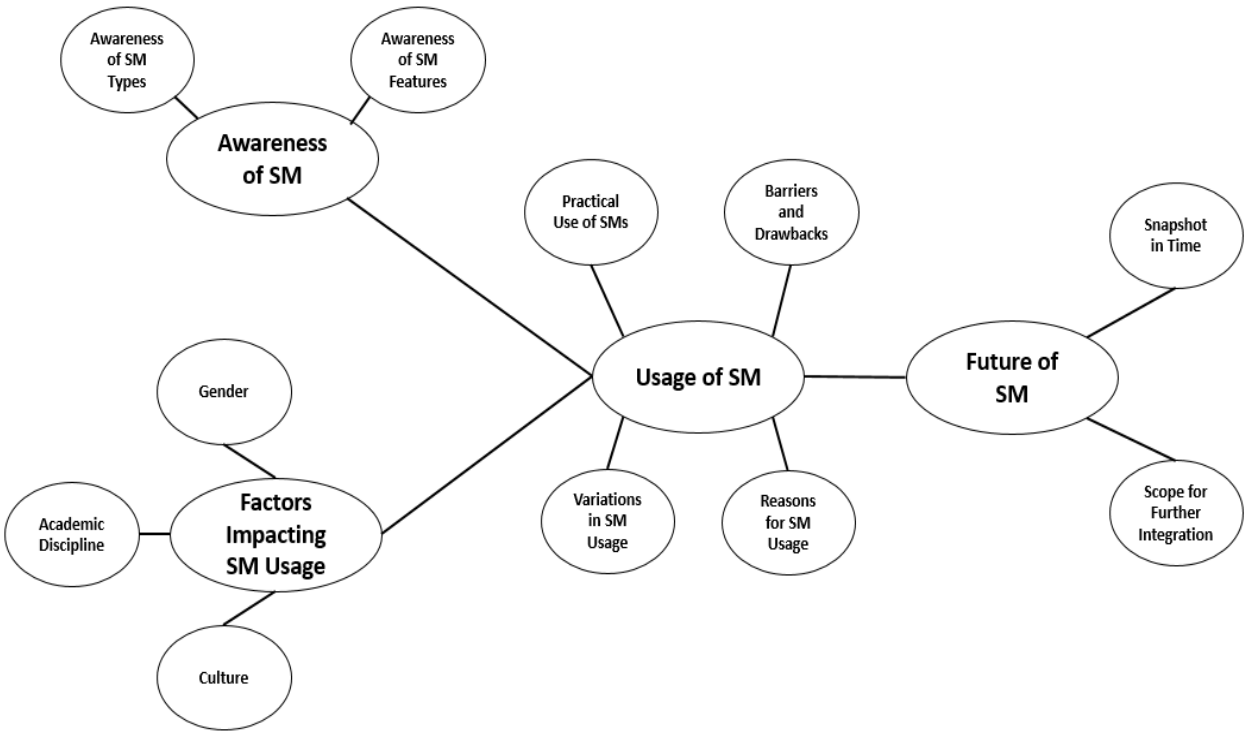

Figure 4.3 Core Themes and Categories for Students

4.3.1 Details of Interviews

Overall, interviews were conducted with five students. Two of the students are from KSU, two are from IMISIU and one student is from PNBAU. The idea behind the selection of participants in this

manner was to ensure that a male and female representative from each University in the interviews. The participants belong to various age groups, academic disciplines and levels of study. Again, the idea was to ensure an even representation of various demographic and academic characteristics.

The interviews aim to answer the questions raised during the quantitative analysis of data as well as the research questions related to students' use of social media in Saudi higher education institutions, as well as the impact of gender and academic discipline on their usage and attitudes. In order to accomplish this, the following core themes and categories have been derived from data as seen in Table 4.22:

Table 4.22 Themes and Categories for Students

Core Theme	Categories	Sub-Categories
Awareness of SM	Awareness of social media Types	Social networking sites, Blogs, Crowdsourced projects and Content communities
	Awareness of social media Features	Forging online connections, Creating a virtual presence, Socialisation, Communication, Broadcasting, Information seeking, Information sharing, Career advancements
Usage of SM	Reasons for social media Usage	Speed and flexibility, Accessibility, Affordability, Conformity and peer pressure, Fear of missing out
	Variations in social media Usage	Differing priorities, Differing commitments, Differing concerns, Personal preferences
	Practical Uses of Social media	Everyday Uses, Assignment assistance, Academic clarifications, Academic collaboration, Enhancement of learning, Observed uses in teaching
	Barriers and Drawbacks to social media Usage	Distraction and wastage of time, Privacy and security concerns, Unreliability of information, Negative emotions, Technical barriers
Factors Impacting SM Usage	Gender	Gender-specific rules, Gender-specific behaviour
	Academic Discipline	Discipline-specific usage
	Culture	Cultural rules, Censorship
Future of SM	Snapshot in Time	Communication and broadcasting, File sharing, Teaching and Learning
	Scope for Further Integration	Increased use, Innovative solutions

Each of these have been discussed in further detail in the coming sections.

4.3.2 Awareness of Social Media

The interview questions shed light on students' awareness of various types of social media as well as their uses. The responses and the resultant categories demonstrate that the participants have a good awareness of both. This is in line with the findings of the quantitative analysis where a majority of participants indicated that they spend more than 5 hours online daily and that they use social media extensively. Also, a lot of similarities were noted in their responses, with most participants demonstrating an awareness of the popular social media.

While this theme does not constitute an original finding of the research given that awareness of social media among students is well-documented in literature, it is nevertheless necessary to include it to provide the context for further findings. Moreover, the studies on social media in higher education are lacking when it comes to the Saudi context, and hence establishing that Saudi students have a good awareness can be useful to provide an overall picture of the situation. In other words, it is useful to establish that the participants of the current study have a good awareness of social media types and features before their usage and other aspects can be explored. Accordingly, this theme was derived from two categories: awareness of social media types and awareness of social media features.

4.3.2.1 Awareness of Social Media Types

This category refers to the participants' awareness of various types of social media. The idea behind this was to identify the websites and apps that the participants consider as falling under the umbrella of social media. The responses indicate that all participants are aware of popular social media like Facebook, WhatsApp and YouTube. The overall list of social media mentioned by each of the participants is shown below in Table 4.23:

Table 4.23 List of Social media Mentioned by Students

Participant	Social media Mentioned
S1	WhatsApp, Facebook, Instagram, Pinterest, Wikipedia, Myspace, Blogs, Google Talk, YouTube
S2	WhatsApp, Facebook, Myspace, Twitter and Instagram
S3	WhatsApp, Myspace, Facebook, Twitter, Instagram, Tumbler, Google+, Youtube, Reddit, Snapchat, Pinterest, and PC advisor
S4	Facebook, WhatsApp, Twitter, Instagram, Google chat, Google Plus, Meebo, Pinterest, Instagram, Myspace, WeChat, YouTube, Clips, Tumblr, Line, Snapchat, LinkedIn and Reddit
S5	Facebook, YouTube, Instagram, Twitter, Google chat, WhatsApp, Snap chat, Skype and Pinterest

The above list shows that participants are aware of several additional social media such as WhatsApp, Reddit, Stackoverflow, Quora, Meebo, Pinterest and Line, which were not included in the survey. All the participants also indicated that they generally use all the social media that they mentioned. This indicates a good awareness and use of social media among participants, and the growing landscape of social media among higher education students in Saudi Arabia.

The above data also indicates that the students consider social networking sites, forums, apps, content communities and file sharing sites all as falling under the umbrella term of "social media" or "social media tools". Further, it is evident that they are aware of all four categories of social media mentioned in the survey i.e. social networking sites, blogs, crowdsourced projects and content communities. This is in line with the results of the quantitative data which indicated high awareness and use of all four categories of social media among students.

4.3.2.2 Awareness of Social Media Features

This category refers to the participants' awareness of the various features of social media, regardless of whether they personally use those features or not. This information was arrived at by asking participants about their definition of social media and their uses. All the participants indicated that they are aware of several features of social media. Key among these included:

Forging online connections: This was mentioned as a key feature of social media by all the 5 participants more than once. They indicated that social media is a platform to connect with others online using a variety of devices, and a way to bridge physical and geographical boundaries. Further, S4 also mentioned that social media not only enable connections between peers but also provide a way for businesses to connect with customers. Hence, it is clear that participants consider forging virtual online connections as one of the main features of social media.

Creating a virtual presence: This was mentioned as a feature of social media by 3 of the 5 participants, although further responses make it clear that all of them are aware of it. The idea of creating a virtual presence using social media was stated thus:

> *"Like how we have actual social gatherings and connections, it's a way to have those same connections and presence without actually being present in the same room"* (S1)

S3 and S4 similarly stated that the presence and information sharing can happen between people from anywhere in the world.

Socialisation: The use of social media for socialization was mentioned by 3 of the 5 participants, although again further responses make it clear that all of them are aware of it and also use social media extensively for socializing. Participants mentioned that social media enable socialization among people, albeit in a virtual environment, and in doing so make the process of socializing easier.

Communication: Communication was unsurprisingly stated as a key feature of social media by all the 5 students. Participants stated that social media make it easy to keep in touch with peers and open several avenues for communication such as messaging, chatting and video calling. Overall, it is clear that all participants are aware of the use of social media as communication tools as well as the associated benefits and drawbacks.

Broadcasting: Along with user-to-user communication, 2 of the participants also mentioned that social media help in enabling communication with a broader audience by allowing users to interact with others on platforms such as blogs and forums, and expressing their opinions. Indeed, one of the key ways social media is changing the face of communication is in terms of the sheer number

of people that can be reached through a single post, similar to a broadcasting system. The above analysis makes it evident that participants are well aware of this feature.

Information seeking: This was mentioned as a feature of social media by all 5 of the participants repeatedly, and further responses also make it clear that all of them use social media extensively for information seeking. In discussing the concept of information seeking, participants mentioned various information seeking activities such as searching for academic information, job-seeking, looking for career advice and other resources.

Information sharing: Similar to information seeking, the ability to share information was also mentioned as major feature of social media by all 5 of the participants at various points. While this is similar to expressing opinions, it differs in that users may not also share their opinions but also files, videos, links, ideas and several other forms of content and knowledge. S2 and S3 mentioned that users can share "ideas" and "thoughts" using social media, while S4 talked about various types of content that can be shared on social media as:

> *"files, photos, news, audios and videos"* (S4)

The above findings are in line with the findings of the quantitative analysis where a majority of participants indicated that they use social media for information seeking and sharing, particularly in the context of academic use.

Career advancement: The use of social media for career advancements was pointed out by 2 of the 5 students. Further responses make it clear that not all students use it for career advancement, which is in line with the findings of the quantitative analysis. A key influence in this was found to be the age and academic level of participants, which is discussed further. S4 pointed out that apart from actively looking for jobs, social media also enable users to get "career advice" and to make "professional connections". All these indicate the role of social media in the career advancement of participants.

4.3.3 Usage of Social Media

The next theme identified through the analysis of qualitative data is the usage of social media among students. This is different from awareness in that it refers to the ways in which students use

the various social media in their daily lives either for everyday or for academic purposes. The reason behind separating awareness from use is that some of the participants indicated that they do not use all the features of the social media that they are aware of. In other words, sometimes participants are aware of a particular feature of social media but do not necessarily use them. This theme has been derived from four categories: reasons for social media usage, variations in social media usage, practical uses of social media and, barriers and drawbacks to social media Usage.

4.3.3.1 Reasons for Social Media Usage

This category refers to the key reasons that drive the students to use social media. It is important to consider the reasons behind social media usage not only because they may have an impact on the actual usage but also because they may shed light on factors specific to Saudi higher education students. Based on the discussions with participants, the following emerged as the key reasons for their usage of social media:

Speed and flexibility: The speed and flexibility of social media was mentioned as a key reason for their use by all the five participants. All of them indicated that the speed and flexibility with which social media enable them to find or share information, learn, and connect to others is a major attraction for their use:

> *"you can simply change keywords and keep trying till you find and it hardly takes a few mins"……. "I am frustrated with physical books because they don't have search facility. I mean it takes so much more time to find the information you need"* (S1)

Other participants similarly compared the speed and flexibility of social media favourably to traditional libraries and stated that social media allow users to progress at a speed and place comfortable to them. While the participants acknowledged that traditional sources like libraries and books may yield better quality and depth of information, they repeatedly pointed out the speed and flexibility of social media as a reason for using them.

Accessibility: Participants also mentioned the accessibility of social media as another major reason for their use. In this context, by accessibility they mainly referred to the convenience, availability and widespread use of social media. This included the ability to seek information without

physically going anywhere using a variety of devices. Participants also mentioned that social media make accessing people easier as most people check their profiles regularly.

Affordability: Two of the participants also mentioned the affordability of social media as a reason for their use. In this context, participants mentioned resources like free coaching classes, private tuitions, online courses and other resources. Given that cost was found to be a consideration for younger students during the survey, and considering the wide variety of choices available to students today, it is therefore not surprising that social media such as Facebook, WhatsApp, YouTube and Wikipedia that are mostly cost-free have emerged as the top choices among participants.

Conformity and peer pressure: Another major reason for the use of social media that was mentioned repeatedly by participants was the need to either conform to what everyone else is doing or due to pressure from others. In other words, participants claimed that they sometimes use social media simply because others are using it or forcing them to use it. This sentiment was expressed by almost all the participants who stated that they use the social media that are most popular and used by others. S4 also explained that the use of social media by her University and teachers was also a reason for her to use the same social media as they make it easier to keep up with announcements and updates. It was further stated that using social media was a part of growing up for his generation, and there is a certain amount of peer pressure involved:

> *"There was always these requests by friends to join some sites like Facebook or Orkut growing up"* (S3)

In fact, S3 also pointed the lack of peer pressure as a possible reason for older students using social media less compared to younger students:

> *"For the older students, it may be somewhat different because they didn't grow up with this compulsion to be on Facebook or social media all the time"* (S3)

This indeed goes some way in explaining the discrepancy found in quantitative results according to which students above 30 years of age use social media less compared to their younger counterparts. In fact some of the older students confirmed this indirectly by stating that they and their friends are too busy with their commitments to use too much of social media, although it is

impossible to escape the pressure completely. This idea was previously confirmed during the analysis of the quantitative data where participants claimed that their choice of social media is highly influenced by the fact that their friends and families also use it.

Fear of missing out: Some participants indicated the fear of missing out as a reason for using social media. For instance, some of the participants explained that they fear being left out or missing some important update or announcements due to which it is hard for them to disconnect from social media. From this, it appears that the participants sometimes continue to use social media despite not wanting to, due to their fear of missing out.

4.3.3.2 Variations in Social Media Usage

Despite having several common reasons for using social media, the participants showed some variations in their social media usage patterns. Indeed, a key finding of quantitative analysis of student data was that the social media usage patterns of students varied based on their age, gender and level of study. Students above 30 years of age or those who were doing their doctorate degrees were found to vary in their usage of social media in several aspects compared to their younger counterparts. Some differences were also found between men and women in their social media usage. The differences were in terms of time spent online, the ways in which they used social media, and the perceived importance of features. The quantitative data was not sufficient to understand the reasons behind these, and hence it was explored further in the interviews. The responses confirmed the results of quantitative analysis to a large extent, and also shed further light on the reasons behind the variations. This category was therefore divided into four sub-categories:

Differing priorities: The responses of the interviews indicated that older and younger students differed a lot in terms of their priorities which affected their usage of social media. The differences in priorities translated into variations in time spent as well as variations in the ways they used social media. For instance, S3, who is a younger student claimed that he and his peers spent more time on social media to keep up with their friends and due to peer pressure, and that older students probably did not have the same pressure as they did not grow up with social media. This was indeed confirmed by some of the older students who said that they spend less time on social media as they prioritise genuine connections and family time over social media connections.

The differences in priorities also translated into the ways students used social media. For instance, some of the younger students claimed that they do not use social media for career related things as it is not their priority at the moment. On the other hand, the older students stated the opposite claiming that they use social media for career opportunities given that they are at the end stages of their studies. The ways in which older students use social media for career was described thus:

> *"I keep an eye on job postings, industry events and news, and I also try to build professional connections"* (S5)

Overall, this indicates that older students use social media less, use it for different reasons, and differ their choice of social media from their younger counterparts, because of the differences in their priorities. This goes some way towards explaining the discrepancies in usage found between older and younger students during the quantitative analysis of data.

Differing commitments: Apart from the priorities, the responses to the interviews by older and younger students indicate that older students also have different commitments compared to their younger counterparts. In general, the older students claimed to have more commitments in terms of work, studies, career and family due to which they spend less time on social media. Some participants also stated that these commitments were the reasons for their decreasing use of social media over the years. This indicates that older students use it less as other commitments increase, and that the use of social media is not linear but likely changes over time.

Differing concerns: It was found that the participants had different concerns with respect to their use of social media. This in turn translated into differences in their choice of social media, as well as the ways in which they use social media. For instance, S3, who is a younger student indicated that cost is a concern for him due to his student status and this influences his choice of social media whereas, S5, who is an older student claimed the opposite. Other older students claimed that they are not concerned about the features as they value their time more, and also they are knowledgeable enough to recognize problematic social media. On the other hand, female students expressed more concern over safety and privacy features of social media compared to men, and stated that this influences their choice as well as behaviour on social media. This indicates that differing concerns among the participants influence both their perceived importance of features as well as well as their usage behaviour.

Personal preferences – Some participants mentioned that they differ from others in their social media usage simply because of their choices or personal preferences, which may change over time. A personal learning approach was explained thus in this context:

> *"YouTube is very very good to understand things properly because everything is demonstrated. I am a visual learner so that helps a lot"* (S5)

Other participants mentioned comfort, convenience and ease of use as the reasons for their preferences. Given that further discussions yielded no other specific reasons for older students using certain social media like social networking sites and content communities more, it can be surmised that they are indeed perhaps a matter of personal preferences or choices.

4.3.3.3 Practical Uses of Social media

The final category under the usage of social media refers to the actual use of social media by the students. This is explored in terms of the purposes for which they use the social media, and the ways in which they enhance their academic experience. Focus is more on academic uses of social media compared to everyday uses in accordance with the aim and objectives of the current research. This category is described in terms of the below sub-categories:

Everyday uses – When students were questioned about the everyday use of social media, they more or less claimed to use some or all of the features of social media stated earlier under their awareness of social media features. In general, communication, forging connections, information seeking and information sharing emerged as top everyday uses of social media. Under information seeking and sharing, participants mentioned sharing and seeking resources, asking questions and getting career advice as well. Some of the participants also mentioned broadcasting and socialization under the uses:

> *"Chat, connect with old friends, share photos, videos, stories, comment, find recipes, find articles, look at other people's feeds, try to find out career advice"* (S4)

One of the interesting aspects that emerged during the discussion was that students mostly considered communication and contacting others as an everyday use of social media and not an academic use. S5 elaborated on this further stating that communication cannot be considered an

academic use in most case unless the communication is specifically related to academic activities such as discussion of thesis or solving academic problems, which according to him rarely happened. This goes some way towards explaining the findings of quantitative data where contacting and communicating with others was low on the list of academic activities for which students used social media. Based on the discussion, it appears that they consider it more of a everyday activity than academic, and very few and uncommon communication activities fall under the category of supporting their studies.

Assignment assistance: When students were questioned about their academic use of social media, getting assistance in their assignments emerged as a major use of social media. All participants mentioned that social media help them with their assignments in one or more ways. This included using various social media to look up information on unfamiliar assignment topics, watching YouTube videos to understand the topic, communicate with peers about assignments, sharing reference materials and notes, and even talk to teachers about it. The participants also claimed that their teachers used social media to post details about assignments. S4 also mentioned additional unique uses of social media for assignment assistance such as organizing study notes using data organization apps like Evernote and Pinterest. From these, it is clear that participants not only use social media to assist with their assignments, but are also compelled to do so by their peers and teachers.

Academic clarifications: The participants also mentioned obtaining academic clarifications as another major way in which they use social media to support their studies. This included getting clarifications from their peers as well as teachers:

> *"Facebook has many study groups where we can find people from our course who can answer our questions"* (S2)

Similar views of contacting others including teachers to obtain academic clarifications were expressed by S3, S4 and S5, confirming that this is a major practical use for social media among the participants of the current study.

Academic collaboration: The third major practical use of social media mentioned by the participants was academic collaboration to foster collective learning and sharing of ideas. S1 and

S2 explained this in the context of assignments as chatting with friends about assignments and sharing ideas, notes, photos, files, tips and other resources. Participants also mentioned planning and executing group projects on social media. This included posting on group blogs, University blogs and working on same documents using online file sharing apps like Google Drive.

Indeed, social media like Wikipedia are based on the model of content collaboration by users. The above analysis shows that students in Saudi Arabia are also making use of the content collaboration capabilities of social media to some extent although there appears to be scope for more. None of the participants mentioned collaborating with their teachers or indeed with others outside their peer group, nor did any of them mention their teachers creating or encouraging any collaborative projects apart from blogging. Moreover, most of the collaboration mentioned seems to be in the context of their assignments and study materials as none of them mentioned any independent research or collaborations.

Enhancement of learning: Another major use of social media claimed by the participants was the enhancement of learning. During the quantitative analysis of data, a vast majority of participants had claimed that social media enhance their learning. When questioned about the same, responses indicated several direct and indirect ways in which students consider social media to enhance learning. These included instant information access, cost-free or affordable apps and online coaching classes that enhance learning by providing students with extra help, availability of information repositories that allow expansion of knowledge, support for discussion of ideas, and collaborative working:

> *"Our teachers encourage it a lot in Saudi, mainly because I think they want us to improve our English"* (S3)

Participants further mentioned that apart from the speed, convenience and flexibility provided by social media, they also enhance learning by allowing students to be more independent, providing live streams to help students when they miss classes, and even providing motivation, a sense of healthy competition and stress-relief:

> *"Sometimes after studying too much, I am bored, then I go on the group and vent. We then talk to each other and motivate each other"* (S2)

Indeed, it can be argued that any use of social media in studies is an enhancement of the learning experience given that social media cannot actually replace the education system completely. Nevertheless, the above data indicates the specific ways in which the participants themselves considered social media to be enhancing their learning.

Observed uses in teaching - Apart from their own use of social media, students were also questioned about the ways in which their teachers use it. The idea was not only to gather info about the uses in teaching but also to find gaps between the perceptions regarding the use of social media by students and teachers if any. In general, most participants mentioned that their teachers use it for communication, information and file sharing. This included group communication, announcements related to assignments, sharing videos and tutorials, uploading their own videos, live streaming, sharing links, and sharing resources on file-sharing sites like Slideshare. Blogging was also mentioned as an observed use in teaching wherein teachers created class blogs and encouraged students to post articles. All the participants also mentioned that their teachers played videos and slides inside the classroom to enhance the learning experience and that teachers use social media for their own research and learning:

> *"It was not a normal way of doing things, it was a bit of a workaround. Then next day when another student asked about it, my teacher gave the same workaround solution"* (S4)

The above analysis indicates that teachers in Saudi Arabia are using social media to aid in teaching and learning although most of the activities are geared towards communication and information sharing, mostly one-way, and hence there appears to be scope for more.

4.3.3.4 Barriers and Drawbacks to Social Media Usage

Before exploring the future of social media within the Saudi higher education system, it is important to understand the barriers to social media usage which may hamper current or future integration. To this end, participants were asked about their opinions regarding the barriers and drawbacks related to the usage of social media in the academic context. Several individual and collective barriers were mentioned by the participants as discussed below:

Distraction and wastage of time: The ability of social media to cause distraction and lead to wastage of time was mentioned as a major drawback by all the participants, particularly in the

academic context. Participants claimed that one can get lost due to the huge information overload caused by social media and productivity can get hampered. These statements are in line with the findings of the quantitative analysis where students marked distraction and time wastage as the biggest barriers to the use of social media.

Privacy and security concerns: Privacy and security concerns also emerged as major barriers to the usage of social media, with participants mentioning several different issues related to these. These included issues like hacking, viruses, identity theft and trolling:

> *"Your id can be hacked, your password can be hacked. Somebody might use your picture or details to create fake profiles. People may leave unwanted messages or comments on your posts"* (S1)

She also mentioned that the security features of social media often have loopholes that allow breaches. Similar concerns were mentioned by other participants who stated that it is difficult to keep information secure on social media and that security hacks are becoming increasingly common. Again, these statements are in line with findings of quantitative data where privacy and security concerns emerged as key barriers for social media usage.

Unreliability of information: Some of the participants mentioned the unreliability of information on social media as a barrier for their usage. This included information that was unverified, wrong, subjective or outdated. Some participants also mentioned that the nature of social media is such that sometimes the information may just disappear or change depending on the people who control it. The fact that the students nevertheless continue to use social media as a source of information seeking indicates that students might be dependent on social media for their academic information seeking, despite being aware of their unreliability.

Negative emotions: The ability of social media to create negative reactions like unhealthy comparisons, jealousy, depression and peer pressure has been well documented in literature. The participants of the current study mentioned several of the same issues. These included the endless unhealthy comparisons that social media can create, which in turn can lead to low self-esteem and stress, and the overload of negative news that can become depressing.

Again, the fact that participants continue to use social media despite experiencing strong negative emotional reactions indicate the extent of their popularity and proliferation. The older participants did indicate that they are actively trying to reduce their social media usage.

Technical barriers: Some of the participants mentioned some technical barriers to the usage of social media. These included the speed of internet with the Universities, which was also stated as a common problem in Saudi Arabia. Some participants also mentioned the blocking and restriction put in place by the Universities as a hindrance to the smooth use of social media. S3 claimed that this can sometimes be excessive as they "overdo" it.

At the same time, some other participants did not claim any technical barriers, indicating that this may not be an issue across all Universities. This is in line with the quantitative data findings where technical barriers like bandwidth emerged as only slightly important.

4.3.4 Factors Impacting Social Media Usage

The third theme identified through the analysis of qualitative data is the factors impacting the usage of social media among the student participants. From the review of literature, it was determined that factors like gender and academic discipline could influence the use of social media by users. It was also determined that the culture of Saudi Arabia may not be conducive to the use of social media in the ways in which it is used within Western Universities. The analysis of quantitative survey data also showcased certain differences in the way gender influences the use of social media, and indeed a majority of the participants themselves acknowledged the same. Only a few participants admitted to the influence of academic discipline on their use of social media in the survey. These aspects were explored further during the interviews, which led to the theme and the corresponding three categories under it: gender, academic discipline and culture.

4.3.4.1 Gender

This category refers to the ways in which gender influences the participants' use of social media. The discussions with participants of the current study corroborated that men and women do indeed use social media differently, with the following sub-categories emerging as the main ways in which gender influenced their use of social media:

Gender-specific rules: The gender-specific rules refer to the specific rules that participants perceived as applicable to men or women alone. These are likely related to the conservative culture of Saudi Arabia, and may not be applicable in other contexts. They have been classified as gender-specific rules as the participants specifically attributed the rules to their gender. For instance, talking about the expected behaviour on social media, S1 stated:

> *"rules are so strict about what women can do and can't do. So we always have to be on guard"* (S1)

These views were echoed by other women participants who stated that the rules encourage them to be extremely cautious in their actions on social media, prevent them from sharing personal details or communication with strangers and refrain from uploading personal information. S2 commented on the gender aspect of it stating:

> *"But I don't think boys have the same restrictions"* (S2)

Yet, S4 opined that having to be careful online is a Universal rule for women and not country-specific. On the other hand, S3 who is a male stated that men are also bound by gender rules although the rules are different for men. He explained that men have to be more careful on social media to avoid offending women. From these, it appears that social pressure and traditional gender roles expected by society are responsible for some of the differences in online behaviour between genders.

Gender-specific behaviour: This refers to social media behaviours that are specific to men or women as expressed by participants. It was found through discussions that although both male and female participants claimed to behave cautiously online, it was for different reasons. For women, it was mostly due to privacy and security concerns as well as the conservative behaviour expected from them whereas for men, it was the need to remain respectful and not offend women. For instance, the women participants stated that they do not allow personal information or photos on social media, are selective about accepting people as friends, do not talk to unrelated people, use privacy and security features such as picture guards and generally remain cautious. On the other hand, male participants stated that they refrain from saying anything inappropriate, keep

boundaries while communicating with women and generally remain careful in order to avoid offending women.

From the above, it is evident that women are generally more concerned with online privacy and security. This was also observed during the quantitative analysis of data and here, female participants stressed that they do not accept requests from strangers or communicate with them on social media. But these statements were generic in nature. It is possible, and has indeed been suggested in literature that the differences between the social media behaviour of men and women do not hold true when it comes to the academic use of social media, and that there are no differences in their academic social media behaviour. When asked about it, some of the female participants admitted that they do not need to be overly cautious on their University networks as those are being constantly monitored. Yet, when asked about communicating with male colleagues for academic purposes, the women stated that there is no difference in their social media behaviour whether it is academic communication or general.

This is interesting as the findings of the quantitative data had earlier indicated that social media make communication with the opposite sex easier. From the above, it appears that it may not always be the case and that there are conditions for the same. Regardless, based on the above data, it can be surmised that the differences between men and women in terms of social media behaviour holds true even when it comes to academic use of social media in conservative countries like Saudi Arabia.

4.3.4.2 Academic Discipline

Academic discipline had previously emerged during the review of literature as another factor that influenced social media usage. This was not corroborated by the results of the survey for the current study. Only 21.3% of participants said that their discipline influences their social media usage. To understand the reasons for this, two participants who said yes to the question were chosen for the interview. Accordingly, the data was categorised under a single sub-category:

Discipline-specific usage: When asked if their academic discipline influences the use of social media and how, participants explained that it is important in the science discipline:

> *"social media is very very important for my discipline because that's the best way to get latest news and keep track of new things happening. It may not be so important for someone who is studying say history or tourism"* (S2)

S3 expressed similar views that given the course structure and requirements of his discipline, he spends a lot of time online and this might translate into more time on social media. While S5 expressed similar sentiments he also claimed that this could simply be a result of general trends:

> *"I am not sure if it is because of me enrolling for a science course or because of social media itself catching on more. Nowadays teachers and Universities also use it more so maybe that's the actual reason"* (S5)

While the other two participants denied that their discipline influences their use of social media in any way, they acknowledged that this could be a result of lack of knowledge of how students from other disciplines use it. Overall, there was little consensus on whether and how academic discipline influences usage, except that students from science discipline considered themselves prolific users of social media. Since the quantitative analysis did not reveal any patterns with respect to the relation between academic discipline and social media usage either, it can therefore be surmised that any such influences are a matter of subjective opinion, at least in case of the present study.

4.3.4.3 Culture

There have been studies that have concentrated on the relationship between pedagogical practices and culture in higher education and found a link between the two. Given that Saudi Arabia is a conservative, gender-segregated country with a culture different from that of Western countries, it would be reasonable to posit that the culture impacts the social media behaviour of students, at least to some extent. Indeed, even though the participants were not asked directly about the impact of their culture on their social media behaviour, culture did emerge as a factor affecting social media behaviour in terms of the below two aspects:

Cultural rules: This refers to the rules for social media behaviour that are governed by culture. Participants expressed that their culture imposes certain rules on them which translates into their social media behaviour. For instance, S1 and S2 explained that they have to be very careful online and refrain from talking to unrelated male members due to the cultural expectations from women.

S4, who is also a woman, presented another face of the issue stating that social media actually makes communication with opposite sex easier:

> *"it is really hard to talk to a guy who is not related to you face to face so that way, it is easy to talk on social media"* (S4)

Participants further pointed out other cultural rules such as befriending teachers on social media or talking freely to them, which is not considered appropriate. But some participants claimed that the barrier was not from their side but from the teachers' end and increased communication would be welcome. Hence, it is evident that while the conservative, high power-distance culture of Saudi Arabia may not allow familiarity or friendship between teachers and students, the trends are changing and students in particular are becoming more willing to use social media to aid their studies even if it means overlooking certain cultural rules.

Censorship: Apart from the cultural expectations of behaviour from them, participants also pointed out that their University also enforces certain behaviours on social media simply by engaging in censorship and monitoring. Participants pointed out that there is a high level of censorship and monitoring within their Universities. This included blocking social media apps and features, and monitoring social media usage at all times.

4.3.5 Future of Social media

The final theme identified through the analysis of qualitative data is the future of social media within the selected Universities according to the students. The idea behind this is to identify the views of students with respect to the current state of social media usage within their Universities, and their opinions regarding the potential for further social media integration. This data will be combined with the opinions of teachers and administrators as well as findings in literature to answer the research question regarding the future of social media among higher education institutes in Saudi Arabia. Accordingly, the theme has been derived from two categories: a snapshot of the social media situation at this particular point in time and the scope for further integration.

4.3.5.1 Snapshot in Time

This category refers to the current state of social media usage within the selected higher education institutes in Saudi Arabia. Based on the discussions with participants, the following sub-categories emerged:

Communication and broadcasting: This refers to the communication and broadcasting activities by both the University and the teachers using social media. As discussed in the previous sections, several participants mentioned that their teachers and University use social media for communicating with students and making announcements. They also said that their teachers as well as Universities post announcements, share resources and respond to questions on social media.

Teaching and learning: As seen in the previous sections, the use of social media by teachers in the selected Universities appear to be limited to informing students about assignments and events, clarifying their doubts. Consequently, most of the uses of social media that the participants mentioned under observed uses of teaching could actually be classified as communication and broadcasting. Apart from these, there were only a few uses in teaching and learning mentioned by participants. One of them was by S3 who indicated that his teachers encourage the use of blogging and writing as a way to improve English skills. Other uses included live streaming classes and using it for their own research. This indicates that the use of social media by Saudi Universities and teachers is still in initial stages, with communication being the primary use.

4.3.5.2 Scope for Further Integration

Participants were asked about their opinions regarding the scope for further integration of social media within their University and education system. Almost all the participants agreed that there is scope for further integration. Their ideas for the same are classified into two sub-categories:

Increased use: To begin with, the participants mentioned that their Universities can simply increase the use of social media in teaching and learning. In other words, they wanted their teachers and Universities to use the social media more for communication, information sharing, and file sharing. The participants said that their teachers can share more information on social media, upload more videos to replace some of the traditional classroom lectures, and upload study

materials online. Participants also claimed that their University can increase use by sharing more information on social media and easing the restrictions on social media usage.

Innovative solutions – Apart from increasing the use of social media, almost all participants mentioned that their University and teachers can do more in terms of introducing newer and more innovative social media solutions in teaching and learning:

> *"some Universities have virtual meetings and teleconferences and things. I have also heard of things like interactive blackboards or whiteboards"* (S1)

Others mentioned video lessons and interactive learning solutions:

> *"they can record and upload videos of lectures online for students who are not able to attend college due to sickness. They can also make tie-ups with tuitions apps and make learning more interactive"* (S2)

Similar ideas like online classrooms, databases, online events, and virtual meetings were mentioned by other participants. From these, it appears that participants are willing and eager to use advanced social media. Indeed, the overall attitude and behaviours of students that have emerged through the analysis of qualitative data confirm that they are comfortable with the use of social media in education, aware of its drawbacks and yet willing to use it more.

4.3.6 Key Findings of Students' Qualitative Data Analysis

Some of the key findings that have emerged from the analysis of the qualitative data for students are as follows:

- All participants have a high awareness of the common types and features of social media, and are prolific users of the same.
- The key reasons for the use of social media include their speed and flexibility, accessibility, affordability, peer pressure and fear of missing out. All of these have been documented and confirmed in literature.
- The analysis of quantitative survey data had indicated several differences in the ways students choose and use social media. The qualitative analysis has yielded sufficient

information to explain these differences. The differences can be attributed to the differing priorities, commitments, concerns and personal preferences of participants.

- The qualitative data has confirmed that older students use less of social media, use it for different purposes and do not have the same criteria for the selection of social media compared to their younger counterparts. It has also provided reasons for the same, thereby answering some of the questions raised by the quantitative data.
- The qualitative data has also confirmed that women have different concerns and are influenced by different rules compared to men, which in turn impacts their social media behaviour. These are in line with the findings of the quantitative data analysis.
- While the quantitative data analysis indicated that social media make communication with the opposite sex easier, the qualitative data revealed that there are conditions to it, and it is not a straightforward issue. For instance, communication may be easier if the users know each other beforehand. To this end, it is evident that gender and culture rules still apply.
- In terms of practical use, the data revealed that all participants use social media for their study related activities, key among which are getting assignment assistance, obtaining academic clarifications, engaging in academic collaboration and enhancing their learning.
- The participants however mostly use social media only for teacher and course-centred activities. They are not using it in any innovative ways, only for simple communication, file sharing and information seeking.
- The use of social media by teachers and University also appears to be rudimentary. Again, they are using it only for simple communication and file sharing. Nobody is using it to create, edit or share new forms of data or multimedia content, online classrooms etc.
- Some teachers do seem to be experimenting and introducing social media within classrooms.
- Teachers seem to be more reluctant to encourage open communication on social media compared to students.
- Students also seem willing to experiment a lot more with the use of social media in education and had lot of innovative ideas.
- There are technical and non-technical barriers that may make integration difficult.
- Overall, the findings corroborate existing studies to some extent, deviate from them to some extent and also shed light on several aspects that are unique to Saudi students. In

doing so, they help in answering the research questions related to the usage of social media by Saudi higher education students, and the factors that impact their usage.

4.4 Quantitative Analysis of Teachers' Data

This section will outline the details of the quantitative analysis of teachers' survey data. The analysis of teachers' data followed a similar process as that of student data. The details of the analysis of the resultant files and the findings are outlined in the forthcoming sections. The variables have been non-normally distributed, hence non-parametric tests have been used.

4.4.1 Number of Responses

The teachers' survey yielded a total of 103 responses. Of these, 47 were from the English survey and 56 from the Arabic survey. As with the student survey, rules were applies and accordingly 20 responses were filtered out as invalid yielding a total of 83 valid, usable responses, which were then subjected to a variety of statistical tests.

4.4.2 Demographic Distribution of Teachers

Of the 83 responses, 50.6% (N=42) are from male and 49.4% (N=41) are from female teachers. Since the gender distribution is quite balanced, the results are unlikely to be skewed in favour of any particular gender. The distributions of age, University, highest qualification, experience of participants and Level of Teaching is shown below in Table 4.24:

Table 4.24 Teachers Distribution of Age University, Qualification and Experience

Distribution		N	Percentage
Age	<30	10	12.0%
	30 – 40	50	60.2%
	41 – 50	17	20.48%
	51 – 60	4	4.82%
	>60	2	2.41%
University	PNBAU	23	27.71%
	KSU	33	39.76%
	IMISIU	27	32.53%
Highest Qualification	Bachelor	10	12.05%
	Master	44	53.01%
	Doctorate	29	34.94%
Experience in Education	<5 years	17	20.48%
	5 – 10 years	49	59.04%
	11 – 15 years	11	13.25%
	16 – 20 years	3	3.61%
	> 20 years	3	3.61%
Level of Teaching	UG	29	34.9%
	PG (M)	42	50.6%
	PG (Doc)	22	26.5%

The frequency analysis shows that more than 50% (N=42) of the teachers teach at the postgraduate level. The levels at which the participants teach is important since it was seen earlier that the students' use of social media varies depending on their level of study. The extent to which the teachers are responsible for the variances can be determined by cross-tabulating the teaching levels of participants with their use of social media for teaching. This is done in the forthcoming sections.

Further, the teachers were asked about the academic disciplines that they teach and it emerged that the highest number of participants are from the computing and information sciences discipline at 18.1% (N=15). It is likely that the teachers belonging to the computing and information discipline are well-versed in the use of technologies. Whether this translates into an increased or enhanced use of social media is explored further on. Similar to the academic disciplines of students, the disciplines of teachers were also combined into three main groups for the sake of simplicity, arts, science and social science. Based on this grouping, it was found that the majority of teachers belonged to the "Science" group at 53% as seen below in Table 4.25:

Table 4.25 Academic Discipline of Teachers

Academic discipline Grouping	Academic discipline	Number of Participants	Percentage	Grouping percentage
Art	Arts	6	7.2%	**10.84%**
	Architecture and Planning	3	3.6%	
Science	Business Administration	9	10.8%	**53.01%**
	Agricultural Sciences	7	8.4%	
	Basic Sciences	5	6.0%	
	Health Sciences	2	2.4%	
	Computing and Information Sciences	15	18.1%	
	Engineering	6	7.2%	
Social Science	Humanities and Social Science	7	8.4%	**36.14%**
	Sport Science	0	0.0%	
	Tourism & Antiquities	2	2.4%	
	Law and Political Science	6	7.2%	
	Education	6	7.2%	
	Languages & Translation	9	10.8%	

This is similar to the students' dataset in that largest group of participants belong to the Science group followed by social science and then by arts. One of the reasons for this could be that there are simply more students belonging to the Science group compared to others in the underlying population, and hence the sample is merely reflective of reality. Indeed, a discussion with the teachers and administrators indicates this to be the case. Secondly, it may be possible that participants belonging to the science group use technology and social media more, and hence the above trends are the result of a self-selection bias. This is tested in further sections by analyzing the relationships between academic disciplines and social media usage. In any case, it must be acknowledged that the results may be reflective of some disciplines more than others as some of them have way more responses than others.

4.4.3 Teachers' Social Media Usage

This section will fulfill the objective of providing a snapshot of the use of social media at this particular point in time as a learning technology and help to answer the second research question which is related to the social usage patterns and behavioural trends of teachers. Before exploring the teachers' academic use of social media, their everyday use of social media has been explored to get an overall idea about their behaviour. Descriptive and inferential tests have been used to answer the research question.

4.4.3.1 Teachers' Everyday Use of Social Media

This section will discuss the average time spent online, the teachers' everyday use of social media, the purpose behind their use of social media, the particular types of social media they use, and the frequency with which they use the social media for everyday purposes. Inferential tests have been run to see if there is any differences or relation between these dependent variables and the demographic variables (gender, age, level of teaching, University, qualification, experience and academic discipline).

Average time spend online: Similar to students, teachers were asked about the average time spent online, the majority of the participants 46.99% spend more than 5 hours online daily, 33.73% spend 3-4 hour daily, 18.07% spend 1-2 hour daily and 1.2% spend less than one hour daily.

Of the range of statistical tests applied, a Kendall's tau coefficient showed a statistically significant negative correlation between age and time spent online with $T = -.202$ and $p < 0.05$. This indicates that there is an inverse relationship between age and time spent online. In other words, the amount of time spent online by participants is seen to be decreasing with their age. This is similar to the results of the students' data, indicating that it is not just younger students who spend more time online but also younger teachers. This is interesting because while the decreased online time among older students can be attributed to their busier schedules or heavier course loads, the same cannot be said for teachers. It is possible that the inverse relationship between age and digital time is generic and not limited to any particular group. This aspect is discussed further in the interviews.

Everyday usage of social media: When participants were asked if they ever use any type of social media for everyday purposes, 100% of them replied in the affirmative. While this could be the result of self-selection bias, it indicates that the use of social media among the participants is very high even more so than that of students.

Given that the use of social media is a constant in this case, no further cross-tabulations or relationships were computed. In other words, since 100% of participants said that they use social media, it is evident that factors like age, gender, University, level of teaching, qualification, experience and academic discipline do not have an impact of the everyday use of social media

among teachers. This is different than that of students where age and level of study was seen to have an impact on their everyday use of social media.

Purpose of social media usage: The participants were asked about the purpose behind their everyday use of social media. It was seen that 100% of teachers use it for one or more of the stated purposes as seen in the table below. The result show that teachers use it more for communication, academic work and business work compared to students while they use it less for entertainment. It is seen in the table below that teachers use social media much more than students for business work, which is understandable given that teachers may use it for their career development.

Also, a cross-tabulation of purpose of usage by gender shows that the usage statistics are almost similar across male and female teachers. Similar to student data, female teachers seem to use the social media at a slightly higher rate for academic work compared to their male counterparts with 100% of female teachers claiming to use it for academic work compared to 88.1% of male teachers. A comparison of teachers' and students' social media usage for everyday purposes and the cross tabulation of teachers' purpose of social media usage by gender are shown below in Table 4.26:

Table 4.26 Teachers' versus Students' Purpose of SM Usage and Cross Tabulation of Teachers' Purpose of SM Usage by Gender

Purpose of Use Social media	Teacher Frequency		Comparison Teacher and Students	
	Male Teacher	Female Teacher	Number of Teacher	Number of students
Social entertainment	29 (69.0%)	30 (75%)	59 (72%)	827 (83.5%)
Communication	39 (92.9%)	37 (92.5%)	76 (92.7%)	801 (80.9%)
Business work	23 (54.8%)	21 (52.5%)	44 (53.7%)	166 (16.8%)
Academic work	37 (88.1%)	40 (100%)	77 (93.9%)	832 (83.9%)
Total	42	40	256	2626

On the other hand, cross-tabulations of purpose of usage by age, level of teaching, University, qualification, experience and academic discipline did not show any consistent patterns or insights.

Types of social media used for everyday purposes: In this section, participants were asked about the particular social media that they use for everyday purposes. The frequency analysis of the sets show that 92.8% use SNS, 88% use Blogs, 98.8% use crowdsourced projects and 100% use content communities. This shows that the usage of all types of social media is high among teachers, with

the use of content communities being the highest at 100%. In this, the usage patterns of teachers are similar to those of students. Even when it comes to use of individual social media, the usage patterns of teachers are similar to that of students with Facebook, Twitter, Wikipedia and YouTube being the most popular among social networking sites, blogs, crowdsourced projects and content communities respectively as shown below in Figure 4.4:

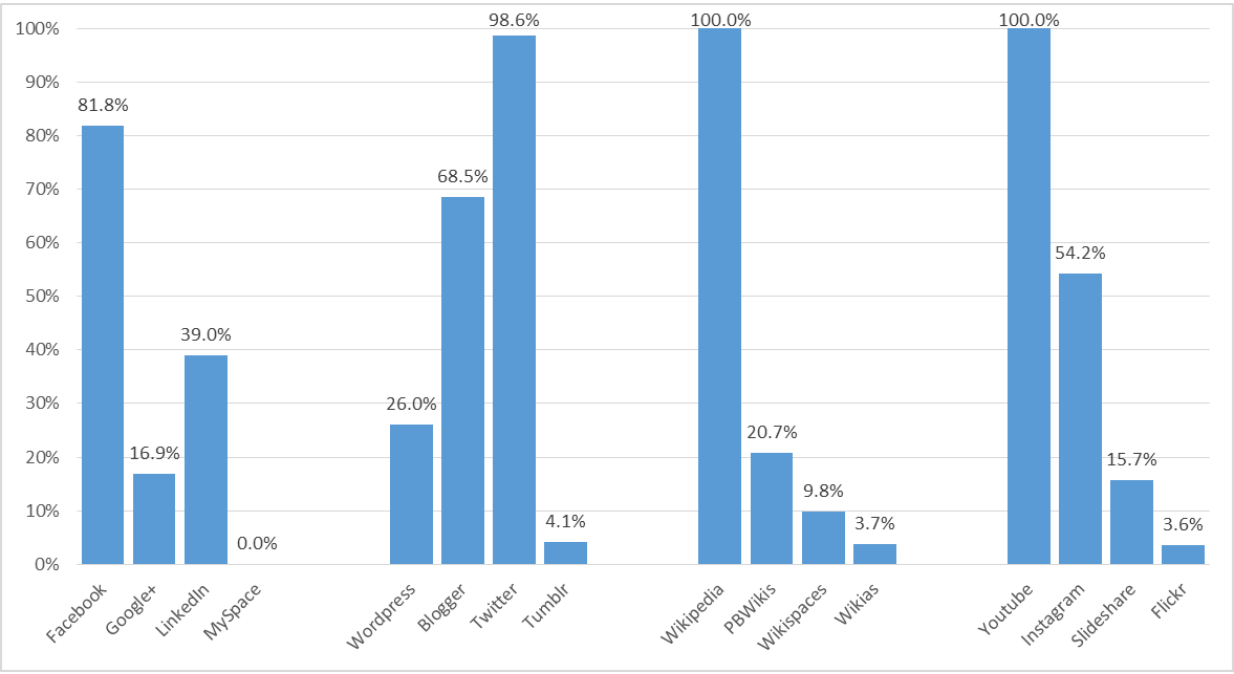

Figure 4.4 Comparison of Social Media Everyday Usage among Teachers

While some of the social media like LinkedIn and Blogger are more popular among teachers comparer to students, the overall patterns are similar. The fact that the same social media seem to be popular among teachers and students has interesting implications. It is possible that students are using the social media encouraged by their teachers or teachers are using the social media popular among students in order to meet students in their own space. It is also possible that neither is the case, and some types of social media are organically more popular among the higher education community in Saudi Arabia. It is also interesting that the use of Wikipedia seems to be extremely popular among teachers with 100% of them claiming to use it, despite it being generally acknowledged that Wikipedia is not a reliable source of information. These questions are explored in the interviews.

Frequency of social media usage for everyday purposes: Further, teachers were asked about the frequency with which they use the social media for everyday purposes. The analysis shows that majority of participants use social networking sites, crowdsourced projects and content communities on a daily basis, and blogs on a weekly basis as seen below in Table 4.27:

Table 4.27 Teachers' Frequency of Social media Use for Everyday Purpose

Frequency of Use	Daily	Weekly	Monthly	Once per Term	Once per Year	Never	Total
Social Networking Sits	48 (57.8%)	25 (30.1%)	8 (9.6%)	0 (0.0%)	0 (0.0%)	2 (2.4%)	83 (100%)
Blogs	18 (21.7%)	55 (66.3%)	3 (3.6%)	1 (1.2%)	0 (0.0%)	6 (7.2%)	83 (100%)
Crowdsourced Projects	71 (88.8%)	8 (10%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.3%)	83 (100%)
Content Communities	44 (53%)	34 (41%)	5 (6.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	83 (100%)

Overall, teachers seem to use crowdsourced projects more frequently, and social networking sites slightly less frequently than students. Other statistical tests did not yield potentially interesting or unique insights.

4.4.3.2 Teachers' Academic Use of Social Media

After establishing their everyday social media usage patterns, teachers were then asked about their academic use of social media specifically. This section will discuss the teachers' academic use of social media, the purpose behind their usage, the particular types of social media they use to support teaching and learning, and the frequency with which they use social media in teaching. Inferential tests have been run to see if there is any differences or relation between these dependent variables and the demographic variables (gender, age, level of teaching, University, qualification, experience and academic discipline).

Academic usage of social media: When asked if they use social media to support teaching and learning, again 100% of the participants said yes. This indicates that all the teachers who use social media for everyday purpose also use them to support teaching and learning. Similar to the student data set, there is a discrepancy here in that only 94% of participants had earlier said that they use social media for "academic work". Again, a possible reason could be the way the question was worded. It is possible that some teachers use the social media for purposes that they do not

strictly consider academic work but nevertheless supportive of teaching and learning (for e.g. communicating with others). Similar to the everyday usage, the academic use of social media is also constant and hence, no further cross-tabulations or relationships were computed.

Type of social media used to support teaching: When teachers were asked about the social media that they use to support teaching and learning, the frequency analysis showed that 89.2% use SNS, 94% use Blogs, 98.8% use Crowdsourced Projects and 98.8% use Content Communities. This indicates that the academic use of all types of social media is high and the patterns are quite similar among teachers. The usage patterns are similar to the everyday use of social media except in case of social networking sites. For academic use, LinkedIn is the most popular social networking site at 91.9%. Twitter, Wikipedia and YouTube remain the most popular social media among blogs, crowdsourced projects and content communities as shown below in Figure 4.5:

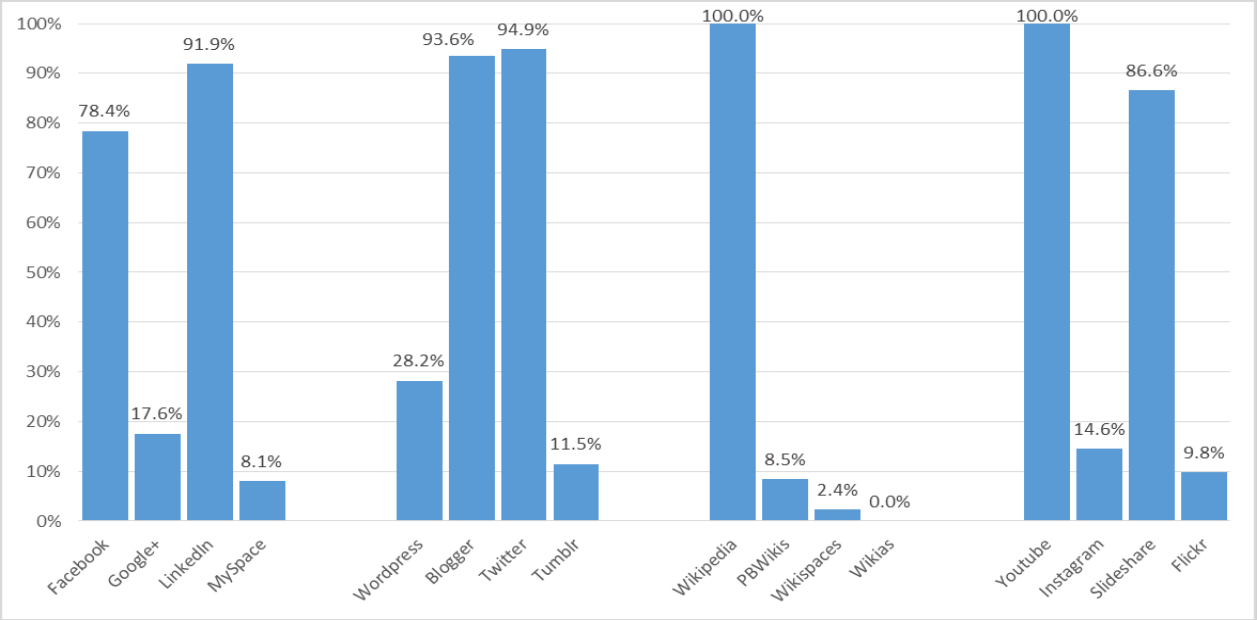

Figure 4.5 Comparison of Social media' Academic Usage by Teachers

The above patterns are similar to the everyday usage of social media except in case of social networking sites where LinkedIn trumps the use of Facebook. Also, the use of Blogger and Slideshare is much higher than for everyday usage while the use of Instagram is lower. It is interesting to note that teachers seem to be using less popular social media like MySpace and Tumblr for academic purposes, which will be clarified in the interviews. It can be seen also from the table below that the use of social media like Twitter, Wikipedia and YouTube is popular for

both everyday and academic purposes whereas the use of LinkedIn, Blogger and Slideshare is popular only for academic purpose. A comparison in the usages of each social media for everyday and academic purposes for teacher and a comparison of student and teacher data for the social media for academic usage are shown below in Table 4.28:

Table 4.28 Everyday and Academic use of SM among Teachers Comparison with students' academic usage

Type of social media	SM	Teachers Everyday usage	Teachers Academic Usage	Students' Academic Usage
Social Networking Sites	Facebook	81.8%	78.4%	81.7%
	Google+	16.9%	17.6%	1.6%
	LinkedIn	39.0%	91.9%	10.9%
	MySpace	0.0%	8.1%	5.1%
Blogs	WordPress	26.0%	28.2%	5.3%
	Blogger	68.5%	93.6%	13.0%
	Twitter	98.6%	94.9%	81.7%
	Tumblr	4.1%	11.5%	0.0%
Crowdsourced Projects	Wikipedia	100%	100%	78.7%
	PBWikis	20.7%	8.5%	0.3%
	Wikispaces	9.8%	2.4%	19.8%
	Wikias	3.7%	0%	1.2%
Content Communities	YouTube	100%	100%	61.4%
	Instagram	54.2%	14.6%	34.3%
	Slideshare	15.7%	86.6%	4.3%
	Flickr	3.6%	9.8%	2.1%

From the above data, it is evident that some social media like LinkedIn, Twitter and Slideshare are more popular among teachers for academic usage whereas some like Wikispaces, Instagram and Flickr are more popular among students. Yet others like Blogger, Wikipedia and YouTube are popular among both groups. Again, this raises the question of whether the use of certain social media is organically popular among Saudi higher education community or if teachers/students are influencing each other.

Frequency of use social media: When teachers were asked about the frequency with which they use the different social media for academic purposes, it emerged that the majority use social networking sites and crowdsourced projects on a daily basis, and blogs and content communities on a weekly basis as seen below in Table 4.29:

Table 4.29 Teachers' Frequency of Social Media Academic Use

Frequency of Use	Daily	Weekly	Monthly	Once per Term	Once per Year	Never	Total
Social Networking Sits	16 (50%)	7 (21.9%)	3 (9.4%)	1 (3.1%)	1 (3.1%)	4 (12.5%)	32 (100%)
Blogs	32 (39%)	38 (46.3%)	2 (2.4%)	2 (2.4%)	0 (0.0%)	8 (9.8%)	82 (100%)
Crowdsourced Projects	55 (67.1%)	25 (30.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (2.4%)	82 (100%)
Content Communities	32 (39%)	45 (54.9%)	4 (4.9%)	0 (0.0%)	0 (0.0%)	1 (1.2%)	82 (100%)

Again, the data indicates that teachers seem to use crowdsourced projects more frequently than students. Other statistical tests did not yield potentially interesting or unique insights.

4.4.3.3 Attitude of Teachers towards Academic Use of Social Media

This section will discuss the attitude of teachers towards using social media in teaching and learning. Towards this, it will discuss years of experience, dependency on social media to support teaching, enhancement of teaching and learning through the use of social media, specific academic activities that they use social media for, importance of various features of social media, benefits of social media in studies, barriers to the use of social media in studies, impact of gender and impact of academic discipline. Inferential tests have been run to see if there is any differences or relation between these dependent variables and the demographic variables (gender, age, university, level of study and academic discipline).

Years of experience: In order to gauge the attitude of participants towards the academic use of social media, they were asked to indicate their number of years of experience using social media. It was seen that 43.9% of participants have more than 4 years of experience, 51.2% have 3-4 years of experience, 3.7% have 1-2 years of experience and 1.2% have less than one year of experience. Although this is slightly less compared to students, a majority of who have more than 4 years of experience, it is nevertheless sufficient to consider the participants well-versed in the use of social media. Hence their experience or lack thereof is unlikely to have a significant impact on their attitudes towards usage.

Dependency on social media: Further, participants were asked to rate their dependency on social media for teaching and learning on a scale of 1 to 5. A frequency analysis shows that more than 60% of participants are either dependent or extremely dependent on social media, 12.20% slightly

dependent, 21.95% not at all dependent and 3.66% neutral. This indicates that a majority of participants consider themselves dependent on social media at least to some extent.

Of the tests run, a Kruskal Wallis test showed statistically significant differences between the Universities with respect to the teacher' extent of dependency on social media for teaching and learning with χ^2 (2) = 7.336 and P<0.05. Further investigation using Post-hoc which was conducted through multiple Mann-Whitney U tests shows that the significant difference is mainly between the participants of KSU (P<0.05) and IMISIU (p<0.05), with participants from KSU claiming least dependency and those from IMISIU claiming the highest dependency as seen below in Table 4.30:

Table 4.30 Mean Rank of Dependency among Universities

University	N	Mean Rank
PNBAU	23	42.98
KSU	32	33.56
IMISIU	27	49.65
Total	82	

This is a surprising result because the same pattern between KSU and IMISIU was also observed in case of student participants. This indicates that there may be factors at a University level that encourage dependency on social media. This is explored in the interviews. Unlike the student data set no statistically significant relationship was found between the academic discipline of participants and their dependency on social media for teaching and learning. This shows that the discipline of teachers probably does not dictate their use of social media for teaching.

Enhances teaching and learning: When participants were asked to indicate the extent to which they felt that the use of social media enhances teaching and learning, 100% of them agreed that it enhances at least to some extent. This indicates that teachers in Saudi Arabia recognize the potential of social media to enhance teaching and learning even when they may not personally be dependent on them. Since all of them said yes to the question, no further tests were run to check relationships. Again, this is different from the student data set in that no statistically significant relationship exists between the teachers' perceptions regarding the role of social media in enhancing teaching and learning and their level of teaching or discipline.

Teaching and learning activities: When participants were asked to choose the specific teaching and learning activities that they use social media for, information sharing emerged as the top activity followed by communication with students as seen below in Table 4.31:

Table 4.31 Specific Activities used with Social media by Teachers

Activities	Frequency	Percentage
Discussions/ Assignments / Project Collaboration	80	97.6%
Knowledge / Information Sharing	82	100%
Contacting with teachers	76	92.7%
Activities / event updates	51	62.2%
Search for books, articles and other academic information	74	90.2%
Contacting with student	81	98.8%

This is interesting as it differs majorly from the activities chosen by students, only 14.5% of whom said that they use social media to contact their teachers. This shows that either the communication is one-way or that the definition of communication used by teachers and students is different. At the same time, teachers and students both chose information seeking, sharing and academic discussions as key activities for which they use social media. Posting/getting updates about activities and events was low on the list for both groups of participants.

Importance of proposed features: Further, participants were asked about the importance of various features when using social media for teaching and learning on a scale of 1 to 5. An analysis of means shows that the participants consider all features except cost to be moderately or extremely important as seen below in Table 4.32:

Table 4.32 Importance of Proposed Features for Teachers with Mean

Importance of Social media Features	Not at all important	Slightly important	Neutral	Important	Extremely important	N	Mean	Std. D
Cost-Free/low cost	44 (53.7%)	21 (25.6%)	5 (6.1%)	11 (13.4%)	1 (1.2%)	82	1.83	1.11
Supports teaching and learning activities	3 (3.7%)	0 (0.0%)	0 (0.0%)	20 (24.4%)	59 (72%)	82	4.61	.83
Offers attractive features	13 (15.9%)	6 (7.3%)	27 (32.9%)	21 (25.6%)	15 (18.3%)	82	3.23	1.29
Support in my native language	3 (3.7%)	3 (3.7%)	0 (0.0%)	17 (20.7%)	59 (72%)	82	4.54	.96
Privacy settings	3 (3.7%)	1 (1.2%)	2 (2.5%)	12 (14.8%)	63 (77.8%)	81	4.62	.90
Friend and family are already users	4 (5%)	2 (2.5%)	3 (3.8%)	17 (21.3%)	54 (67.5%)	80	4.44	1.04

From the above data, it can be seen that teachers also consider support for teaching and learning, native language support and use by friends/family to be very important while choosing a type of social media. Of these, only native language support was considered very important by more than 50% of student participants. This shows that the preferences of students and teachers are relatively different when it comes to the features of social media. In general, teachers seem to give more importance to social media features compared to students. Whether this is because they are more knowledgeable or more cautious compared to students is explored in the interviews. Again, the fact that native language support is considered to be very important is interesting as it indicates that the preferences of non-English teachers may be different to that of English teachers when it comes to the use of social media.

A Cronbach's alpha test has been conducted on these multi- feature statements to measure the importance of various features when using social media for academic purposes. The test showed that the reliability was low if statements related to cost and attractiveness of features are considered. Hence, these two statements were removed from the reliability analysis, and a further test on the remaining four statements provided have a good internal consistency and can be considered to measure the importance of social media an alpha coefficient of 0.915, which indicates sufficient reliability.

The average of these four statements (supports my studies, support in my native language, privacy settings and friend and family are already users) was considered initially in order to establish the relations between various demographic variables and the perceived importance of these features.

A Kruskal Wallis test was conducted to measure differences between Universities with respect to the importance of features. The results showed statistically significant differences between Universities in terms of teachers' perceptions of importance regarding social media features with χ^2 (2) =7.316, $p<0.05$ and $P< 0.05$ as seen below in Table 4.33. Further, Post-hoc conducted through multiple Mann-Whitney U tests showed that the significant differences were mainly between PNBAU and the other two universities (Appendix Q).

Table 4.33 Mean Rank of Perceptions of Importance of Features among University of Teachers

University	N	Mean Rank
PNBAU	23	34.83
KSU	32	49.81
IMISIU	27	37.33
Total	82	

In order to understand this further, a Kruskal Wallis test was conducted between Universities and each of the four statements related to perceived importance of social media features. The results showed that the difference was significant in terms of two statements: "native language support" with χ^2 (2)=7.045, p<0.05 and "friends and family are already users" with χ^2 (2)=11.960, p< 0.05. According to the analysis of rank means, teachers from PNBAU rated these two features as less important compared to their counterparts from the other two Universities as seen below in Table 4.34:

Table 4.34 Mean Rank of University of Teachers versus Perceptions of Individual Features' Importance

Features	University					
	PNBAU		KSU		IMISIU	
	N	Mean Rank	N	Mean Rank	N	Mean Rank
Support in my native language	23	33.48	32	47.06	27	41.74
Friend and family are already users	23	29.33	31	47.37	26	42.19

The reasons for the above differences are unclear based on the data. Whether they are significant or not from the participants' point of view is therefore explored in the interviews. It must be noted that unlike the students, the age or level of teaching of the teachers does not seem to have any impact on their perceived importance of various social media features.

Benefits of social media: Participants were also asked about their perceptions regarding the benefits of social media for teaching and learning on a 5-point Likert scale. An analysis of means shows that the participants agree with all the stated benefits of social media for teaching and learning, with ease of contacting others at the top of the list as seen below in Table 4.35:

Table 4.35 Benefits of Social Media as per Teachers with Mean

Benefits of Social media	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	N	Mean	Std. D
Social media provides interactive teaching and learning	0 (0.0%)	0 (0.0%)	1 (1.2%)	32 (39%)	49 (59.8%)	82	4.59	.520
Supports documents/knowledge sharing	0 (0.0%)	0 (0.0%)	1 (1.2%)	29 (35.4%)	52 (63.4%)	82	4.62	.513
Support students/peers contact	0 (0.0%)	0 (0.0%)	1 (1.2%)	28 (34.1%)	53 (64.6%)	82	4.63	.509
Improves peer to peer learning	0 (0.0%)	0 (0.0%)	1 (1.2%)	32 (39%)	49 (59.8%)	82	4.59	.520
Supports collaborative work	0 (0.0%)	0 (0.0%)	2 (2.4%)	34 (41.5%)	46 (56.1%)	82	4.54	.549
Encourages student participation/motivation	0 (0.0%)	0 (0.0%)	2 (2.4%)	35 (42.7%)	45 (54.9%)	82	4.52	.549
Helps in creating personal learning environments	0 (0.0%)	0 (0.0%)	0 (0.0%)	36 (43.9%)	46 (56.1%)	82	4.56	.499
Supports interaction with opposite sex	0 (0.0%)	0 (0.0%)	3 (3.7%)	31 (37.8%)	48 (58.5%)	82	4.55	.570

It is interesting to note that teachers consider ease of contact as one of the main benefits of social media given that students did not think so. Moreover, even in one of the previous questions, teachers had said that they use social media a lot to contact other teachers and students, whereas very few students had stated it as one of their primary activities. This again shows that there is a gap between the attitudes of students and teachers. Either the communication is one-way, flowing from teachers to students, or the definitions of "contact/communication" used by them are different, or perhaps what the teachers consider adequate contact is not considered adequate by students. Further, it is also seen that teachers have given a higher mean score to all the stated benefits compared to students, indicating a gap. It could be that the teachers are overestimating the benefits of social media, or the students are not aware or in disagreement with some of the stated benefits due to reasons specific to them. All these gaps are explored in further interviews with teachers and students. In any case, it is evident that teachers consider social media to be quite beneficial, much more so than the students.

A Cronbach's alpha test have been conducted on these multi-benefits statements to measure the perceptions regarding the benefits of social media for teaching and learning. The statements provided an alpha coefficient of 0.703, which is considered acceptable and indicative of sufficient reliability. Based on this, the relationship of demographic variables was considered with the average of the above statements but no significant relationships were found. This indicates that none of the demographic factors are responsible for participants' perceptions of social media benefits for teaching and learning. This is similar to the results of student dataset where none of

the demographic variables were found to have any impact on their views regarding the benefits of social media for their studies.

Perceived barriers: The participants were then asked about the perceived barriers to their use of social media in teaching and learning on a 5-point Likert scale. An analysis of means shows that teachers consider security issues like hacking and virus to be at the top of the list as seen below in Table 4.36:

Table 4.36 Mean of Barriers to using Social Media in Studies by Teachers with Mean

Barriers to using Social media in Studies	Strongly disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree	N	Mean	Std. D
Privacy issues	3 (3.7%)	25 (30.5%)	11 (13.4%)	12 (14.6%)	31 (37.8%)	82	3.52	1.363
Lack of university support	1 (1.2%)	33 (40.2%)	18 (22%)	13 (15.9%)	17 (20.7%)	82	3.15	1.198
Distraction and time wastage	1 (1.2%)	38 (46.3%)	8 (9.8%)	9 (11%)	26 (31.7%)	82	3.26	1.359
Security issues	1 (1.2%)	10 (12.2%)	11 (13.4%)	8 (9.8%)	52 (63.4%)	82	4.22	1.155
Limited internet bandwidth	2 (2.4%)	10 (12.2%)	19 (23.2%)	15 (18.3%)	36 (43.9%)	82	3.89	1.176
Unfamiliarity with the function/features	0 (0.0%)	2 (2.4%)	25 (30.5%)	11 (13.4%)	44 (53.7%)	82	4.18	.957

From the above data, it is clear that teachers consider security issues, unfamiliarity with social media features and bandwidth issues to be the biggest barriers on average, and also when compared to students. Also, comparison with the students' dataset shows that teachers consider privacy issues, lack of University support and wastage of time as less of issues compared to the students. This again shows a gap in the perceptions of teachers and students. It is possible that some of it could be attributed to the differences in the ways the two groups use social media. It is also possible that teachers are more aware of security and bandwidth issues at a University level compared to students. It is also interesting to note that teachers consider unfamiliarity with features/functions of social media as a major barrier whereas hardly any of the students did so, indicating the higher levels of comfort and familiarity of the younger generation with the use of social media.

Further, a Cronbach's alpha test have been conducted on these multi-barrier statements to measure the perceptions regarding the perceived barriers to use of social media in teaching and learning. The statements provided an alpha coefficient of 0.701, which is considered acceptable. Based on this, it could be said that the statements have a good internal consistency and can be considered to

measure the perceptions regarding the perceived barriers of use social media in teaching and learning with sufficient reliability.

Since the group of statements show high internal consistency and hence reliability, their average was considered in order to identify any differences or relations with demographic variables. A Mann Whitney U test was conducted to measure differences between genders in perceived barriers, and the results showed statistically significant differences between the gender of participants in the average of perceived barriers with $U=605.00$, $p<0.05$. Further, Mann Whitney U test conducted with each individual statement showed that the differences between male and female teachers are significant only in their perceptions regarding the lack of support by University at $U=567.00$, $p<0.01$, and security issues at $U=638.00$, $p<0.05$. Also, male teachers gave a higher score to the lack of support compared to female teachers. On the other hand, female teachers gave security issues a higher score compared to the male teachers as seen below in Table 4.37.

Table 4.37 Mean Rank of Perceived Barriers among Gender Groups

perceived barriers	Gender	N	Mean Rank
Lack of support by the university	**Male**	42	48.0
	Female	40	34.68
Security issues	**Male**	42	36.69
	Female	40	46.55

This shows that male teachers consider the lack of support to be a bigger issue (MR=48.0) compared to female teachers whereas female teachers consider security issues to be a bigger barrier (MR=46.55) compared to male teachers. For all the other barriers, it was generally seen that female teachers gave a lower average score compared to their male counterparts even though the differences are not statistically significant. Nevertheless, this indicates that female teachers don't seem to be more concerned about any of the other barriers compared to male teachers, including privacy issues. This is in contrast to the results of the student dataset where female students were seen to be more concerned about all the barriers in general and privacy issues in particular compared to the male students. It does lend credence to the assumption that females are generally more concerned with online privacy and security (Mazman, 2011).

Further tests did not show any statistically significant differences or relationships between the average of perceived barriers and age, University, qualification, experience, academic discipline

or teaching levels. This indicates that none of these factors have an impact on the perceptions of barriers to the use of social media by participants. This is different from the student dataset results where a significant relationship was found between the University of participants and four of the perceived barriers namely privacy issues, lack of University support, distractions and security issues. Overall, it was seen earlier that students from PNBAU scored higher than the other two Universities for several of the barriers. This could perhaps be due to the fact that students from PNBAU are all female, and hence more concerned about certain barriers whereas teachers from PNBAU could be both male and female. In other words, the differences in case of students is perhaps more due to their gender than their University.

Gender: Indeed, similar to the student dataset, when the teachers were asked if their gender influences their use of social media in any way, a majority comprising 90.2% (N=74) of the participants replied in the affirmative.

Academic discipline: On the other hand, unlike the students, a majority of teachers comprising 92.7% (N=76) of the sample also agreed that their academic discipline influences their use of social media. This is interesting as none of the tests showed any statistically significant relations between academic discipline and the various questions related to the use of social media by participants. The ways in which gender and academic discipline influences the use of social media by participants is explored in the interviews.

University supports and policy: The participants were asked if their University supports the use of social media and if it has a social media policy. Majority of participants said yes to both questions. When asked about their University's support for the use of social media, 92.7% (N=76) of the participants said yes, and when asked about its social media policy, 87.8% (N=72) said yes. This indicates that all the studied Universities likely do support the use of social media and have a social media policy as well. Any negative responses are likely to be the result of individual opinions and/or lack of awareness.

4.4.4 Key Findings of Teachers' Quantitative Data Analysis

Similar to the student analysis, the analysis of the teacher dataset has also revealed certain interesting and at times paradoxical patterns. While the findings will be discussed in greater depth in the forthcoming chapters, a brief overview is presented here.

The analysis of the teacher dataset revealed that teachers from the computing and information science domain were the highest number of respondents. This could be a self-selection bias, as such teachers are likely to be well-acquainted with the use of technology and social media. But the tests did not reveal any statistically significant relationships between the academic disciplines of teachers and their use of or attitudes towards the use of social media. Nevertheless, the relationship between academic discipline on the participants' use of social media is considered and explored in the interviews, particularly since the respondents themselves seem to strongly agree that there is a relationship. The other demographic variables of the participants are reasonably well-balanced.

Similar to the student dataset, the analysis of teacher dataset reveals that all the participants are comfortable with the use of technological devices, internet and social media. In fact, 100% of the participants indicated that they use social media for both everyday and academic purposes, which is even higher than that of students. Again, while this may be a result of self-selection bias, it nevertheless indicates the popularity of social media among the participants and confirms their suitability for the study. The data showed an inverse relationship between the age of participants and the time they spent online, indicating that older teachers spend less time online. This did not translate into their use of social media and participants across all age groups indicated similar social media usage patterns, showing that age does not have an impact on their use of social media. This is different from the students where both age and level of study displayed statistically strong relationships with various aspects of social media usage.

The teachers also differed from students in terms of the activities for which they use social media. While communication and contacting others was at the bottom of the list of activities for which students use social media, for teachers it was a major activity. It can be posited that the differences are due to varying levels of comfort in contacting each other, or varying definitions of contact and communication, or varying perceptions of what constitutes adequate communication. The actual reasons are explored and discussed in the interviews. On the other hand, both teachers and students

claimed to use social media a lot for information seeking, sharing and academic discussions while posting/getting updates about activities and events was low on the list for both groups of participants. It is possible that either the two groups are influencing each other's usage, or that the use of social media for certain activities is encouraged by Universities in Saudi Arabia. Again, the reasons are explored and discussed in the interviews.

Further, the teachers also claimed to use social media more for academic work and business work, and less for entertainment compared to students. Similar to female students, the data showed that female teachers seemed to use social media more for academic work compared to their male counterparts substantiating the findings of some researchers like Mishra and Monippally (2014), who found that men and women use social media differently.

Unlike the student dataset, the dataset for teachers revealed no statistically significant relationships between the age of participants and their use of or attitudes towards social media. Teachers across all age groups seem to be use all types of social media equally frequently for everyday purposes, with Facebook, Twitter, Wikipedia and YouTube being the most popular among social networking sites, blogs, crowdsourced projects and content communities respectively. In this, the usage patterns of teachers and students seem to match in that they use the same types of social media with comparable frequencies although teachers seem to use crowdsourced projects more frequently, and social networking sites slightly less frequently than students.

When it comes to academic usage, the patterns of students and teachers are somewhat different. Teachers use social media like LinkedIn, Blogger and Slideshare much more frequently for academic purposes compared to students while their usage of social media like Instagram, Wikispaces and Flickr is relatively lower.

Similar to the students, majority of the teachers also agreed that they are dependent on social media for their teaching and learning activities to some extent. Also similar to the students, a statistically significant relationship was found between the University of participants and their dependency on social media, with participants from IMISIU claiming the highest dependency. Given that the pattern was seen both in case of students and teachers, it stands to reason that there may be factors at a University level that influences social media usage. This is in line with the findings of researchers like Reuben (2008), Belanger, Bali and Longden (2014) and Freeman (2016), who

found that Universities have started to realise the potential of social media and are implementing specific measures and strategies to utilise it.

Further, all the surveyed teachers also agreed that social media enhance teaching and learning in Universities. This indicates that teachers in higher education in Saudi Arabia recognise the potential benefits of social media in education. This is similar to the results of the student dataset although no relations were found between the demographic variables of participants and their perceptions of social media enhancing studies. In general, very few relationships were found between the demographic variables of teachers and their use of and attitudes towards social media. This is unlike the results of the student dataset where factors like age, level of study and academic discipline were found to have significant relationships with their use and attitudes towards social media. This is interesting as it indicates that the relationships are not isolated and should be viewed as a whole.

The results of teacher and student datasets also differ in terms of the perceived importance of social media features, benefits and barriers. While teachers consider privacy settings, support for teaching and learning, native language support and use by friends/family to be important factors that influence their choice of social media, only native language support among these was given comparable levels of importance by majority of students. This shows that the preferences of students and teachers are relatively different when it comes to the features of social media. Yet, it does reinforce the findings of studies that have shown that that native language support is an important feature of social media for non-Western users (Al-Saleem, 2011; Hossain and Veenstra, 2017).

Further, teachers also considered social media to be much more beneficial compared to students, with ease of contact at the top of the list of benefits. In terms of barriers, teachers consider security issues, bandwidth issues and unfamiliarity with social media features to be the biggest barriers and privacy issues, lack of University support and wastage of time as less of issues compared to the students. All these findings confirm that while the usage and attitudes of teachers and students are similar in some aspects, they also differ considerably in other aspects. This indicates a gap that can perhaps be bridged to some extent to improve the use of social media among higher education institutions in Saudi Arabia.

4.5 Qualitative Analysis of Teachers' Data

Similar to the student analysis, the quantitative analysis of teachers' data was followed by a qualitative analysis of the interviews conducted with them. Again, after transcribing, translating and verifying the interview data, open codes were created for each interview. The codes were then consolidated into a single Excel sheet, grouped into categories through a process of axial coding and selective coding was applied in order to build the categories into themes. The upcoming sections outline the categories and the themes for the teachers' data that emerged through the process, as well as their analysis. The participants are represented by the letter "T" (for teacher) followed by a number.

Overall, the analysis of qualitative data for teachers yielded four themes and 12 categories with several sub-categories under each category. While some of the themes and categories are similar to those of students, some are completely unique to teachers. Together, the main themes and categories for the teacher data can be visualized as shown below in Figure 4.6:

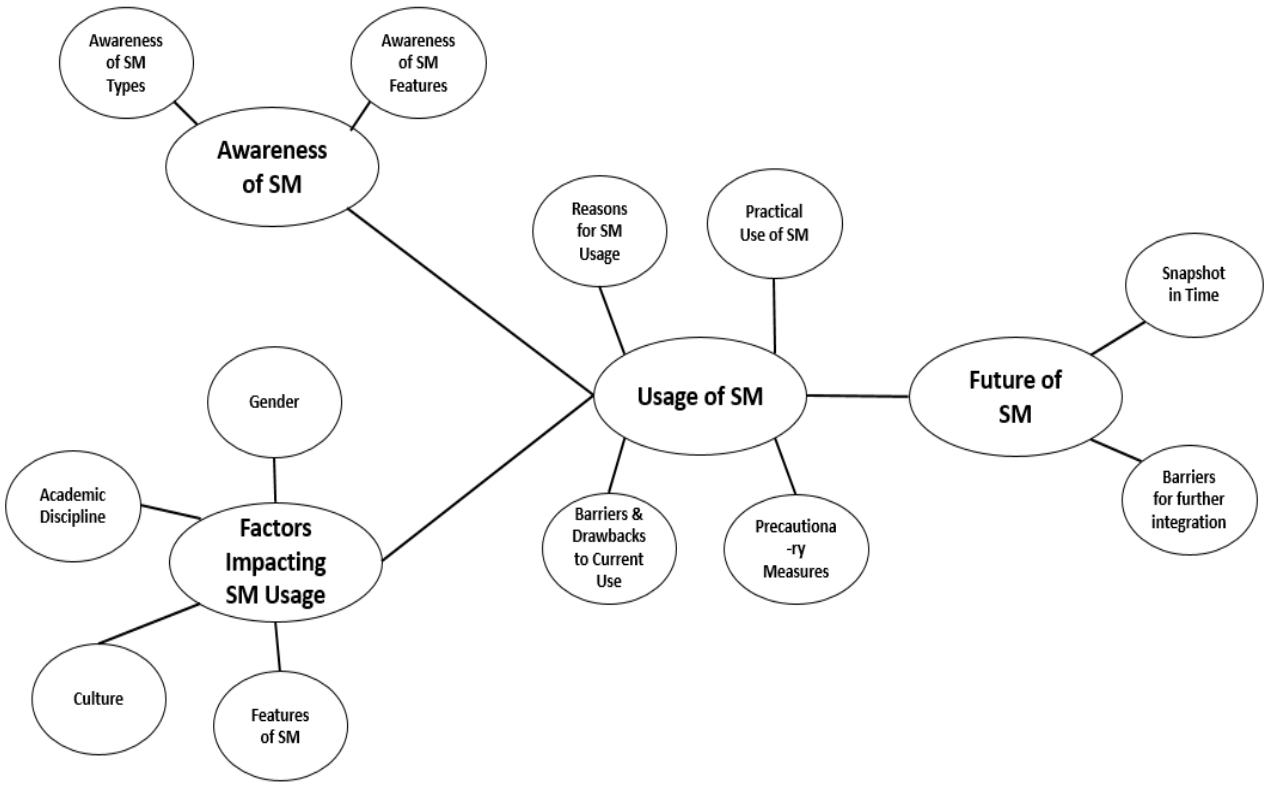

Figure 4.6 Core Themes and Categories for Teachers

4.5.1 Details of Interviews

Similar to students, interviews were conducted with five teachers. Two of the teachers are from KSU, two are from IMISIU and one from PNBAU. The idea behind the selection of participants in this manner was to ensure a male and female representative from each University in the interviews. Since PNBAU has only female staff members, only one participant was selected from this University. The participants belong to various age groups and academic disciplines, with varying qualifications, years of experience and teaching levels. Again, the idea is to ensure an even representation of demographic and academic characteristics. Based on the analysis of the interviews, the following core themes, categories and sub-categories as seen in Table 4.38 have been derived from the data which will be discussed in subsequent sections:

Table 4.38 Themes and Categories for Teachers

Core Theme	Categories	Sub-Categories
Awareness of SM	Awareness of social media Types	Social networking sites, Blogs, Crowdsourced projects and Content communities
	Awareness of social media Features	Forging online connections, Information sharing, Information seeking, Socialisation and communication, Broadcasting
Usage of SM	Reasons for social media Usage	Meeting students in their own space, Reusability, Control
	Practical Uses of Social media	Offline communication with students, Classroom teaching assistance, Enhancement of teaching and learning, Enabling self-learning, Collaboration with other educators, Career advancements
	Barriers and Drawbacks to Current Use	Irresponsible use by students, Distraction and time wastage, Poor quality of information, Addiction and Overdependence, Attention Seeking Behaviour
	Precautionary Measures	Monitoring and restricting, Creating Awareness
Factors impacting usage of SM	Gender	Gender-specific behavior
	Culture	Communication, Classroom behaviour
	Discipline	Discipline-specific usage
	Features of Social media	Caution, Usefulness for teaching and learning
Future of SM	Snapshot in Time	Marketing, Communication and broadcasting, Encouraging responsible use
	Barriers for Further Integration	Technical barriers, Privacy and security issues, Legal and ethical barriers, Process barriers, Unreliability of Social media, Lack of interest/usefulness

4.5.2 Awareness of Social Media

Again, similar to the student interviews, teachers were also probed about their awareness of various social media types and features. The idea was not only to establish whether they have a good awareness of social media to answer further questions, but also to compare any differences between the awareness levels of students and teachers. Again, the theme was derived from two core categories: awareness of social media types and awareness of social media features.

4.5.2.1 Awareness of Social Media Types

Compared to the students, the teachers mentioned fewer social media although this may be because they were not asked specifically to list all the social media they were aware of. Nevertheless, the responses indicated that they have a good awareness of social media similar to the students. The list of social media mentioned by each of the participants is shown below in Table 4.39:

Table 4.39 List of Social Media Mentioned by Teachers

Participant	Social media Mentioned
T1	Twitter, Google Plus, Facebook, Instagram, LinkedIn, Slideshare, Connected educator and Ted-ed
T2	WhatsApp, YouTube, Instagram, Wikipedia, Facebook, Twitter, Reddit, Quora, Blogs
T3	WhatsApp, Facebook, YouTube, Todaysmeet
T4	WhatsApp, Facebook, YouTube, SchoolTube, LinkedIn, EquityMaps, Webjets
T5	Facebook, Twitter, LinkedIn, YouTube, Scribd

From the above, it is seen that the teachers talk about some unique social media that have specific functions or content specifically tailored to educators. These include Connected educator, Ted-ed, Quora, SchoolTube, Scribd, Todaysmeet, EquityMaps and Webjets. None of these were included in the survey. Further, it is also evident that the teachers are aware of all four categories of social media mentioned in the survey i.e. social networking sites, blogs, crowdsourced projects and content communities. All the teachers also mentioned that they are regular users of social media both for personal and professional purposes. This again indicates good awareness and use of social media among teachers, and the growing landscape of social media among educators in Saudi Arabia. No major difference was found in the awareness levels of teachers and students as far as the various types of social media were concerned.

4.5.2.2 Awareness of Social Media Uses

Further, teachers were also asked about their awareness regarding the various features of social media, regardless of whether they personally use those features or not. Based on the discussions, the following key uses emerged:

Forging online connections: The ability of social media to foster online connections between people was mentioned by all teachers in various contexts. They mentioned that social media is a digital environment that allows people to connect to each other digitally and allows them to communicate. Based on this, it is evident that similar to students, teachers also consider social media as a medium that helps to forge virtual connections.

Information sharing: The use of social media for various kinds of information sharing was also mentioned by all the five participants. They stated that social media allow users to share thoughts and ideas, discuss them with each other, and upload or download data. Talking about the types of information that can be shared, T4 said:

> *"This can be ideas, written words, multimedia content, resources anything"* (T4)

Again, from this it is clear that similar to students teachers also consider information sharing a key function of social media.

Information seeking: The participants also discussed the ability of social media to allow information seeking. T3 emphasized the information seeking aspect of social media by explaining that the connections created by social media can help in the exchange of information. Participants also social media to a combination of various information seeking, sharing and communication channels:

> *"You can think of social media as a combination of many things….newspapers, telephone, television, radio, magazines, opinion forums, meeting places and much more"* (T4)

Other participants also expressed similar ideas about the information seeking abilities provided by social media. It must be noted that compared to the students, teachers talked more about the information sharing aspect of social media than the information seeking. This is likely because of their profession in which they share a lot of information with the students. Indeed, further

discussions make it clear that information sharing is one of the primary purposes for which they use social media.

Socialisation and communication: The participants also talked about the uses of social media in enabling online socialization and communication with others. T2 called social media an "online social platform" and explained that it helps people from all walks of life connect with each other. Other teachers similarly emphasized the social and communication aspects of social media and their ability to foster connections.

Broadcasting: Further, similar to students, teachers also talked about the abilities of social media to help in enabling communication with a broader audience and express their ideas. They elaborated on this by equating social media to a variety of traditional broadcasting channels:

> *"You can think of social media as a combination of many things….newspapers, telephone, television, magazines, opinion forums, meeting places and much more"* (T4)

From this, it can be seen that the awareness of teachers with respect to the uses of social media is more or less similar to that of students. While there are some additional uses mentioned by students such as career advancements that the teachers did not mention, analysis of further discussions make it evident that they are aware of these features quite well. To this end, the awareness of teachers with respect to the uses of social media can be said to be very similar to that of students.

4.5.3 Usage of Social Media

The next theme identified through the analysis of qualitative data is the usage of social media among teachers. Similar to the student data, this refers to the ways in which teachers use the various social media in their daily lives. Unlike the students, teachers were only asked about their professional use of social media and not about the everyday use as it was not considered relevant to the objectives of the research. To this end, all the discussions with teachers about the uses of social media were with respect to their professional use. This theme has been derived from two categories: reasons for social media usage, and practical use of social media.

4.5.3.1 Reasons for Social Media Usage

Meeting students in their own space: One of the key reasons mentioned by teachers for the use of social media in an academic setting was that it allowed them to connect and communicate with students in their own space. Some of the teachers explained that their students are more open to communication and discussions on social media compared to classroom discussions, and are more comfortable on social media. Further discussions point towards the culture of Saudi Arabia as a reason for this, which is explored in forthcoming sections.

When teachers were asked if they use any particular social media because their students use it, they replied in the affirmative and stated that they use social media like Facebook and Wikipedia as it is popular among their students. In fact, the teachers also explained meeting students in their own space as one of the reasons for their use of less popular social media like MySpace and Tumblr. This goes some way towards explaining the results of the quantitative analysis in which teachers were found to be using less popular social media like MySpace and Tumblr. T4 also said that she uses certain social media that the students are comfortable with as sometimes the alternatives do not work:

> *"My students like YouTube so until I find a better alternative, I use it. Same for blogs, I tried getting them to use a journaling app called Penzu instead but it did not give a good response"* (T4)

T1 also said that the process works in reverse as well in that she too encourages the use of particular social media among her students:

> *"I ask them to look at some YouTube videos or Slideshare ppts or some academic websites, which I feel may be useful"* (T1)

The above statements reveal some of the reasons behind the teachers' use of certain social media like Wikipedia, YouTube and Blogger, and even relatively unpopular (and now defunct) ones like MySpace and Tumblr. It also reveals the reason behind the popularity of similar social media among teachers and students in Saudi Arabia. It appears that both teachers and students encourage the use of certain social media among each other, and this was also confirmed during the analysis

of qualitative data of students. These trends were in fact revealed during the analysis of quantitative data, and the qualitative data helps to shed more light on the reasons behind them.

Reusability: Another reason that the teachers mentioned for the use of social media in academic settings was the ability to reuse data and content, without having to put much effort. They talked about the ease of information sharing using social media by pointing out that once the information or resources are uploaded, students can just be pointed to it in future, which saves time. This is similar to reasons like flexibility and convenience of social media pointed out by students. To this end, it is evident that teachers and students have some similar reasons for using social media even though the actual purpose might be different.

Control: The participants also talked about the control over content and actions that social media provide. They said that the content can be shared with individual people or groups, and access can be controlled which ensures quality. They also talked about control over the actions of members participating in social media groups by stating that inappropriate or unreliable information can be removed.

From this, it is evident that teachers are talking about control over the social media forums and groups that they create and maintain for their students. Further discussions make it clear that the content on social media in the broader space cannot be controlled, and teachers indeed consider that as one of the drawbacks of social media, which is discussed further.

4.5.3.2 Practical Uses of Social Media

The next category under the teachers' usage of social media relates to their actual use of social media in the academic context. As mentioned previously, teachers were only asked about their professional use of social media in line with the objectives of the present research. Consequently, all the sub-categories in this category refer to their professional use. Based on discussions, the following practical uses emerged:

Offline communication with students: When participants were asked about their use of social media for professional purposes, all of them mentioned communicating with students outside the classroom as a key use. This includes not just simple communication but also academic discussions, broadcasting and information/content sharing through the use of social media. In

terms of offline communication, they stated that they post updates about assignments, share videos and other resources, share information and post updates about exams. They also mentioned answering queries from students and connecting with other teachers, as well as using social media for their own learning. The teachers further felt that use of social media leads to better communication with students, and encourages communication from their end.

From these, it is evident that teachers consider communication as a key practical use of social media in the academic context. This is interesting because teachers seem to consider communication with students as an academic use of social media whereas students do not do so. Based on further conversations, this appears to be because teachers consider anything related to their profession as an academic use of social media. In other words, teachers did not distinguish between the "academic" use and "professional" use of social media, given that academics is their profession. They considered anything related to their profession as an "academic" use of social media. Hence, they classify communication as an academic use of social media given that communication with students could be considered related to their profession even when it may not be strictly related to studies.

Classroom teaching assistance: The second practical academic use of social media mentioned by teachers was to assist in classroom teaching. All the teachers talked about the different ways in which they use social media to enhance the classroom learning experience for students:

> *"I use audio-visual things like slides from Slideshare, ted talks and conference speeches in classroom to explain a topic"* (T1)

Other teachers expressed similar views where they mentioned playing YouTube videos, broadcasting educational audios and videos using the projector, and playing powerpoint slides in classrooms. Some of them also claimed that they use social media like blogs to encourage classroom discussions by asking students to post articles and comments, and discussing them in the classroom as well as to encourage interesting discourses. T4 also explained that not only does she play videos using YouTube, but is exploring other video hosting social media for classroom use such as Schooltube. She further mentioned experimenting with other unique social media like EquityMaps and WebJets to aid in classroom teaching.

It must be noted that both teachers and students mentioned playing videos in classrooms as a major academic use of social media, which shows that they are open to the use of videos and other audio-visual aids in classrooms. This indicates the growing popularity of social media. On the other hand, it must also be noted that teachers claimed to use social media a lot more than students said it was used by their teachers. Things like conference speeches, ted talks and seminars inside classrooms were not mentioned by any of the students when asked about the observed uses in teaching. This could be due to: a) differences in definition of social media and b) teachers experiment with newer social media but do not always share them with students. From further discussions it appears that both are a part of it. It appears that the students consider specific activities and tools as social media, but they are not aware of social media aimed at educators. Also, teachers have mentioned about a lot of barriers to the use of social media, which is discussed in further sections. So it appears that even though they try newer things they do not always implement them in classrooms.

Enhancement of teaching and learning: The participants considered the use of social media to enhance teaching and learning as another major practical use of social media. They mentioned several ways in which social media enhance teaching and learning. This included fostering the development of new ideas, connecting to other teachers and collaborating with them on joint projects, discovering new platforms to aid teaching, and keeping up with the latest developments in their fields. Teachers also talked about how social media help enhancement of their professional expertise and knowledge. In other words, teachers use social media to enhance their own knowledge and expertise in order to do their current job better. Towards this, they mentioned using social media like Ted talks, live streams, podcasts, connected educator and ted-ed that have content specific for teachers. They further claimed that social media helps enhance teaching and learning by acting as an information repository for various types of content for future use. They said that it enhances teaching by providing different methods for involving various types of learners:

> *"it provides these different ways and formats of teaching so all students can be engaged and involved" and "social media has something for everyone…the audio-visual learners, the immersive learners, people who like to learn by reading"* (T4)

Overall, teachers felt that the reason social media successfully enhance learning is because students are so comfortable with them. This is in line with the findings of quantitative data where 100% of teachers agreed that social media help to enhance teaching and learning.

Enabling self-learning: Another practical use of social media mentioned by teachers was the enabling of self-learning among students by allowing them to be more independent. They claimed that social media give ownership to students and allow them to experience working with their peers in real time based on some general guidelines provided by teachers. They felt that this allows students not only to self-learn but also to become more confident in their abilities.

Collaboration with other educators: Similar to students, the teachers also claimed to use social media for academic collaborations. In their case, the collaboration was to enhance their knowledge and expertise, build professional connections, share knowledge, create resource repositories or simply help out others. Towards this, they explained that they are part of professional teachers' networks and communities where they participate, ask and answer questions, share information, plan schedules, create joint projects and discuss other academic issues.

This indicates that similar to the students, the teachers in Saudi Arabia are also making use of the content collaboration capabilities of social media. In fact, in case of the teachers the collaboration seems to go beyond their own colleagues and students, and extend to other professional bodies.

Career advancements: The final practical use of social media mentioned by teachers was career advancements. This refers to the activities that they do for their own career growth. They explained that they use social media like LinkedIn to network with others, post articles related to their fields, and help students with their own career advancements.

While helping students with their career is not related to teaching directly, it is nevertheless included as the teachers consider it a practical professional use. Moreover, it helps to explain the differences in the usage patterns of teachers and students where teachers were found to use social media like LinkedIn more compared to students. The above data helps to explain the reasons for the same.

4.5.3.3 Barriers and Drawbacks to Current Use

The next category that emerged under the usage of social media by teachers was the barriers and drawbacks to the current use in academics. While the students spoke about the barriers and drawbacks as well, the teachers' data differs in that two kinds of barriers emerged - barriers to current use and barriers to further integration. In terms of current use, the following key issues emerged:

Irresponsible use by students: Several of the participants spoke about the irresponsible use of social media by students. This included privacy and security issues, posting or sharing of inappropriate content, posting private information, doxing others and relying on half-baked knowledge gained from social media. Teachers said that students sometimes raise questions based on inaccurate information gained from social media and while they are prolific users of social media, they lack the knowledge to use the tools meaningfully for their studies. They also said that excessive use of social media for knowledge weakens the fundamental knowledge base.

Participants also talked about the dangers of posting irresponsible information on social media that can be harmful to others, and are concerning for parents and teachers:

> *"I read about some dangerous games being played online that urge users to perform extreme dares including killing themselves. Of course, this is an extreme example but you know, the danger is real"* (T4)

While the privacy and security concerns were also raised by the students, the other concerns are unique to teachers. Further, these additional issues were not part of the quantitative survey either. This indicates that teachers have a lot of additional concerns about the use of social media, which may be preventing them from exploring advanced uses.

Distraction and time wastage: Similar to the students, the teachers also talked about the distraction and time wastage caused by social media. But they talked about it in terms of two aspects: first was the distraction and time wastage experienced by themselves, and second was the distraction and time wastage experienced by their students. Firstly, they felt that the information overload on social media can cause distraction and wastage of time for teachers as they cannot keep up with every new teaching trend, and secondly, they felt that the staggering amount of

information can cause distraction and confusing among students. This is in line with the results of teachers' quantitative data where distraction and time wastage emerged as moderately important issues.

Poor quality of information: The teachers also spoke about the poor quality of information available online in general, and on social media in particular. This includes unreliable, misleading, inappropriate and/or shallow information. They felt that using the information on social media causes problems in basic understanding of a topic as they are shallow and inaccurate, which in turn leads to poor quality of academic work. They further said that the students themselves post bad information, which is part of the problem.

While students also spoke about the unreliability of information, the above data shows that teachers are concerned about other problems with the quality of information such as inappropriateness, shallowness and privacy. Again, this indicates that teachers have a lot of additional concerns about the use of social media compared to the students.

Addiction and overdependence: During the qualitative analysis of student data, some of the participants spoke about their dependence on the internet and social media, and also the peer pressure and the fear of missing out that causes the dependence. Teachers spoke about this issue in further detail, and claimed that students are dependent on social media to the point of addiction. They claimed that this was one of the reasons the Universities discourage overuse as they want students to focus on actual learning instead of being overdependent on the internet and social media.

Further, similar to the students, teachers considered peer pressure and fear of missing out (FOMO) to be key causes of the addiction and overdependence. Since this fact was confirmed by the students themselves during their interviews, it lends credence to the view of the teachers. The teachers claimed that students want to broadcast every aspect of their life, be aware of everything that is happening around them and are unable to set limits for themselves. They also mentioned that students miss out on social skills and personal connections due to this social media addiction.

It must be noted that the teachers seem to assume that students are always using social media when they are on their mobile phones or other devices, which may not necessarily be the case. When

asked about it, they justified the assumption by stating that the students were generally observed to be on social media on their phones. They claimed that this was different for them as they had to do their research using traditional methods and hence are not addicted to social media. Indeed, the quantitative data shows that teachers spend less time online compared to students, and the above data sheds light on the reasoning behind this.

Attention-seeking behaviour: Further to addiction, teachers also spoke about the attention seeking behaviour exhibited by students on social media. They claimed that students take the instant information for granted and tend to post personal and/or wrong information online without caring about the consequences to gain attention. They also stated that the easy availability of information on social media makes students feel self-important, self-absorbed and knowledgeable even when their knowledge is shallow.

Overall, from the above, it is evident that teachers consider social media to have several drawbacks that were not part of the survey or the narrative of students. This indicates that they are lot more concerned about the use of social media compared to students, which may be a reason for their limited use in Saudi Arabia education currently.

4.5.3.4 Precautionary Measures

Due to the barriers and drawbacks, the teachers also spoke extensively about the precautionary measures taken by themselves and their University when it comes to actual use of social media. In the analysis of student data, it was seen that students consider their teachers and Universities to be overly restrictive in terms of allowing social media usage, and felt it was an unnecessary hindrance. The teacher data analysis provides the reasoning behind the same, and highlights the gap between the perceptions of students and teachers. In terms of the actual measures taken, teachers spoke of the below steps:

Monitoring and restricting: The teachers spoke about monitoring the use of social media within the University and classrooms, and limiting or restricting their use as necessary. They explained that as educators, they have to be cautious about what they allow and monitoring things, which is why the University has strict rules in place. They also mentioned some of the measures they took personally such as double-verifying social media content, monitoring social media, removing

things where necessary and limiting the amount of social media used in teaching. All this is in line with the findings of the student analysis where students pointed out that their University monitors the social media usage and restricts and/or blocks content and apps.

Creating awareness: The teachers also spoke about creating awareness among students about responsible use of social media. Towards this, they mentioned educating students about privacy and security, encouraging them to use privacy and security features, and warning them not to rely on social media and blogs as official sources of information. They also said that their University tries to educate students as well and keep them aware of the dangers of social media.

While the above data indicates that the teachers and the University are trying to take precautionary measures in order to address the concerns related to social media usage, it is evident that there is still a gap between the perceptions of teachers and students. The students had earlier pointed out that they are aware of the dangers of social media and yet find the restrictions excessive. The students had also indicated that they would like to have more social media integrated into their education. This shows a gap in what students perhaps consider as micromanagement/interference and teachers consider necessary precautions. It also indicates a need to create more awareness among students, and the need to find a middle ground as far as further integration is concerned.

4.5.4 Factors Impacting Social Media Usage

The third theme that emerged through the analysis of teacher data is the factors that impact the usage of social media among them. The analysis of quantitative survey data for teachers showed that a majority of the participants consider gender and academic discipline to influence their usage of social media. The analysis of student data confirmed the same while adding culture as another factor influencing usage. The analysis of teachers' data further confirmed and corroborated those factors, while revealing an additional factor i.e. the features of the social media as influencing usage. To this end, this theme is made up of four categories: gender, academic discipline, culture and features of social media.

4.5.4.1 Gender

During the analysis of quantitative data, an overwhelming majority comprising 90.2% (74) of the participants had claimed that their gender influences their use of social media. This was explored

further during the interviews, which confirmed the ways in which gender influences usage. In order to understand the entire picture, two participants who said that their gender does not influence social media usage were also chosen for the interviews. The data was then classified into the below sub-category:

Gender-specific behaviour: Similar to students, the teachers mentioned specific behaviours expected of them due to their gender. This was true for both male and female participants. For instance, a male participant said:

> *"men have to be even more careful I feel. Because sometimes even if our intentions are correct, the chances of misrepresentation are high on a social platform"* (T3)

T4 on the other hand, claimed that women have to be more careful, and this is particularly so when it comes to online privacy and security. She further explained that although the attitudes were changing, it was still initial stages. She also agreed that the need to be careful is not unique to women given the unique culture of Saudi Arabia where there are certain behavioural expectations from both men and women. She further explained that even in daily life, gender affects her social media usage as the sites and tools she commonly uses as a woman are different from those of men. On the other hand, T2 said that while gender plays a role, it alone cannot be attributed to any behavioural differences in social media usage and there was need to consider the differences holistically.

In order to get a balanced picture, teachers who said yes and no were both included. When asked why gender does not influence usage or behaviour, T1 said that although it influences her behaviour at a personal level, it does not influence at a professional level. T5, on the other hand said that gender does not influence his behaviour because he is very careful all the time, regardless of the context.

It must be noted that even the participants who said no did not outright deny the impact of gender on their social media behaviour but just gave reasons on why it does not influence their own behaviour specifically. To this end, it is evident that gender does have an impact on the social media behaviour of all participants, even the ones who said no. This is in line with the findings of

the quantitative data where a majority of participants claimed that gender has an impact on their behaviour.

Further, the findings are in line with the findings of the student analysis as well where both male and female participants claimed that they have to be more careful online due to their gender, albeit for different reasons. For men, it was the need to not offend women whereas for women it was concerns over privacy and security. The findings of the teachers' data corroborates the same, and also corroborates the quantitative finding which indicated that women are more concerned about privacy and security issues compared to men. The participants did not claim any other differences in social media usage due to their gender.

4.5.4.2 Academic Discipline

During the analysis of quantitative data, a vast majority of teachers comprising 92.7% (76) of the teachers had agreed that their academic discipline influences their use of social media. This was different from the student data where most of the students said that their discipline does not influence social media usage. The interview discussions shed further light on the issue in terms of the below sub-category:

Discipline-specific usage: Four of the five participants spoke about the ways in which discipline influences their social media usage. Talking about the same, they said that it influences the type of tools they use but at the same time they also pointed out that the everyday usage patterns might be similar. Some of them claimed that their discipline needs them to keep up with latest trends and happenings due to which they have to use social media more, explore different types of social media and generally be more active of social media.

In order to get a balanced view of the situation, one teacher who said no to the impact of academic discipline on social media usage was chosen. When asked about the same, T4 said that discipline does not influence social media usage mainly because of the demands of today's academic systems which force teachers to be aware of issues outside their field of discipline. She also said that the nature of social media itself prevents discipline-specific usage as it is quite vast.

The reasoning behind participants claiming that their discipline influences social media usage is similar to that of students. The only difference is that more teachers acknowledge the impact of

discipline compared to students. This could be due to the fact that teachers have to remain much more focused on providing meaningful and relevant content compared to students, and as a result actively seek more discipline-specific tools and sites. It could also be that teachers are more knowledgeable about tools and websites relevant to their disciplines compared to students, which in fact was acknowledged by some of the students themselves. Overall, the impact of academic discipline on social media emerged to be related mostly to the type of tools used by teachers from different disciplines.

4.5.4.3 Culture

Similar to the students' data, the qualitative data for teachers also indicated culture as a factor that influences their social media behaviour and usage. Unlike the students, the teachers spoke of specific academic situations in which culture influences the usage of social media. Overall, they spoke about impact in terms of the following sub-categories:

Communication: While all the participants spoke about the impact of culture on the way it influences social media communication, the findings are rather contradictory. On one hand, teachers indicated that social media encourage better communication due to the difficulties in face-to-face communication between students and teachers in Saudi culture. On the other hand, they also claimed that they do not prefer interacting with the students directly on social media. For instance, talking about communication on social media, the teachers said that it encourages students to be more open as students in Saudi Arabia are reluctant to speak up in classrooms and social media give them a chance to be more open. On the other hand, despite stating that social media encourage open communication, the teachers also said that they do not really interact on a 1:1 basis with their students nor do they prefer to do so due to the teacher-student culture of Saudi Arabia. They also claimed that communication on social media can sometimes lead to misunderstandings due to the lack of verbal cues, and they have to be extremely cautious to avoid this particularly given the conservative nature of their culture.

In fact, T3 admitted that he not only feels uncomfortable being friends with the students, but also with their parents stating that it is important to maintain boundaries. This was corroborated by others who said that social media create confusion because the cultural boundaries and rules that are clear in real life become fuzzy online.

It must be noted that this is not in line with what the students said. Most of the students admitted that while they do not get overfamiliar with teachers due to their culture, they do not mind friending or talking to their teachers on social media if the teachers did not mind. This indicates that students are perhaps more willing to overrule the cultural rules whereas teachers are not. Furthermore, the analysis of student data had indicated that the students themselves did not feel that social media allowed them to communicate freely with their teachers. This indicates that perhaps what teachers consider sufficient communication and openness is not the same for students, and students expect more.

Classroom behaviour: Another specific situation that the teachers pointed out with respect to the impact of culture was classroom behaviour and usage. They talked about how culture had an impact with respect to the choice as well as the use of social media within the classrooms. They claimed that social media that work elsewhere may not work in Saudi Arabia classrooms given the unspoken rules of the system which demand formality, a relationship of respect with teachers and a respectful atmosphere in the classrooms. They stated this as a primary reason for the limited use of social media in Saudi classrooms.

Again, this confirms the gap between the perceptions of teachers and students, as it appears that students are more willing to overlook these rules and use newer and more advanced social media in their learning.

4.5.4.4 Features of Social Media

Unlike the quantitative analysis of students, the quantitative analysis of teachers earlier revealed that they consider the features of social media to be quite important, and it affects their choice and usage. The interviews probed this aspect further to understand the reasoning behind the same. From the discussions, the features of social media emerged as a factor that impacts their usage. The reasons for it are as below:

Caution: The teachers indicated that one of the key reasons due to which the features of social media are important to them was the need to be cautious, not only for their own online safety but also the safety of their students. They explained that apart from being cautious themselves, they also advise students to use the privacy and security features of social media. The teachers stated

that as educators, they need to worry not just about their own online safety and privacy, but also that of those students. They further explained that they consequently have to take a lot of precautions at the University level before allowing the use of any social media, which is why cost is not important for them. In terms of practical measures, they explained that the University uses safety and security features to monitor and block inappropriate content. This explains the results of the quantitative analysis where teachers rated features like privacy and security settings as highly important. It also throws light on why they rated features like cost as less important.

Usefulness for teaching and learning: The second reason teachers considered the features of social media to be important was to ensure that the chosen social media were useful for teaching and learning. Since the teachers were speaking only about the academic/professional use of social media, they said that unless the social media had features useful for teaching and learning, they would not use it. This included solving some practical problem, adding some benefit for a majority of students, or support teaching in some way. Again this confirms the findings of the quantitative data where features like usefulness for teaching and learning were rated highly by teachers.

4.5.5 Future of Social Media

The final theme that emerged from the analysis of qualitative data for teachers was the future of social media in the selected Universities in Saudi Arabia. The idea is to identify the views of teachers with respect to the current state of social media usage within their Universities, and their opinions regarding the potential for further social media integration. This is based on two categories: snapshot of social media at this particular point in time and barriers to further integration.

4.5.5.1 Snapshot in Time

Contrary to the students, all the teachers seem to feel that the University is doing adequately in terms of using and encouraging the use of social media in teaching and learning, given the limitations and barriers faced by them currently. Even those who admitted that more could be done stressed that it would take time and effort to do it in a responsible way within the boundaries of policy frameworks. In terms of the actual social media activities performed by the University, the teachers talked about three main sub-categories:

Marketing: The teachers informed that their Universities use social media as a way to reach current and future students. They explained that their Universities use social media like Facebook, Twitter and YouTube for outreach programs, to share admission and marketing materials, and to launch social media marketing campaigns.

Communication and broadcasting: Similar to students, the teachers also said that their University uses social media for communication and broadcasting activities. This also included sharing of information and resources. The intended target audience was stated to be both parents, current students, potential future students and alumni. The teachers stated that the Universities use social media to communicate with all these groups about any new developments, emergency updates, major announcements, events, achievements and any other useful information. In addition, T5 also talked about social media communication not just with students with also with external academia:

> *"Sometimes the University arranges virtual lectures through guest speakers on Skype or Youtube"* (T5)

All these are similar to the uses mentioned by students of social media by their Universities.

Encouraging responsible use: The teachers said that their Universities play a key role in encouraging responsible use of social media. This included providing guidelines for usage, monitoring the social media activities within the University, providing the necessary infrastructure and security settings, maintaining social media policy and dealing with transgressions. It also included maintaining the social media policy which covers a variety of issues:

> *"general things like rules and regulations, what you can use it for, what you can't, responsible behaviour, copyright rules, privacy and confidentiality issues, consequences of breaching rules"* (T1)

Other teachers expressed similar views stating that the Universities do the monitoring and restricting, maintain social media policies, educate students, deal with problems related to social media usage and ensure ethical use. Again, it appears that there is perhaps a gap between the perceptions of teachers and students in that what teachers consider responsible use is considered

excessive monitoring and restricting by students. This indicates a need to create more awareness and also to find a middle ground.

4.5.5.2 Barriers for Further Integration

When asked about the potential for further integration or use of social media by their Universities, all the teachers spoke about the barriers for such activities. Unlike the students, the teachers did not feel that their Universities could do much more presently. As a result, potential future uses did not emerge as a category. Instead, the following barriers emerged for further integration:

Technical barriers: The teachers spoke about more than one type of technical barrier for integration of social media. These included lack of skills to use and maintain certain social media, lack of resources like hardware and bandwidth, internet problems, being a misfit for the culture and the possibility of some students not being connected to the chosen social media.

Privacy and security issues: The teachers spoke about privacy and security issues not only in the context of current usage but also as a barrier for further integration. For instance, talking about introducing any new social media in the University, T1 said:

> *"We have to evaluate very carefully whether it can hurt sentiments or cause sharing of pirated data or privacy issues for students"* (T1)

This view was echoed by others who said that at a University level, before using any social media, they have to take a lot of precautions, do test runs and setup safety and security features.

Legal and ethical barriers: The teachers also spoke about certain legal and ethical barriers that prevent further integration, and they indicated that this is particularly problematic in Saudi Arabia. The teachers said that they have to be careful about not hurting the sentiments of any user group, ensuring privacy of data, preventing piracy, preventing copyright issues and preventing misuse. Some of the teachers explained that these issues are all the more important as students in Saudi Arabia are not fully aware of copyright and plagiarism rules and tend to copy-paste content:

> *"Then there are copyright and plagiarism issues, this is particularly problematic in Saudi Arabia because students don't always understand. They don't understand what is OK to copy or share and what is not. So we cannot allow too much of it"* (T5)

This indicates that teachers have several additional concerns compared to students when it comes to academic use of social media. It also indicates a need to create more awareness among students, as none of the students mentioned issues like plagiarism or copyright in terms of social media usage.

Process barriers: The teachers also spoke about the process barriers for further integration of social media, explaining that adopting any new social media required time, effort and resources. T2 explained the overall process and the related barriers thus:

> *"The process itself is not easy, we have to get approval, funding for paid versions as we cannot have ads popping up left and right or security breaches, we have to learn, do test runs, set up safety and security features and we have to be ready for setbacks with alternate plans"* (T2)

Further, the teachers explained that any new initiative requires management approval and coordination between departments and training. They claimed that these process issues can sometimes cost too much for little returns, which is why they do not keep spending money and effort on every new experimental social media, particularly since they do not have a special funding for social media initiatives.

These process barriers were mentioned only by teachers and not students, and this is logical as teachers are involved and aware of the social media integration processes at a University level whereas students are unlikely to be. Again, this indicates a difference in perceptions as well as a need to create more awareness among students.

Unreliability of Social media: A further barrier that was pointed out by some of the teachers was the inherent unreliability of social media. The teachers explained that since the social media were not subject to any University rules, they could not replace any traditional teaching methods but could only act as occasional aids to teaching:

> *"I used to use a tool called todaysmeet, using which I can hold password protected virtual chat rooms but it shut down. Similarly I used to use google plus to host some resources. Imagine if I had started relying on it completely"* (T3)

Other teachers agreed with this and pointed out that social media cannot be relied upon as they could be taken down by the owners any day, and as educators they need to think about the long-term implications before adopting them. Again, these concerns were expressed only by teachers as they are more likely to think about the long-term implications of using any social media in education.

Lack of interest/usefulness: The teachers indicated that some social media could not be adopted simply because of the lack of interest from students or their lack of usefulness for the student population. They stressed that a particular social media could only be adopted if it was useful for a majority of students. They further explained that sometimes some social media just do not trigger interest despite their benefits, and adopting every new social media without gauging the interest and benefits could lead to confusion and chaos.

Again, these concerns are unique to teachers as students are unlikely to be worried about the usefulness of any social media beyond their own needs. Overall, it is evident that the teachers consider the issue of further integration to be a lot more complicated than students do, and hence are much more reluctant about the idea. All the teachers stressed that it would take time and effort to do it in a responsible and sensitive way. They also mentioned several additional barriers that students are either not aware of or are not interested in. This shows a major gap between the attitudes and concerns of students and teachers, and explains why students think there is scope for doing more while teachers do not. There is an overall need to make students aware of the complications, as well as consider their feedback while introducing any new social media.

4.5.6 Key Findings of Teachers' Qualitative Data Analysis

The key findings that have emerged from the analysis of the qualitative data for teachers are as follows:

- The awareness of teachers with respect to the uses of social media is very similar to that of students, both with respect to types and uses of social media. In addition, teachers are aware of some unique social media that have contents or features tailored specifically for educators. Compared to the students, teachers talked more about the information sharing

aspect of social media than the information seeking, likely because of their profession which entails a lot of information sharing with the students.

- Teachers claimed that they spend less time online compared to students as they did not grow up with the internet and social media, and hence are less addicted to them.
- Meeting students in their own space is one of the key reasons behind the teachers' use of certain social media like Wikipedia, YouTube and Blogger, and even relatively unpopular (and now defunct) ones like MySpace and Tumblr. Other reasons include the reusability of content and control over content and actions. On the other hand, factors like affordability, peer pressure and fear of missing out did not emerge as reasons, although this could be because only their professional use was explored.
- It appears that both teachers and students encourage the use of certain social media among each other, and this could be one of the reasons behind the popularity of similar social media among teachers and students in Saudi Arabia.
- Teachers use social media for several practical purposes within and outside the classroom.
- Unlike the students, teachers consider communication with students as an academic use of social media, and extensively make use of social media for communicating with their students.
- Teachers mention playing videos and other audio-visual aids in classrooms as a major academic use of social media, which shows that they are open to the use of such aids in classrooms. This is against literature and shows the current snapshot in time and the changing mentality among the educators of Saudi Arabia.
- Similar to the students, the teachers in Saudi Arabia also make use of the content collaboration capabilities of social media. In fact, in case of the teachers the collaboration seems to go beyond their own colleagues and students, and extend to other professional bodies. Teachers also seem to use it a lot for career advancement.
- The teachers agreed that social media enhance teaching and learning, and explained several ways in which they do so. This is in line with the findings of quantitative data where 100% of teachers claimed that social media enhance teaching and learning. They also claimed that social media enable self-learning among students.

- From the discussions, it appears that although teachers are open to experimenting with newer and advanced uses of social media, they often do not consider the payoffs worth it and hence do not implement it.
- Teachers expressed concerns similar to students such as distraction and time wastage, and privacy/security issues but they expressed a lot of additional concerns as well. This indicates that they are lot more concerned about the use of social media compared to students, which may be a reason for their limited use in Saudi Arabia higher education.
- It appears that the teachers and the Universities are trying to take precautionary measures in order to address the concerns related to social media usage. From this, it is evident that there is still a gap between the perceptions of teachers and students as what students consider micromanagement/interference, the teachers consider necessary precautions. This gap needs to be filled by creating more awareness among students. At the same time, teachers need to be more receptive of student inputs and find a middle ground, as students have shown themselves to be aware of the dangers.
- Similar to students, teachers agreed that their gender has an impact on their social media behaviour and usage. These findings are in line with the findings of the student analysis where both male and female participants claimed that they have to be more careful online due to their gender, albeit for different reasons. For men, it was the need to not offend women whereas for women it was concerns over privacy and security. The findings of the teachers' data corroborates the same.
- The teachers also agreed that discipline has an impact on their social media usage and explained the ways in which it does so. In general, discipline-specific tools and trends emerged as the major ways in which usage differs based on academic discipline.
- In terms of culture, teachers indicated that social media encourage better communication between students and teachers. On the other hand, they also showed reluctance in allowing direct and friendly communication with students. They also indicated that they do not use too many social media in classroom because of cultural expectations. This contradicts the findings of the student data where students had indicated that they did not feel comfortable communicating or friending teachers on social media, but were open to do so if the teachers were willing. This indicates that students are more willing to overlook cultural rules compared to teachers. It also indicates that perhaps what teachers consider sufficient

communication and openness is insufficient for students, and they want more. This shows a gap in the perceptions of teachers and students.

- Unlike the students, the teachers consider the features of social media to be quite important, and it affects their choice and usage. This was mainly due to the need to be cautious not just for their own safety but also that of their students, as well as to ensure that the social media chosen are useful for the purpose of teaching and learning.
- Teachers said that their universities uses social media for marketing, communication and broadcasting and also encourages responsible use. Again, it appears that there is perhaps a gap between the perceptions of teachers and students in that what teachers consider responsible use is considered excessive monitoring and restricting by students, indicating a need to create more awareness and also to find a middle ground.
- In terms of further integration of social media, the teachers spoke about several barriers including technical, privacy and security, reliability, legal and ethical and process barriers. They also spoke about lack of interest with respect to certain social media among the student community. While some of the barriers they mentioned such as technical and privacy/security issues were also noted by students, others were unique to teachers. This shows that teachers have a lot of additional concerns related to further integration of social media and they differ considerably from students in this aspect. It also indicates a need to educate students regarding certain issues like plagiarism and ethical use before considering further integration of social media into the higher education institutes.

4.6 Quantitative Analysis of Administrators' Data

This section will outline the details of the quantitative analysis of administrators' survey data. Further to the analysis of students' and teachers' data, several interesting findings were revealed. In order to put these findings into context, it is necessary to view the current state of social media in Saudi Arabia from an administrative perspective. This section will discuss the University use of SM, policy and university attitude toward SM usage in teaching and learning. To this end, this section will mainly generate data to answer research questions related to University level usage of SM through the use of Non-Parametric tests of the various administrative non-distributed normally data variables. Tests have been run to see any differences or relation between dependent variables and independent variables (University, position and department of participants).

4.6.1 Number of Responses

The administrators' survey yielded a total of 35 responses. 24 were from the English survey and 11 from the Arabic survey. Of these, 2 responses were filtered out as invalid yielding a total of 33 valid, usable responses, which were then subjected to a variety of statistical tests.

4.6.2 Demographic Distribution of Administrators

The demographic data of administrators was analysed mainly using frequency tests. Of the 33 responses and although marginal, the highest representation was for KSU at 36.4%. The data is reasonably well balanced and hence findings are not expected to be skewed in favour of any particular University.

In terms of the departments to which they belong to, majority of the participants indicated that they belonged to the University Management and Administration department at 30.3%. Further, when participants were asked about their position within these departments, it was seen that most of them held general administrative positions as shown below in Table 4.40:

Table 4.40 Position Distribution of Administrators

Distribution		N	Percentage
University	PNBAU	10	30.3%
	KSU	12	36.4%
	IMISIU	11	33.3%
	Total	10	30.3%
Department	University Management/ Administration	10	30.3%
	Research center/ Institutes	6	81.2%
	Voice Rectorate	2	6.1%
	Students Supports	1	3%
	Faculty/ Colleges	6	18.2%
	Deanship/ Associate Deanship	7	21.2%
	Libraries	1	3%
	Total	33	100%
Position	Voice Rectorate	2	6.1%
	Head of Department	6	18.2%
	General Administration	25	75.8%
	Total	33	100%

While the number of participants occupying other positions is less, it is not surprising considering that the number of such positions are less to be likely anyway within a University. In general, the

above data indicates that the findings are likely to be representative of general administrators within the selected Universities.

4.6.3 University Social Media Usage and Policy

SM Usage: When the participants were asked if their University uses any social media, 93.9% (N=31) of participants said yes. Given that a majority of the participants said yes, and also given that the use of social media within all three Universities have been confirmed by teachers and students, it is likely that the negative responses are due to a lack of awareness of the tools used by the University. This indicates a gap in creating awareness among the University members. Further analysis of the data shows that both the respondents who said no belong to the research center department of KSU. Given that these respondents are likely involved more in research related activities, it is possible that they are not aware of the social media used at a general level by their Universities.

University Policy: The gaps in awareness become further evident when participants were asked about their University's social media policy. Around 84.8% (N=28) of the participants replied in the affirmative while 15.2% (N=5) replied in the negative. Again, given the higher number of positive responses, and the fact that the teachers had also earlier confirmed the presence of social media policies in all 3 Universities, this is likely due to a lack of awareness among the administrators. A cross-tabulation of the responses with the demographic variables of participants shows a strong statistical relationship between department and agreement with existence of social media policy with $\chi^2(6) = 16.146$, $p<0.05$, with 66.7% of participants belonging to "The Research Department" answering no to the question. These findings further corroborate the assumption that participants working in the research departments are unaware of the details related to their University's use of social media due to their non-public facing roles.

When participants were asked if their University has a dedicated administrator for social media management, 18.2% (N=6) of participants said yes while 81.8% (N=27) said no as seen in Table 4.41. The reasons for this discrepancy are unclear, particularly since no relationships were found between the question and the demographic variables of participants. It is possible that there is a lack of awareness or clarity around the role itself, and participants may not be in agreement about what constitutes a dedicated social media administrator.

Table 4.41 University Social Media Policy Awareness

University	SM usage		Policy Usage		Department							Total
	Yes	No	Yes	No	University Management/ Administration	Research center/ Institutes	Voice Rectorate	Students Supports	Faculty/ Colleges	Deanship/ Associate Deanship	Libraries	
PNBAU	10	0	9	1	4	3	0	0	1	2	0	10
KSU	10	2	10	2	3	2	1	0	2	4	0	12
IMISIU	11	0	9	2	3	1	1	1	3	1	1	11
Total	31	2	28	5	10	6	2	1	6	7	1	33

4.6.4 University Attitudes towards Social Media Usage

This section will discuss the attitudes of University towards the use of social media in teaching and learning, in terms of the reasons for using social media, the users towards which their social media use is targeted, the intentions behind social media usage, social media administrative activities and concerns with the use of social media. Tests have been run to see any differences or relation between dependent variables and independent variables (University, position and department of participants).

Reasons for using social media: The participants were asked to state the reasons for which their University established a social media presence. The analysis showed that wanting to take advantage of affordable technology and wanting to facilitate teaching and learning are the top reasons as seen below Table 4.42:

Table 4.42 University Reasons for SM Presence

Reasons	University			Total
	PNBAU	KSU	IMISIU	N (Percentage)
Want to experiment with social media	6	9	10	25 (75.8%)
Competitors were using social media	5	5	7	17 (51.5%)
Taking advantage of affordable technology	9	11	11	31 (93.9%)
University-wide mission and vision	4	4	7	15 (45.5%)
Directive from top management	4	2	1	7 (21.2%)
Students friendly tools	7	9	9	25 (75.8%)

The above findings are in line with the findings of Asare-Donkoh (2018) who has pointed out that the affordability of social media is one of the key reasons for its increasing use in education. It is also in line with the findings of several researchers like Barnes and Lescault (2011), Gosper et al. (2011) and Chawinga (2016) who have pointed out that Universities are increasingly using social

media to facilitate teaching and learning. A cross tabulation with University, position and department of participants did not yield any significant insights.

Target users: Participants were then asked about the potential users that their University is targeting to engage through social media. A frequency analysis of the response set revealed that current students/parents and potential students/parents are at the top of the list as seen below Table 4.43:

Table 4.43 Targets for Social Media Engagement

Targets	University			Total
	PNBAU	KSU	IMISIU	N (Percentage)
Potential students/ parents	9	10	11	30 (90.9%)
Exiting students/ parents	10	12	9	31 (93.9%)
Staff	4	8	6	18 (54.5%)
Alumni	2	2	3	7 (21.2%)
General public	5	5	6	16 (48.5%)

The above data is not surprising given that several studies have pointed out the potential of social media for engaging with current students, and attracting future students (Reuben, 2008; Al-Khalifa and Garcia, 2013; Belanger, Bali and Longden, 2014; Chawinga, 2017). Again cross-tabulation with demographic variables of participants did not yield any significant insights, indicating that the findings are general trends and not specific to any particular University, department or position.

Intentions behind using social media: When participants were asked about the intended results of their University through the use of social media, better communication with current and future students/parents and updating members about the University's activities and events emerged as top activities as seen below Table 4.44:

Table 4.44 Intended Results of Social Media Usage

Intended Results of social media Usage	University			Total
	PNBAU	KSU	IMISIU	N (Percentage)
Better communication with potential students and parents	5	12	10	27 (81.8%)
Better communication with current students and parents	5	12	8	25 (75.8%)
Provide better service and their parents	7	10	7	24 (72.7%)
Updating about university activities and events	7	8	11	26 (78.8%)
Increase awareness about university	9	5	4	18 (54.5%)
Reduced communication costs	3	9	11	23 (69.7%)
Improved teaching and learning outcomes	2	6	3	11 (33.3%)

The above findings further reinforce the position that the Universities are using social media as tools of communication and marketing, which is in line with the findings of Reuben (2008) and Belanger, Bali and Longden (2014). It also shows that improving teaching and learning outcomes is low on the list, which indicates a potential for improvement in this area.

Social media administrative activities: Further, participants were asked about the frequency with which their University's social media presence was updated. The majority of participants 60.61% said that the content was updated daily, 27.27% updating weekly, 6.06% updating monthly, 3.03% updating once per term and 3.03% updating yearly as seen below Table 4.45:

Table 4.45 Frequency of SM Updates

University	Daily	Weekly	Monthly	Once per term	Yearly	Total
PNBAU	4	4	2	0	0	10
KSU	9	2	0	0	1	12
IMISIU	7	3	0	1	0	11
Total	**21**	**9**	**2**	**1**	**1**	**33**
Percentage	**60.61%**	**27.27%**	**6.06%**	**3.03%**	**3.03%**	**100%**

Further one-way Anova tests between demographic variables and frequency of social media updates did not produce any statistically significant relationships. Moreover, no statistically significant relationships were found between the frequency of updates and other variables like use of Social media, presence of University social media policy and presence of dedicated social media administrator. Hence, it can only be assumed that the discrepancy in responses is either due to a lack of awareness among admins about how frequently their University's social media is updated or a disagreement regarding what constitutes an update. This is explored further in the interviews.

Concerns with the use of social media: Participants were asked about any concerns that they have about the use of social media at a University level. A frequency analysis reveals that privacy and security issues are at the top of the list as seen below Table 4.46:

Table 4.46 University Barriers to Social Media Usage

Concerns	University			Total
	PNBAU	KSU	IMISIU	N (Percentage)
Limited internet bandwidth	7	5	5	17 (58.6%)
Lack of technologies that support the use of SM	7	7	6	20 (69%)
University policies and restrictions	5	1	5	11 (37.9%)
Integrity of information	4	6	4	14 (48.3%)
Students/ teachers unfamiliar with the features of SM	2	3	2	7 (24.1%)
Privacy and security issues.	7	7	9	23 (79.3%)

This is in line with the findings of student and teacher analysis as both of them pointed towards privacy and security issues as barriers to social media usage. The above findings also show that the administrators consider unfamiliarity with the features and functions of social media as not much of a concern. It indicates a gap in perceptions as this was considered a key barrier to social media usage by teachers. The reasons for this are explored in the interviews with administrators.

4.6.5 Key Findings of Administrators' Quantitative Data Analysis

The analysis of administrators' data has shed further light on the usage of social media at a University level, and also confirmed some of the findings of the student and teacher analysis. From the analysis it is clear that there is some disagreement among the participants about several aspects of social media usage by their Universities. Surprisingly, there seems be a lack of consensus among the administrators even about basic aspects such as their University's use of social media, presence of a social media policy and presence of dedicated social media administrator. This indicates a lack of awareness among participants about their University's social media initiatives. While some of this could be attributed to an extent to the non-student facing roles of some participants, it also indicates a gap at a broader level where the Universities need to create more awareness among the staff about social media initiatives to ensure their success.

The analysis further reveals that the social media initiatives of the Universities seem geared towards student/parent engagement, communication and marketing more than facilitating teaching and learning. While this confirms the findings of previous studies, it also indicates a potential for further integration of social media for teaching and learning among higher education institutes in Saudi Arabia. Whether the participants agree with this or not is explored in the interviews. Factors like privacy and security issues, unfamiliarity with social media features and limited bandwidth have also emerged as barriers to social media usage, further corroborating the assumption that Universities can do more to encourage successful social media integration.

Overall, the administrator data analysis did not yield any statistically significant relationships between variables like the University, department and position of participants and their perceptions regarding their University's social media usage. This shows that the results are indicative of a general trend rather than any specific factors.

4.7 Qualitative Analysis of Administrators' Data

Similar to the student and teacher analysis, the quantitative analysis of administrators' data was followed by a qualitative analysis of the interviews conducted with them. The data was transcribed, translated, verified, coded and finally grouped into categories and themes. The forthcoming sections describe the themes, categories and sub-categories that emerged during the process, with the administrators represented by the letter "A" followed by a number.

Overall, the analysis of qualitative data for the administrators yielded three themes and six categories with several sub-categories under each category. While some of the themes and categories are similar to those of other groups, some are completely unique. Together, the main themes and categories for the administrator data can be visualized as shown below in Figure 4.7:

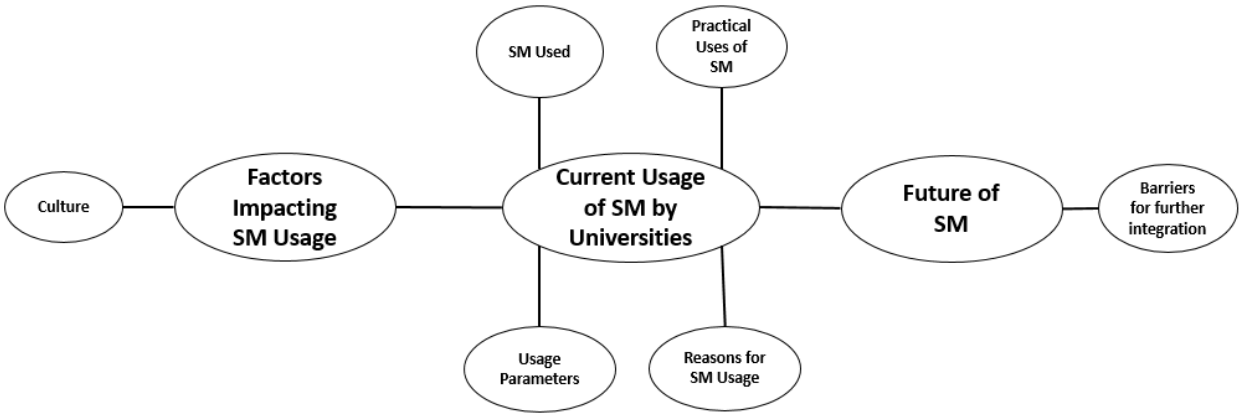

Figure 4.7 Core Themes and Categories for Administrators

4.7.1 Details of Interviews

The interviews were conducted with three administrators, each belonging to one of the three selected Universities. The idea behind the selection of participants in this manner was to ensure a representative from each University in the interviews. Unlike the teachers and students, the purpose of the interviews was to understand the social media usage by the Universities, and not the administrators themselves. Hence, the gender and other demographic details of the administrators was not important. Based on the analysis of the interviews, the following core

themes, categories and sub-categories seen Table 4.47 emerged from the data which will be discussed in subsequent sections:

Table 4.47 Themes and Categories for Administrators

Core Theme	Categories	Sub-Categories
Current social media Usage by Universities	Social media Used	Social networking sites, Blogs, Crowdsourced projects and Content communities
	Reasons for social media Usage	Affordability, Usefulness, Meeting students in their own space
	Practical Uses of Social media	Marketing, Communication and broadcasting, Teaching and learning
	Usage Parameters	Frequency of updates, Maintenance
Factors impacting usage	Culture	Cultural rules
Future of Social media	Barriers and Limitations	Privacy and security concerns, Harassment and bullying, Standardisation issues, Policy constraints, Technical barriers, Lack of interest/usefulness

4.7.2 Current Social Media Usage by Universities

This theme refers to the current usage of social media by the selected Universities. All the administrators replied in the affirmative when asked if their University uses social media. This indicates that all three are aware of the social media usage by their University, and hence equipped to answer subsequent questions. From the tools and sites mentioned, it is also evident that the Universities are using different categories of social media i.e. social networking sites, blogs, crowdsourced projects and content communities. Further, the responses also indicate that those who said no in the surveys to the use of social media were likely not aware of their usage by Universities, which was indeed confirmed by the participants:

> *"Perhaps they are not involved in anything related to social media, so they may not know about it"* (A1)

This theme was derived from three categories namely the social media used, Practical uses of social media and Usage parameters, all within the context of usage by the selected Universities.

4.7.2.1 Types of Social Media Used

This refers to the various social media used by the selected Universities in an official capacity. When asked about it, the administrators mentioned all the regular and popular social media like Facebook, Twitter and YouTube. The list of social media mentioned by each of the administrators is given below in Table 4.48:

Table 4.48 Types of SM Used by Administrators

Participant	Social media Mentioned
A1	Youtube, Facebook, Twitter, WhatsApp, Instagram, Blogs
A2	Facebook, Instagram, Wikipedia, Youtube and Twitter
A3	Facebook, Twitter, Blogs, Youtube, Pinterest

From the above, it appears that the Universities are not using any unique or educator-oriented social media mentioned by the teachers. This indicates that the use of those types of social media are based on the initiatives of the teachers, which again was confirmed through further discussions.

4.7.2.2 Reasons for Social Media Usage

The admins were asked about the reasons behind the usage of social media by their Universities. The responses indicated a combination of factors, some of which were mentioned by students and teachers too. The key reasons behind the usage were determined to be:

Affordability: The administrators mentioned that the affordability of social media is one of the main reasons for their use. They mentioned that these tools are either cost-free or low cost, which provides them a way to reach a lot of students simultaneously without having to develop their own sophisticated communication tools.

It must be noted that the affordability of social media was not considered important by the teachers. This shows that there are some differences in the ways in which social media is chosen for use at the University level. This is likely because teachers use more specific and educator-specific tools which are likely to cost money for ad-free versions whereas at a University level, only basic and popular social media are used which might be cost-free. This also tallies with the findings of the

quantitative data where the affordability of social media emerged as a key reason for their use by Universities.

Usefulness: The administrators also mentioned the usefulness of social media, particularly for communication, information sharing and broadcasting as a key reason for their use. They also explained that social media is quicker and more effective than traditional methods of communication.

Meeting students in their own space: Similar to the teachers, the administrators also said that social media allow to connect and communicate with students in their own space, which was another one of the key reasons for their use. They explained that most students have profiles on the popular social media which gives them a ready-made user base and a broad reach when they use these tools themselves. They also said that they prefer to establish relationships with students in a space that they are already familiar and comfortable with. These are in line with the findings of the teacher analysis and also the findings of the quantitative data for administrators where wanting to use student friendly tools emerged as a top reason for the use of social media.

4.7.2.3 Practical Uses of Social Media

Another sub-category that emerged under the theme of current use of social media was the practical uses of social media by the selected Universities. Similar to students and teachers, the administrators were also asked about the ways in which social media were used by their Universities. The results largely tallied with those that emerged from student and teacher analysis:

Marketing: Similar to the teachers, the administrators also mentioned marketing as one of the key uses of social media. They said that they use social media for student outreach and marketing programs, making new students aware of courses and admission dates, targeting potential new students for marketing campaigns, posting stories of achievement and generally engaging with the public.

The above data tallies with the findings of the teachers' data in which marketing for current and future students emerged as a key use of social media by Universities. It also corroborates the findings of the quantitative data according to which, Universities target both current and potential students and parents through their social media initiatives.

Communication and broadcasting: Communication and broadcasting emerged as the second key practical use of social media by the Universities, similar to both student and teacher analysis. This included not just basic communication but also broadcasting, sharing information and sharing of resources. The administrators said that the University uses social media to publish articles, exam results and curriculum details, to engage with students, to share news and events, publish information about internships and campus recruitments, to create awareness, to reach out to potential new students, to communicate with parents and guardians and to engage with alumni. They further said that the parents, current students, alumni and potential future students can also reach out them to them on their social media channels, and it is a two-way communication.

The above data confirms the findings of quantitative analysis in several aspects. First of all, the quantitative findings indicated that communication was one of the key activities for which the Universities used social media. Also, the quantitative data revealed that the Universities target both current and potential students and parents in their communication initiatives. Finally, the data indicated that facilitating better communication with current and future students/parents and updating members about the University's activities and events were the key goals of using social media. The above data corroborates all the three findings. In addition, it also corroborates the qualitative analysis of teachers' data where marketing, communication and broadcasting emerged as top uses of social media by the selected Universities.

Teaching and learning: Teaching and learning emerged as yet another practical use of social media at a University level. However, the administrators indicated that the Universities are not directly involved in any teaching and learning initiatives using social media beyond acting as regulatory and advisory bodies for the teachers/students who use the social media. They said that the teachers use social media post educational videos, communicate with students, encourage student engagement, post exam results and publish articles. Also, the administrators mentioned that both the teachers and students can only use social media within limits set by the University.

The administrators were nevertheless clear that the University does not mandate use, nor are there any specific rules for using the social media as long as the teachers use them as teaching aids but not as replacements for traditional methods. They confirmed that the Universities' involvement in

teaching and learning initiatives is limited to streamlining usage, and the actual use of social media in teaching and learning is driven by teachers on their own.

This confirms that the use of social media for teaching and learning, and the use of specific educator-oriented social media is based on the initiatives of the teachers and the University mainly acts as a governing body. To this end, it can be said that the use of social media for teaching and learning within the Universities is quite limited, and dependent on the teachers without specific University policy guidelines for teachers. At the same time, it also confirms that the University is open to the use of audio-visual aids and other social media in the classroom.

4.7.2.4 Usage Parameters

Another sub-category that emerged through the analysis of qualitative data was the parameters of social media usage within Universities. This comprised of the following:

Frequency of updates: This parameter refers to the frequency with which the selected Universities update their social media accounts. When asked about it during the quantitative survey, the participants gave varying answers with some claiming that the accounts are updated daily, some others claiming they are updated weekly and yet others claiming they are updated monthly. When asked about it, participants explained that this was due to the fact that there was no right answer to the question and the frequency of updates varied depending on various factors. She explained it further thus:

> *"Social media presence does not mean any one thing. It can mean the University's facebook page, or twitter account, or Youtube or individual course pages..anything. All of those are updated at different times"* (A1)

The administrators elaborated on it further stating that while most social media is updated at least once a week, sometimes they may not be updated for longer periods during holiday seasons. They stated that the more popular social media platforms are updated more frequently and there is no pattern.

From this, it is clear that the social media accounts of the selected Universities are updated relatively frequently although the actual frequency may vary depending on various factors. It also

indicates that the varying responses in the survey were due to the lack of a definite process and not a lack of awareness on the part of the administrators.

Maintenance: This parameter refers to the various aspects of maintenance related to the Universities' social media presence. It includes both the maintenance activities conducted by the University and the people who are responsible for conducting them. Speaking about the maintenance activities for which the University is responsible, the administrators said that the University deals with monitoring and restricting social media features and content, and addresses issues such as viruses, inappropriate data sharing and copyright issues. They further confirmed that the University maintains, updates and enforces the social media policy which includes:

> *"do's and don'ts of social media usage within the University, guidelines for different types of users, responsibilities, fair usage instructions, confidentiality information, online bullying, the university's right to monitor and track usage, instructions for creating profiles"* (A1)

Others similarly stated that the University maintains the policies related to social media, and enforces them by blocking, monitoring and restricting inappropriate content, ensuring compliance and applying disciplinary measures in case of breaches. These are in line with the findings of the teachers' qualitative analysis, where the participants said that the University is responsible for managing security issues, monitoring of social media accounts and encouraging responsible use. It is also in line with the findings of student analysis where they said that the University monitors and blocks several social media and its features.

When asked about the people who do the maintenance activities, the participants previously gave varying answers during the survey. While some of them claimed that their University has a dedicated social media administrator for the purpose, others said that they do not. When asked about it further in the interviews, again the lack of a definite answer emerged as the reason behind the variances. they said that various members of the staff do the maintenance activities:

> *"Sometimes, the library department may do, other times, the admin department may do. Some updates come directly from the Principal's office. Sometimes individual course lecturers do. It depends"* (A1)

When asked about the presence or absence of a dedicated administrator, the administrators explained that either individual departments may have their own dedicated personnel or the University may have an administrator who does social media maintenance but also handles other jobs. In a nutshell, there are no set rules or job profiles for social media maintainance. This indicates that the varying responses in the survey were probably due to a difference in opinion regarding what constitutes a dedicated administrator, the difference in practice between the various Universities, and/or the lack of a definite answer.

4.7.3 Factors Impacting Social Media Usage

The third theme that emerged through the analysis of administrators' data was the impact of different factors on the usage of social media within the University. Unlike the students and teachers, the administrators did not speak about the impact of gender or academic discipline on the use of social media. This is likely because they are only aware of the factors of usage at the University level, which is limited to simple communication and information sharing. Yet, they did mention culture as a factor that impacts usage.

4.7.3.1 Culture

The administrators mainly spoke about the cultural expectations from students while communicating on social media. Similar to the students and teachers, they spoke about the need to be respectful and careful in their interactions, and the rules they have to follow:

Cultural rules: This refers to the rules and expectations for social media behaviour that are governed by culture. The administrators said that the Saudi Arabia culture places certain expectations on students during communication where they are expected to follow rules and be respectful. They explained the impact of this on social media usage by stating that students tend to be cautious in their social media interactions. They further explained why additional caution is also required when allowing social media in Saudi classroom due to the culture:

> *"In* Saudi Arabia, *social media is used differently from other countries in the sense that here it is an opportunity for the youth to mingle with the opposite gender freely which is not otherwise possible"* (A2)

With this, culture has emerged as a common factor in the analysis of all three groups of participants' data indicating its importance in social media usage.

4.7.4 Future of Social Media

Since the analysis deals with the usage of social media within the Universities and not the personal or professional use of social media by administrators, a snapshot of social media in the selected Universities at this particular point in time has already been covered in the previous section on practical uses of social media. Further, similar to the teachers, all the administrators feel that the University is doing adequately in terms of using and encouraging the use of social media in teaching and learning, given the limitations and barriers faced by them. Hence, this category only deals with the barriers and constraints faced by the Universities with respect to further integration of social media.

4.7.4.1 Barriers for Further Integration

Similar to the teachers, the administrators also outlined problems and barriers to the use of social media in education, which act as hindrances to further integration. The following were the barriers and drawbacks that emerged for increased use of social media:

Privacy and security concerns: The administrators stated privacy and security concerns as a key barrier to the current usage of social media as well as their further integration. They explained the various internal and external threats faced by the Universities such as abusive content, viruses, hacking, online bullying, doxing, trolling, cyber-stalking, copyright issues, Trojans, cyber-attacks and malware. They stated that they also have to be careful about publishing sensitive information on social media as it can be stolen or misused. They explained these concerns as a key reason for the caution exercised by them in allowing the use of social media. They explained further that privacy and security is a multi-faceted issue:

> *"safety does not mean just physical safety or safety of their information, it also means everyone needs to feel safe emotionally and be treated respectfully whether online or offline"* (A3)

This confirms that similar to the teachers, the administrators are also concerned about the privacy and security implications of allowing further integration of social media, and that they differ from the students in this aspect. It also confirms the findings of the quantitative analysis where privacy and security issues emerged as top concerns for administrators.

Legal and ethical barriers: Similar to the teachers, the administrators also spoke about legal and ethical barriers that prevent further integration of social media in education in Saudi Arabia. Explaining why overuse of social media can be a problem in Saudi classrooms, it was said:

> *"It can create all sorts of problems, complaints from parents or school board to even legal problems with the government"* (A2)

The administrators further explained that allowing any social media should be preceded by addressing legal and ethical concerns. Towards this, they mentioned putting security settings in place to avoid information theft, ensuring legal and ethical compliance and having moderators to enforce rules. A2 further indicated that part of this is due to the culture of Saudi Arabia as intermingling of genders is not generally possible offline so users may get carried away at times. Further, plagiarism and copyright issues specific to Saudi Arabia were also mentioned, and the administrators admitted that breaches could arise if unmonitored use of social media is allowed.

This indicates that similar to the teachers, the administrators also have concerns about legal issues, parental disapproval, plagiarism and ethical use regarding the integration of social media, all of which are unlikely to be shared by students.

Harassment and bullying: The administrators also expressed concerns about the issue of harassment and bullying of students on social media. A1 said that the issue is under control right now but further integration might cause an increase. This view was echoed by the other two administrators who emphasized the need for caution stating that all students are not able to deal with harassment and bullying, and that they need to take the safety of students seriously.

The above data indicates that the Universities may be adopting a precautionary stance in limiting the use of social media, in order to prevent certain existing issues from getting bigger.

Standardisation issues: Another issue that the administrators stated as a barrier to the use or further integration of social media was the lack of compatibility with the University's standards. For instance, A1 stated that teachers cannot use social media beyond a limit as:

> *"they are expected to follow the standards set by the University, they cannot start using social media for everything. Not all tools match with our standards"* (A1)

The other two administrators concurred stating that the University standards are very strict and social media sites and platforms are not always compliant with them, which in turn acts as a hindrance to integration.

Policy constraints: The administrators also spoke about the policy constraints that prevent free integration of social media within the Universities, and the importance of such constraints. They explained that all users on social media have to adhere to the rules specified by the social media policy of the University and avoid posting about sensitive or abusive topics, plagiarized or copyright protected content. They explained that it is hard to ensure these standards on social media, given the scope for misuse. They confirmed that there have been breaches in the past due to which the Universities are wary about introducing new social media.

Technical barriers: Similar to the teachers, the admins also spoke about technical barriers that act as hindrances to further integration. These included the lack of resources, inability to deal with the workload that such integrations bring and lack of skills.

The above are in line with the findings of the teacher analysis, which indicates that administrators have additional concerns compared to students when it comes to further integration of social media. This explains the reasons behind the differences in views as students are unlikely to be worried about issues like resources and skills.

Lack of interest/usefulness: The administrators also claimed that some social media could not be adopted because of the lack of interest from students/teachers or their lack of usefulness. They explained that within the Universities, there is limited scope and interest for the introduction of newer social media, and that problems may outweigh the benefits in case of further integration. They stressed that it is important not to blindly follow trends and changes have to happen slowly.

Again, this tallies with the findings of the teacher analysis who expressed similar concerns. This shows that similar to the teachers, the administrators also differ from students in their thinking regarding further integration of social media within the Universities, mainly because they consider the integration very complicated and more problematic than the students do. It further indicates a gap between the attitudes and concerns of students and administrators, and the need to create more awareness among students and try to find a middle ground. Despite the barriers, the administrators agreed that social media has become a necessary part of education nowadays, and is here to stay.

4.7.5 Key Findings of Administrators' Qualitative Data Analysis

The key findings that have emerged from the analysis of the qualitative data for administrators are as follows:

- The administrators are well aware of social media in general, and the social media used by their Universities in particular. All the administrators interviewed confirmed that their Universities use social media although the usage is limited to certain activities.
- Affordability, usefulness and meeting students in their own space were the key reasons for the use of social media at the University level. These are in line with the findings of the quantitative analysis where wanting to take advantage of affordable technology, wanting to facilitate teaching and learning and wanting to use student friendly tools emerged as top reasons for the use of social media.
- In terms of the practical uses of social media, marketing, communication and broadcasting and teaching and learning activities emerged as the top uses by Universities. These are in line with the findings of teacher and student analysis, and also with the findings of quantitative data where communication and outreach activities for current and potential students as well as parents emerged as top uses of social media.
- The Universities themselves are not involved in any social media-based teaching and learning initiatives except acting as regulatory and advisory bodies for such initiatives by the teachers.
- The findings show that the Universities are open to the idea of using videos and other audio-visual aids in the classroom. Again, this shows the current snapshot in time and the changing mentality among the educators of Saudi Arabia. The findings also indicate that

the use of social media by Universities in Saudi Arabia are currently limited to functions like communication and marketing. This is mainly due to the various concerns related to their use, the barriers that the Universities are facing as well as the lack of policy guidelines for teachers.

- Similar to students and teachers, the administrators confirmed that the University is responsible for managing security issues, monitoring of social media accounts, encouraging responsible use and blocking social media as necessary.
- In terms of factors impacting usage, only culture emerged as a significant factor. The administrators spoke about the cultural rules governing behaviour and communication, and their impact on social media usage which has been a common theme among all participant groups.
- Similar to the teachers, all the administrators feel that the University is doing adequately in terms of using and encouraging the use of social media in teaching and learning, given the limitations and barriers faced by them. In this, they differ from students who feel that their Universities can do more to integrate social media into education.
- Again, similar to the teachers, the administrators also considered privacy and security issues, technical issues and lack of interest/usefulness as barriers to further integration of social media. They also spoke about additional barriers such as harassment, standardization issues and policy constraints.
- The findings also shed light on some of the questions raised during the quantitative analysis of data. In particular, it emerged that the variances in survey responses regarding the frequency of social media updates and responsibility for maintenance activities were due to the differences in opinions, difference in practices between the various Universities, and/or the lack of a definite answer.
- Overall, the analysis indicated that the administrators differ from students in their thinking regarding further integration of social media within the Universities, due to the additional barriers and complexities that are unlikely to be considered by students. This indicates a need to create more awareness among students, and to address the issues before considering further integration of social media within the Universities.

4.8 Combined Themes

Overall, based on the qualitative analysis of data, various themes, categories and sub-categories were drawn out for the three groups of participants. The visual representation of the core themes and categories for each group of participants was presented earlier in their respective sections. A combined visual representation of all the core themes and categories is presented in Figure 4.8:

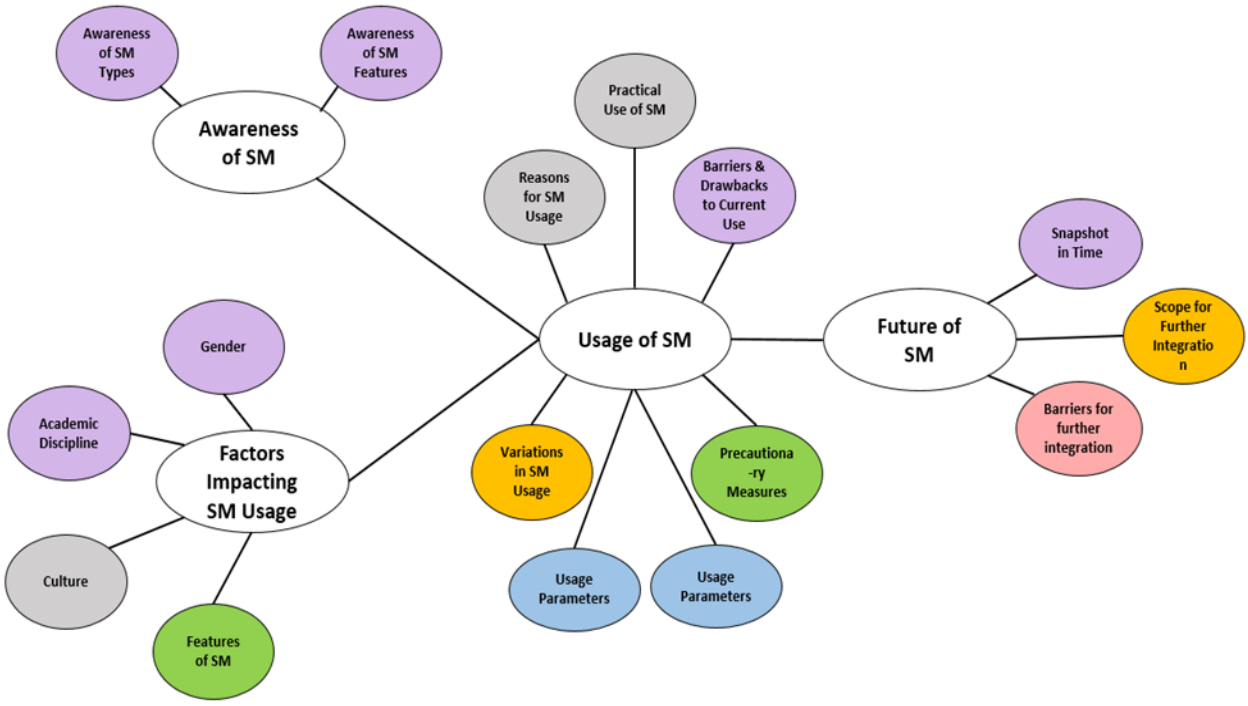

Figure 4.8 Combined Core Themes and Categories

The colour key for the above diagram is as presented below in Table 4.49:

Table 4.49 Colour Key for Themes

Colour	**Meaning**
Orange	Categories unique to students
Green	Categories unique to teachers
Blue	Categories unique to administrators
Grey	Categories common to all three groups
Purple	Categories common to students and teachers
Pink	Categories common to teachers and administrators

The idea of the diagram and table is to provide a visual representation of the common and unique findings of the qualitative analysis.

4.9 Conclusion

This chapter provided the quantitative and qualitative analysis of the data gathered from the three groups of participants i.e. the students, the teachers and the administrators of the three selected Universities. As discussed in the methodology chapter, it was considered necessary to include three groups of participants to provide a holistic view of the issue, and to compensate for the lack of studies that consider multiple viewpoints in understanding the use of social media in Saudi Arabian education. Further, it was considered necessary to include both quantitative and qualitative methods of analysis in order to increase the reliability of findings and to combine the strengths of both methods to answer the research questions comprehensively.

The analysis of data yielded several interesting findings with respect to the participants' use of social media for everyday as well as academic purposes. The findings show that the attitudes of users in Saudi Arabia towards the use of technology in general and social media in particular is changing, and is more open-minded than what is stated in literature. It was seen that all three groups of participants are extensive users of social media, and certain types of social media seem to be more popular than others in Saudi Arabia. Both student and teacher groups consider themselves dependent on social media for studies at least to some extent, and both groups agree that its use can enhance teaching and learning. The drawbacks of social media are also well known to all three groups of participants. Culture emerged as a strong influencer on the use of social media, and it seemed to have different levels of impact on male and female participants.

Certain differences were also observed in the ways the three groups of participants use social media. The teachers and administrators appear to be much more concerned about the barriers and drawbacks of social media compared to the students. Consequently, there are differing opinions between students and staff with respect to the current and future use of social media in teaching and learning, and the ways in which the barriers and drawbacks need to be addressed. Students are more open to the increased use of social media in learning compared to staff although their life stage and cultural expectations appeared to influence their use of social media. Overall, Saudi Arabia appears to be in a transitional phase as far as the use of social media teaching and learning

in is concerned. These issues and findings will be discussed in further depth in the next chapter. Also, in the next chapter, the findings will also be compared and contrasted with literature to arrive at the theoretical and practical contributions of the research, and to answer the research questions meaningfully.

CHAPTER 5
5.0 DISCUSSION OF FINDINGS

5.1 Introduction

The analysis of quantitative and qualitative data in the previous chapter revealed various interesting findings with respect to the social media usage patterns and attitudes of the three groups of participants - students, teachers and administrators from the selected Universities. The quantitative data was analysed using statistical tests with the help of the statistical software SPSS, and the qualitative data was analysed using thematic analysis techniques. The findings included aspects such as everyday use of social media, academic use of social media, factors impacting social media usage and the future of social media from the perspective of the participants.

This chapter aims to collate, synthesize and discuss the key findings that emerged from the above mentioned analysis. These findings are discussed and explored in the context of literature in order to highlight those that support existing research and those that deviate from it. In doing so, it is expected that the chapter will shed light on the aspects of social media usage that are unique to Saudi Arabian students, and in turn help in answering the research questions and thus fulfilling the research objectives set earlier.

5.2 Original Findings of the Research

The analysis of the data revealed several aspects in which the findings of the current research deviated from existing literature either partially or completely. These are illustrative of the changing trends in Saudi Arabian educational institutes and the fact that findings relevant to Western education systems cannot necessarily be extrapolated to the education systems in other countries and culture. They also highlight behaviours and attitudes related to social media that may be specific to Saudi Arabian students.

5.2.1 Changing Attitudes and Practices in the Saudi Arabian Education System

While technological advances and the uses of social media in education have been rapid in the last few years, studies that explore these issues in the context of the Saudi Arabian education system have remained limited. In general, prior studies on the use of social media in Saudi higher

educational institutions have reported Saudi Arabian classrooms to be exceedingly strict and non-interactive (Alharbi, 2013), typical of the "associative" model of pedagogy where the students play no active role nor indulge in creative thinking (Al Lily, 2011; Al-Seghayer, 2011; Elyas and Basalamah, 2012; Alghamdi, 2014), and hence non-conducive for the use of social media. Researchers have also reported that the lecture model of teaching and rote learning are typical teaching and learning strategies in the Saudi education system (Allamnakhrah, 2013). Further, it has been reported that questioning teachers or expressing dissent is often viewed in these classrooms as "rebellion" that must be suppressed or punished (Lin, 2006; Allamnakhrah, 2013). While there have been opposing views that have argued that these are myopic perspectives of complex cultural concepts (Huang and Cowden, 2009), the general consensus remains that Saudi Arabian classrooms are not very suitable for implementing social media based teaching and learning strategies, as interaction between users is a key component of such strategies. In fact, it has been suggested that the integration of social media in Saudi Arabian pedagogy is typically low given the lack of "student centred" learning (Alharbi, 2013). Alhazmi and Rahamn (2013) have also argued that the models of learning that social media can support are highly uncommon in Saudi Arabian classrooms.

In considering the above ideas, it must be acknowledged that the studies are a few years old and given the rapid changes in technology and education, may no longer be valid. Indeed, the findings of the current study contradict several of these ideas either partially or fully, thereby demonstrating that the attitudes and practices within the Saudi education system are changing with times. Both teachers and students of the present study reported being communicative with each other both within and outside the classrooms. They also reported having classroom discussions, interactive sessions and creative thinking assignments. None of the student respondents claimed that questioning is considered as rebellion that must be punished although they did point out that they refrain from excessive questioning out of respect for their teachers, which is perhaps more indicative of the high power distance culture of the country rather than any specific educational rule or practice.

Further, the teachers specifically talked about the different social media-based aides and tools that they use to enhance the classroom learning experience for students. They claimed to use these tools to drive student centered learning within and outside classrooms. This included using blogs to

drive content creation and discussions, using social networking sites to encourage student participation, creating knowledge repositories on social media sites such as YouTube and Slideshare so that students could refer to them and learn at their own pace, using audio-visual aides like videos, conference speeches, TED talks and presentations hosted on sites like YouTube to encourage critical thinking and discussions, and encouraging students to work on joint projects through content communities. These are in alignment with some recent studies exploring the use of technology in general in Western education systems. For instance, a survey by UCISA (2018) found that "virtual learning environment (VLE), text matching tools, provision for the electronic management of assignments (EMA), reading list software and lecture capture provisions" were the top five technology services used within the classrooms in the UK. The findings of the current study indicate that instructors and institutions in Saudi Arabia are attempting to use social media as the technology tool to achieve similar purposes such as enhancement of virtual learning environments, electronic management of assignments and capturing lectures. This highlights the increasing trends with respect to the use of technology in general, as well as the adoption of social media for teaching and learning in Saudi Universities.

Other findings of the study are also in contrast to those in literature. For instance, Mirza and Al-Abdulkareem (2011) have reported that the Saudi Arabian government is concerned about the negative influence of internet and social media on the religious and moral values of youth. This is supported by Ezzi, Teal and Izzo (2014) who note that watching Westernized videos may go against the Islamic values of the culture, and hence unpopular as a means of instruction. In this context, "Westernized" does not necessarily mean videos created in the West but also those that are deemed to have a "Western" influence. For instance, teachers may not want videos presented by the opposite gender as it is considered inappropriate to show in classrooms. This is particularly true when it comes to showing videos presented by women in male Universities. Even if the presenter belongs to the same gender, there may be additional concerns such as the attire of the presenter, the language they use or the religious or political views they may express. These issues have always been controversial in Saudi Arabia (AFP, 2019; Wharton, 2019) and may go against accepted cultural norms. Hence it is understandable that teachers are reluctant to use videos as a means of instruction. In addition, a lot of educational videos, particularly those that are in English originate in the West and may be preceded by unexpected advertisements or other Western influences.

In the current study however, the use of YouTube videos emerged as one of the most popular teaching and learning aides from all groups of participants. All the three groups expressed willingness to use them and acknowledged their usefulness. All the teachers talked about the use of videos as well as other audio visual aides to enhance the classroom learning experience for students. This indicates a huge shift in the way of thinking. The teachers and administrators further confirmed that videos are used even at a University level as marketing and communication tools. Although these videos are typically created by the University itself, it nevertheless demonstrates the changing attitudes regarding the use of videos at the higher levels. Not only did videos emerge as a popular means of instruction but none of the three groups of participants expressed any concern about any negative influence of them.

While these views may be due to self-selection bias to some extent given that only those who use social media likely responded to the surveys, several additional points emerged that lend credence to the increasing use of social media as a learning technology in Saudi Arabian education. For instance, one of the key reasons mentioned by teachers and administrators for the use of social media was that it allowed them to connect and communicate with students in their own learning space. This indicates that the use of social media is popular among students, and teachers cannot afford to ignore it. The students themselves mentioned that they often select and use social media for learning due to their high popularity in Saudi Arabia. It also appears that both teachers and students encourage the use of certain types of social media among each other. All these indicate the growing popularity and use of social media in the Saudi education system.

The findings of the study also differ from those of researchers like Al Alhareth et al. (2015) who have pointed out that the Saudi Arabian education system is completely under the centralised control of the government, due to which instructors have little control over classroom materials. These researchers posit that students and instructors are at the lowest level of the hierarchy and wield minimal influence on any aspect related to teaching and learning. The findings of the current study contradict these assertions as teachers claimed to have considerable control on the kind of social media tools, aides and strategies they use in classrooms. Even the administrators claimed that the teachers have a high amount of control over the social media they use in classrooms within the University's regulatory framework, the only caveat being that these tools can act as

supplements but not replacements for traditional methods of teaching. This further demonstrates the changing attitudes towards social media in Saudi higher education.

The changing attitudes also indicate a possibly different mindset from educators in other countries where the use of social media in education in general and classrooms in particular continues to be hotly debated (Carr, 2011; Andersson et al., 2012; Willems, Adachi and Huijser, 2018). Researchers like Connolly (2011) have warned that use of social networking tools can hinder high-level reasoning, focus and concentration, which are all essential for development of critical thinking and intellect. Others like Ajjan and Hartshorne (2008) say that even though teachers acknowledge the benefits of social media in teaching and learning, their intention to use and actual use is highly limited in reality. The findings of the current study contradict this partially in the sense that almost all the participants agreed that social media enhances teaching and learning to some extent as well as admitted to its use for academic purposes. In fact, most of the teachers also claimed to use it for their own personal career growth and enhancement, self-learning, and collaboration with other educators.

It can be argued that the changes in Saudi Arabian education system do not indicate a change in the essential nature of teaching and learning, which remains focused on traditional methods. It can also be argued that the changes are related to surface-level communication and exchange of information rather than deeper learning ideas like critical thinking and creativity. In fact, this has been a criticism of the general use of technology even in Western countries like the UK. The UCISA (2018) survey found that despite advances in the use of technology-oriented services, there was little change in the way these services supported teaching and learning activities. The survey further found that blended learning delivery that focused on providing instructions, lecture notes and supplementary resources was the primary activity supported by technology, and technology support for active learning, open learning and fully online course deliveries remained highly limited and unchanged. The findings of the current study indicate that this might be true even for the use of social media in Saudi Arabia given that its use mainly seems to support delivery of course materials, instructions and assignments rather than any deep changes in the essential ways of teaching and learning.

It can also be argued that unlike in Western countries like the UK, even the surface-level changes indicate a huge change in the Saudi Arabian context given that they represent a shift from the traditional methods of the country. In other words, merely allowing and adopting the use of social media in teaching and learning, even in the most rudimentary sense, represents a deviation from the default method of referring to teachers and textbooks for all information and accepting their words without question. The use of social media, at the very least, invites active communication and participation from students, and encourages them to explore other sources of information, thereby moving them away from considering teachers and textbooks as the sole authorities on information. Indeed, the findings of the current study emphasize the fact that in using social media, students are trying to be more independent and explore other sources of information, sometimes to the point of annoying their teachers by looking for "quick fixes" to everything. It is possible that the tendency to over-rely on the internet and social media for information is exacerbated among Saudi Arabian students due to the otherwise restricted nature of the classrooms where opportunities to question teachers are rare. In any case, it is a paradigm shift as far as Saudi Arabia's educational culture is concerned.

5.2.2 Differences between the Attitudes of Students and Staff

Given that there is limited research on the use of social media in the Saudi higher education context, the differences between the attitudes of students and teachers in this context remain largely unexplored. Studies in other settings show that the differences are often present and significant, although the stated differences themselves are often contradictory. For instance, Roblyer et al. (2010) concluded in their study that although students have positive attitudes towards use of social media in classrooms, instructors are much less likely to be open to the idea. On the other hand, Sekyere (2009) and Dickson and Holley (2010) argue that even students may not be receptive to the idea of using social media in learning as social media in general represents an escape from their academic responsibilities, and they do not want to mix it with learning. This is supported by Tapscott and Williams (2007) who warn that overzealous attempts by instructors to connect on social media may in fact end up irritating students. These studies are however several years old. Considering the pace at which technology and social media as well as the attitudes towards them change, the findings may no longer be completely valid.

Indeed, the findings of the current study contradict these ideas either partially or fully. While the findings do reveal a substantial gap between the attitudes of students and staff when it came to the use of social media in education, the attitudes themselves are different from those stated in literature. Unlike the findings of Rolbyer et al. (2010), the findings of the current study indicate that both students and teachers are open to the idea of using social media in classrooms, although teachers have several additional concerns compared to students, which in turn act as barriers to use. Moreover, unlike the findings of Sekyere (2009) and Dickson and Holley (2010), the current study revealed that while students and teachers are not really friendly or informal with each other on social media, students are far more open to the idea compared to teachers. The findings also revealed that the communication between students and teachers is largely unidirectional, with teachers using social media as a broadcasting channel. Most of the students admitted that while they do not get overfamiliar with teachers due to their culture, they do not mind friending or talking openly to their teachers on social media as long as the teachers did not mind. This shows that students are willing to embrace increased communication with teachers on social media and that there is a gap between the attitudes of students and teachers regarding what constitutes adequate communication.

The findings of the study reveal that the purposes for which students and teachers used social media differed in a few ways. It was found that the teachers used social media more for career and business work compared to students, and that specific social media like LinkedIn, Twitter and Slideshare are much more popular among teachers whereas others like Wikispaces, Instagram and Flickr are more popular among students. The teachers and students also differed in terms of the features that they consider important while choosing social media. In general, teachers were much more particular about the various features of the social media compared to students, mainly because of the stated need to be cautious, not only for their own online safety but also the safety of students.

Most importantly, in case of the present study, the differences between students and teachers manifested in their attitudes towards increased and further integration of social media into the Saudi higher education system. Despite concerns regarding the use of social media, students in general felt that there is plenty of scope for further integration. They mentioned several innovative ways in which social media could be integrated further into their higher education system. These

included the use of social media for enhancing virtual learning environments, increased sharing of online content and enabling more interactions between teachers and students. This is significant not only because it differs from the attitudes of staff members but also matches with some of the key uses of technology in UK universities discovered by the UCISA (2018) survey. This indicates that students in Saudi Arabia are likely aware of the ways in which technology and social media are being used in broader contexts, and are willing to embrace them. It also contradicts the findings of researchers like Sekyere (2009) and Dickson and Holley (2010) who claim that students are not receptive towards the use of social media in teaching and learning.

Both the teachers and the administrators of the current study felt that the use of social media within their Universities was adequate and all they could do given the limitations, barriers and complexities faced at a higher level. These included technical barriers, privacy and security barriers, legal and ethical barriers, process barriers and perceived lack of interest. Similar to the UCISA (2018) survey results, the focus of staff members' attention was mainly on institution-level concerns, which is unsurprising in itself. Several studies in the past have identified similar concerns and barriers from the perspective of staff members (Rolbyer et al., 2010; Lederer, 2012; Acar, 2013). However, they have not contrasted these with the attitudes of students. The findings of the current study clearly show that there is a gap between the attitudes of students and teachers related to the further integration of social media into higher education in Saudi Arabia, which need to be bridged by creating awareness and enabling constructive dialogue.

A further interesting finding emerged in relation to the integration of social media in higher education in Saudi Arabia. It was revealed that teachers and the Universities are trying to take precautionary measures in order to address the concerns related to social media usage. These measures included monitoring and restricting content, blocking social media and their features and ensuring policy adherence. The measures are sometimes being perceived as excessive interference by students. This is significant for two reasons. Firstly, they indicate that the censorship within the Universities are driven by various limitations and concerns among the staff members regarding unguarded use of social media rather than by religious issues as has been postulated in literature (Mirza and Al-Abdulkareem, 2011; Ezzi, Teal and Izzo, 2014). Secondly, it indicates a gap between the perceptions of teachers and students as what staff members consider necessary precautions is viewed as micro management by students.

At a broad level, this highlights the need to create more awareness among students. It also shows that the teachers themselves need to be more receptive of student inputs and find a middle ground, as students claim to be aware of the dangers of the excessive use of social media and knowledgeable enough to circumvent them. Moreover, some of the concerns of teachers such as the excessive use and reliance on social media, and the tendency of students to look for quick fixes could be a by-product of the culture of Saudi Arabian classrooms where students have limited opportunity to challenge or question their teachers, which in turn might lead them to look for solutions elsewhere, most commonly on the internet or social media. This indicates the need for discussions and open communication between students and staff in order to facilitate exchange of ideas and concerns.

5.2.3 Limited Adherence to Principles of Constructivism and Connectivism

While the findings of the study indicate that the trends in the Saudi Arabian education system are changing and are much more interactive and student-centered than speculated in literature, they are still heavily focused on several traditional tenets of teaching. The nature of pedagogy, the methods of teaching and the culture of the country set limits on the extent to which non-associative models of teaching and learning can be followed within the system. In other words, Saudi Arabia is at a crossroads as far as the changes are concerned, and this creates questions about further integration of social media into the education system.

As discussed in the review of literature, it is generally accepted that social media can be used more easily for teaching and learning within the constructivist model. The findings of the current study however indicate that the practices followed within Saudi classrooms do not adhere to this model completely. On one hand, participants of the study heavily emphasized on the information seeking, information sharing, communication and virtual interaction aspects of social media which are characteristics of the constructivist model. Both teachers and students also emphasized on the ways in which they are using these abilities of social media both inside and outside the classrooms. Moreover, students also spoke about utilising multiple social media as sources of information as opposed to relying on teachers alone. This shows that students are trying to construct their own meaning through communication and interactions with multiple sources, which is against the findings of others like Alghamdi (2014) who consider teachers and textbooks to be the sole

authorities of information in Saudi Arabia. In other words, social media are enabling better engagement and more critical thinking among the learners as well as better connections between the teachers and learners, and between the learners themselves. To this end, it is evident that the constructivist model is being used to some extent in Saudi classrooms.

The findings also indicate that the extent to which student respondents used social media for communication, collaboration and content creation remains quite limited. None of the students mentioned collaborating with their teachers or indeed with others outside their peer group, nor did any of them mention their teachers creating or encouraging any collaborative projects apart from blogging. Further, most of the collaboration mentioned seems to be in the context of their assignments and study materials as none of them mentioned any independent research or creative projects. Communication with the teachers seems to be mostly one-way with teachers informing students about assignments and deadlines. The teachers themselves did not mention any critical thinking projects, and seemed to encourage students to stick to traditional sources of information and standardized practices. While they mentioned the shallowness and unreliability of information on social media as the reason for this, it nevertheless indicates that the teaching practices for most part continue to be based on teachers telling students what to do. Further, the cultural expectations to be respectful and cautious, as well as the gender-segregation practised within the country seem to limit free flow of communication and interactions to an extent. To this end, it is evident that a large part of the teaching and learning practices are based on behaviourism, thereby casting doubts on the extent to which further integration of social media would be successful.

As discussed in the review of literature, in recent times, there have been calls for traditional learning theories like behaviourism and constructivism to be expanded to include and support the learning approaches of the digital era (Siemens, 2005; Brown and Green, 2006). Towards this, Siemens' (2005) principles of Connectivism and Wenger's (1998) Community of Practice (CoP) theory are sometimes promoted as the right methods to address the learning needs of today's students. Within this context, online communication and collaboration have been pointed out as a major component of social media based learning (Siemen, 2005; Smyth and Mainka, 2010; Karacapilidis et al., 2012). Accordingly, the present study used the principles of connectivism and CoP as the theoretical underpinnings to explore the behaviours and attitudes of participants.

The findings of the current study indicate that the teaching and learning practices within the Saudi education system do adhere to these principles albeit to a limited extent. The students are indeed forming their own learning communities through social media and participating in it. They are also sharing knowledge sources, creating their own information repositories and communicating with other students on the network. Further, students appear to feel a sense of belonging to their learning communities, engaging with others, building relationships and contributing to the overall knowledge process of the community. Along with the students, the teachers are also engaged in such communities, interacting with students and sharing resources. To this extent, it is evident that the principles of both connectivism and communities of practice are at play and being employed successfully by teachers and students to enable learning.

Yet, it appears that the engagement, the interactions and communication among the students is largely limited to what the teachers ask them to do. The interactions are also strictly monitored by the teachers as well as Universities and are often one-directional with students merely listening to instructions. Further, there seems to be only limited contributions from the students to add to the knowledge within the communities. For instance, the students mentioned contributing on class blogs but these are initiated, monitored and controlled by the teachers and limited to topics assigned by them. To this end, it appears that although the attitudes are changing, the culture and rules of Saudi Arabia yield only partially to the concepts of connectivism and communities of practice.

It must be acknowledged that all these theories, models and principles are hotly disputed, and cannot be considered absolute or flawless. Huang and Cowden (2009) point out that none of models should be blindly dismissed without understanding the society and cultural context. In other words, teachers may need to, and probably should use more than one model or theory depending on needs, which appears to be the case in Saudi Arabia currently. Nevertheless, the findings indicate that although the attitudes towards social media are changing, their indiscriminate use may not fit well with the practices currently in use within the Saudi Arabian education.

5.2.4 Lack of Policy Guidelines for Staff

While educational institutions across the world have been adopting digital technologies and social media to aid teaching and learning, the lack of guidelines and review processes in this regard

remains problematic (Barton and Skiba, 2012; Pomerantz, Hank and Sugimoto, 2015). According to the UCISA (2018) survey, this is particularly relevant when it comes to review of student learning and staff pedagogic practices, with only a few surveyed institutions focusing on formal reviews of these aspects. The survey found that most formal institutional reviews focused largely on the technology services and systems themselves, and very little on the impact of these systems and services on student learning or staff pedagogic practices.

While the issue may not be as profound in the context of the use of social media given that the use is still in the stages of infancy across most institutions, the findings of the study indicate that it is problematic in some ways in the Saudi higher education context. This is mainly because there appears to be a definite lack of university policy guidelines around the use of social media in teaching across all the three selected Universities, which in turn seems to be creating uncertainty and lack of uniformity. While all three Universities have social media policies, they are centered on general and fair usage, with no specific information related to the use of social media in teaching and learning particularly. In other words, the policies inform users on what not to do with respect to social media use, but little about what to do. In fact, the administrators confirmed that the Universities are not directly involved in any teaching and learning initiatives using social media beyond acting as regulatory and governing bodies for the teachers/students who use it. Even within this, the role of Universities appear to be limited to more technical aspects such as blocking malicious content and files. The administrators stated that the Universities leave it up to the teachers use social media in any way they see fit as long as they do not breach the policy and/or replace traditional methods of teaching.

Consequently, the use of social media among teachers seems to be very non-uniform as they are using it without any guidelines. This is also leading to differences in the ways students and teachers view the use of social media in teaching and learning. The problem is perhaps compounded by the fact that the social media sites and apps are not hosted or developed by the Universities themselves, leading to further lack of clarity about their best possible use. In fact, the administrators even indicated that improving teaching and learning outcomes using social media is low on the list of priorities for the Universities. This is a significant gap related to the use of social media for teaching and learning within the Universities.

The UCISA (2018) survey points out that the digital capabilities and knowledge among staff members is also lacking across institutions in the UK, which in turn acts as a major barrier for the adoption of technology services. Again, this appears to be true and even more problematic in the context of social media adoption in Saudi Arabian institutes. Not only was a lack of awareness noticed among the surveyed administrators regarding social media usage and social media policies of their Universities, but there also appears to be a lack of consensus among them about basic aspects such as their University's use of social media, presence of a social media policy, frequency of social media updates and presence/absence of dedicated social media administrators. Among the teachers, lack of familiarity or knowledge about social media features and functions emerged as a key barrier to their adoption.

These are significant concerns, particularly given the variety of social media being used without guidelines within the Universities and the consequent security and privacy concerns. It indicates a gap at a broader level where the Universities need to provide better policies and trainings as well as create more awareness among the staff members to ensure the success of social media initiatives. Indeed, it has been repeatedly pointed out that apart from creating social media policies, it is also important for Universities to offer practical advice and guidelines to teachers and administrators looking to integrate social media into education (Gorg, 2013; Kent and Leaver, 2014). The current research suggests that Saudi Universities need futher efforts in this direction, which will be explored in detail in the next chapter.

5.2.5 The Role of Culture

The impact of culture on the use of technology in general and social media in particular have been explored in prior studies. Researchers like Rugh (2002) and Khan (2011) have categorised Saudi Arabian education system as predominantly associative, with practices centred on teachers providing information, notes and structured instructions to students, which the students adhere to without question. This has largely been attributed to the high power distance culture of Saudi Arabia, in which challenging elders and those in positions of authority is considered unacceptable. Researchers have argued that students in Saudi Arabia defer to the authority of teachers unequivocally and even the teachers and instructors prefer to maintain distance with students (Elyas and Basalamah, 2012; Alghamdi, 2014). On the other hand, some like Ezzi, Teal and Izzo

(2014) have posited that the influence of cultural norms on the behaviour of Saudi Arabian students is reducing.

Culture did indeed emerge as a strong aspect and a common theme in the findings of the current study among all three groups of participants. However, the findings differ from literature in some aspects. To begin with, all the student participants mentioned using social media for their studies, assignment assistance, information seeking and sharing, obtaining academic clarifications and project collaboration. This indicates that students do not consider teachers or textbooks as sole sources of information, and are willing to explore and use other sources. They were also willing to communicate with teachers more often and openly on social media as long as the teachers were willing to do so. To this extent, it is evident that the view of Saudi Arabian education system as a high power distance, authoritative system with students having no voice is outdated. As discussed in the previous sections, the attitudes and practices within the Saudi education system are changing with times and the students appear to be willing to override cultural rules to some extent.

The teachers and administrators seem more rigid in terms of following cultural rules and less willing to overlook them. The teachers did not appear willing to initiate open conversations with students on social media, and tended to consider social media as aides to teaching and learning, and not replacements. They expressed concern about the fact that students tend to rely too much on social media nowadays and look for "quick fixes", stating the unreliability and shallowness of information as the reasons behind the concern. It could be posited that the behaviourist model followed in Saudi Arabian culture could indirectly be responsible for this as being told what to do and think, and being discouraged from challenging teachers could be causing students to take their curiosity and enquiries elsewhere. Regardless, the differences in opinions indicate that Saudi Arabia is at cross-roads as far as the merging of social media and culture is concerned.

In terms of the impact of culture on social media behaviour, the need to be cautious and respectful during interactions with others, and the need to maintain distance and deference to teachers emerged as key aspects. These are again in line with the gender-segregated, high power distance culture of Saudi Arabia (Hofstede, 2019). Additionally, Hofstede (2019) has also classified Saudi Arabia as a country that has a very low tolerance for uncertainty and risk. These explain the expectations to be cautious, as well as the multiple precautions, monitoring, restricting and

censorship conducted at the University level. Some researchers have attributed this to religious reasons (Ezzi, Teal and Izzo, 2014) but the findings of the current study reveal them to be related to privacy and safety concerns. Again, while the students indicated openness towards taking risks and experimenting more with social media, the teachers and administrators were far less willing.

The findings of the study also indicated that students face a lot of peer pressure in their use of social media. The virtual peer pressure created by social media has been well-documented in literature (Zeitel-Bank and Tat, 2014; Kieslinger, 2015). A part of this may be due to the collectivistic culture of Saudi Arabia, where the idea of keeping up with society, conforming to collective codes and maintaining appearances are said to be quite important (Hofstede, 2019). While the data in the current study is not sufficient to authoritatively confirm this, the rules and expectations mentioned by participants do indicate towards the collectivistic expectations of the culture playing a role in this. However, further research is needed to confirm this.

Overall, it is evident that any changes to the use or further integration of social media into teaching and learning in the Saudi Arabian institutions have to be done keeping these cultural expectations and boundaries in mind. At the same time, it must also be acknowledged that cultural dimensions cannot always be predictors of individual behaviour and attitudes, which are constantly changing. Hence, the expectations and boundaries also need to be revised constantly in line with the changes.

5.2.6 Role of Gender

There have been several studies that have posited differences in the ways men and women use social media. Most of these however, have been focused on Western users and their perspective. The current study throws light on some unique aspects related to the impact of gender on social media usage from a Saudi Arabian perspective. While it was found that both male and female students use social media regularly, their usage and behaviour was governed by the conservative, gender-segregated culture of Saudi Arabia and the consequent expectations. This has indeed been pointed out by Bölükbaş and Yıldız (2005) and Fallows (2005) who state that social pressure and traditional roles enforced by society are the reasons for the difference in online behaviour between genders.

In the Saudi Arabian context, it was revealed by the current study that women are expected to be much more cautious while interacting with others online, refrain from interacting with men who are strangers and guard their personal information. This is in line with the findings of Mazman (2011) who has pointed out that females are generally more concerned with online privacy and security due to which they are reluctant to communicate with strangers on social media. However, even the male participants claimed that they are expected to be cautious and respectful while interacting with women in order to avoid offending them. They claimed this to be the result of cultural expectations in Saudi Arabia. The expectations were seen to manifest in the ways male and female students used social media. Female participants claimed that they used social media mostly to communicate with people they already knew and used privacy and security settings rigorously. Again, this is in line with the findings of Mazman (2011) who found that women typically use social networking sites like Facebook to maintain existing relationships rather than forming new ones.

Some of the female students also claimed that they used social media as a way to relax or to further their studies and career. The male participants on the other hand claimed that they use it for general knowledge, gaming, career and academics. They also said that they tend to remain respectful and formal while communicating with women on social media.

A common theme that emerged during conversations with female participants was that they felt that the rules and expectations were more restrictive for women, and men did not have to follow the same rules. This has been pointed out by the Globe (2016) project according to which Middle-Eastern countries have considerable gender differences with male domination characterizing the cultural norms and expectations. While the male participants felt that the need to be cautious on social media was universal, the ideas of privacy, security and anonymity emerged much more frequently during conversations with female participants, thereby confirming that societal and cultural rules are perhaps indeed more restrictive for women in Saudi Arabia.

Some of the participants expressed the opinion that interacting with members of the opposite gender is easier on social media, which has been pointed out by researchers like Tubaishat (2008). As discussed in the section on the education system in Saudi Arabia in the review of literature, Saudi Arabia is a gender-segregated society both inside and outside classrooms. Hence, this

finding is significant given that interacting with the opposite sex face-to-face is not very common. Perhaps social media are helping to bridge the gap in that regard. However, some of the participants also stated the opposite claiming that social media do not make communication with the opposite sex easier. Given that neither view was unanimous or unconditional, it is evident that this is not a straightforward issue.

Some researchers like Gerlich, Browning and Westermann (2010) and Nisiforou and Laghos (2015) have claimed that the differences between the social media behaviour of men and women do not hold true when it comes to the academic use of social media, and that there are no differences in their academic social media behaviour. This was only found to be true to a very limited extent in the current study as some of the participants expressed the belief that the use of social media within their University required less caution given the constant monitoring by the authorities. Apart from this, the participants did not mention any other difference between their general and academic use of social media in the context of their gender. Hence, it can be surmised that the differences between men and women in terms of social media behaviour holds true even when it comes to academic use of social media in conservative countries like Saudi Arabia. This indicates that the findings of studies in Western education system cannot always be extrapolated to the Saudi Arabian system.

5.2.7 Life Stages of Participants and their Use of social media

There has been considerable debate in literature about how age or the generation of users impacts their use of technology and social media. Prensky (2010) has argued that younger people born after 1980 have much better access and knowledge of technology and internet compared to their older counterparts to the extent that they can be called “Digital Natives” compared to those born before 1980 who are “Digital Immigrants”. Others have used similar terms like the ““connected generation” (Ezzi, Teal and Izzo, 2014), “net generation” (Tapscott, 1998) and “new millennium learners” (Groff, 2013) to describe younger students. These terms and definitions have been contested by others like Jenkins (2007) and Bennett, Maton and Kervin (2008) who argue that it is not possible to judge the digital competence of users based on their age alone. They further argue that there are several additional factors such as access to technology, digital divide, technology competence and experience at play in this context.

The findings of the current study throw some light on the issue by underscoring another aspect of the issue. During the quantitative analysis of data, there did indeed emerge an inverse relationship between age of student respondents and their time spent online. An inverse relationship also emerged between the age of students and their use of social media both general and academic. In other words, the amount of time spent online by student respondents as well as their use of social media was seen to be decreasing in case of older students. The relationships however were not linear, and the use of social media did not decrease uniformly with age. Rather, it was found to be low among students who are above 30 years of age and pursuing their post graduate degrees. This group of students also differed in their perceptions regarding the importance of various features of social media.

When probed further during the qualitative phase, it emerged that the variations in use and attitudes were due to the varying commitments, priorities and concerns of the participants. In other words, students above 30 years of age had different commitments, priorities and concerns compared to their younger counterparts, which in turn affected their use of social media and their attitudes towards it. The commitments included family commitments, child care commitments, career commitments and study commitments. The older students also claimed that they have different priorities compared to younger students such as spending time with family, fostering real-life relationships as opposed to online connections and advancing their careers. Both younger and older sets of students admitted that the younger students who grew up with social media were under more pressure to keep up with others on it. Additionally, older students were more concerned about time while younger students were more concerned about cost and features of social media. All these influenced their choice of social media, the amount of time they spent on social media and the ways in which they used social media.

While it is likely that older students would generally have more commitments and different priorities compared to their younger counterparts, this is neither a linear nor an inevitable relationship. To this end, the findings must be interpreted not in the context of the age or generation of participants, but rather the life stage that they are at. Indeed, it was found during the analysis that a vast majority of student respondents had more than 4 years of experience using social media as well as good access to technology and neither of these factors showed any relationship with their age. In other words, age was not found to be a factor in the use or access to social media.

Instead, the present research differs from other studies in that it reveals the life-stages of participants to be the reasons behind the variations in their social media attitudes and usage rather than their age or generation in any strict sense.

The relationship between the life stages of participants and their use of social media can also be linked to the concept of derived demand, according to which the demand for a particular goods or service arises from the demand for something else (Reid and Sanders, 2005). In this case, it appears that the life stage demands of participants led to their use of social media in particular ways. For instance, older students who were about to finish their studies used social media for career-related activities. They used social media relatively less frequently to connect with their friends as their family commitments demanded more of their time. On the other hand, younger students who did not have family commitments used social media extensively to connect with friends and peers. Hence, it is evident that the life stages of participants drive their use of social media in more ways than one.

5.2.8 Limited Influence of Academic Discipline

There have been several studies that have posited a relationship between the academic discipline of students and their usage of social media although there is little consensus regarding the exact nature of the impact. As discussed in the review of literature, various researchers have studied different social media sites and found that students from certain disciplines use those sites more than others. For instance, Thelwall and Kousha (2014) conducted a study on the use of academic social networking site "academia.edu" and found that it was dominated by students from humanities. Haustein et al. (2014) found that scientometricians typically had a very low presence on academic social media sites like Twitter. Oh and Jeng (2011) studied the usage patterns of researchers and their disciplines on the academic content site "Mendeley" and found that it was dominated by researchers from computer science while the percentage of researchers from arts, literature and law was very low. On the other hand, Almousa (2011) and Kieslinger (2015) claimed that students from humanities and social sciences use social media more than students from the science discipline. A common element of these studies is that they all point towards academic discipline having an impact on both the students' choice of social media and their use of it.

The findings of the current research confirmed only a limited impact of academic discipline on social media usage. In fact, the findings differ from those of studies by Almousa (2011), Babson Survey Research Group and Pearson (2013) and Kieslinger (2015) in that students from Arts group claimed to be less dependent and saw less value in the use of social media for their studies compared to science students. In other words, science students were much more likely to use social media for their studies compared to other groups, and they attributed this to the technology-oriented nature of their course. Even among teachers, those who teach disciplines like computer science claimed that they have to be more active on social media and technology due to the nature and needs of their subject that forces them to keep up with latest tools and trends. Overall, the findings revealed a limited and different impact of academic discipline on social media usage compared to existing studies, and even in that the differences were mainly in terms of the specific social media sites or apps preferred rather than any generic trends.

5.2.9 Perceived Barriers to Further Integration

The findings of the study revealed several barriers and concerns which may act as hindrances to further integration of social media in the Saudi higher education system. In particular, staff members spoke about the negative effects of social media on mental health, their ability to hinder productivity and cause distraction, poor quality of information, irresponsible use by students, as well as privacy and security issues such as data theft, hacking, viruses, identity theft, cyber stalking, trolling, bullying and doxing. While these have been studied extensively in literature (Doherty, 2010; Lederer, 2012; Rennie and Morrison, 2013), the staff members also spoke about several additional concerns that seem unique to Saudi Arabia.

The teachers and administrators mentioned concerns that arise from cultural rules and expectations, which in turn are likely to be unique to the conservative and gender-segregated nature of Saudi Arabian society. These include ensuring that gender rules are followed, formality of teacher-student relationships is maintained, and ensuring that religious/cultural sentiments are not hurt. While the students seemed open to overruling them, the staff members are less willing.

Teachers also mentioned concerns like student addiction and overdependence on social media, plagiarism and copyright issues. While these are not unique to Saudi Arabian students, studies do indicate that issues like social media addiction and poor understanding of plagiarism/copyright

issues are highly prevalent in Saudi Arabia (Al-Seghayer, 2011; Alghamdi, 2014; Jaffery, 2018). To this end, it can be posited that they are extremely valid concerns in the Saudi Arabian context.

The teachers and administrators mentioned some additional barriers that are unique to Saudi Arabia. For instance, the long processes, standardization requirements, lack of bandwidth especially within University and public networks, and lack of technical skills are likely to be specific to Saudi Arabia and even the Universities themselves. The lack of University policy guidelines for teaching staff are also likely to interfere with standardized integration of social media and need to be addressed at a University level. Overall**,** it appears that although the staff members are aware of the newer and advanced uses of social media, they often do not consider the payoffs worth it in light of these barriers and concerns.

5.3 Findings that Corroborate Literature

While the findings of the current study highlight several important aspects related to the usage of social media and attitudes towards them among users in the higher education sector in Saudi Arabia, they also corroborate several concepts and ideas prevalent in literature. This section presents the findings that corroborate literature in terms of usage, attitudes, barriers and success factors.

5.3.1 Social Media Awareness and Usage

The quantitative analysis of data revealed general technology trends showing that both students and teachers in Saudi Arabia have access to technology devices and internet, and are prolific users of both. This is in line with statistics that show that users in Saudi Arabia are extremely active on social media (Global Media Insights, 2019). The data also showed that the participants are familiar with the features of social media such as forging online connections, creating a virtual presence, socialization, communication, broadcasting, information seeking and information sharing. All these have been pointed out as key uses of social media by several researchers. For instance, Vladlena (2014), Horn et al. (2015) and Gündüz (2017) have all pointed out that social media enables users to forge connections, socialise and communicate with others. Furthermore, researchers have also pointed out that one of the key ways social media is changing the face of communication is in terms of the sheer number of people that can be reached through a single post,

similar to a broadcasting system albeit without any kind of editorial control or verification (Vladlena, 2014). Boyd (2007) has similarly pointed out the unique abilities of social media tools to reach invisible audiences who can not only hear the message not specifically meant for them but also respond to it.

The ideas of creating an online presence to enable sharing and seeking of information are in line with the principles of connectivism of Seimens (2005), according to which learning happens as a result of communication and interaction with others within a given social environment, which in this case happens to be online. Similarly, the ability of social media to enable information seeking and sharing has been widely studies and acknowledged in literature (Kaplan and Haenlein, 2010; Kong, 2014; Holmberg and Thelwall, 2014). It is in fact this ability that makes social media the ideal ground for the formation of online communities of practice, and enables connectivism to take its course.

The participants of the current study not only exhibited awareness of all the above features of social media, but also indicated that they make use of most of the features both for personal and professional purposes. This indicates a good familiarity and awareness of social media and their potential among the participants. In terms of practical academic uses, students indicated that they use social media for assignment assistance and academic collaboration. These are in line with the findings of researchers like Orlanda-Ventayen and Ventayen (2017) and Dijck and Poell (2018) who have pointed out that the cost effectiveness, accessibility and personalized nature of social media make them suitable for learning activities like assignments. The ability of social media to foster collective learning and content collaboration is also well-documented. Indeed, online communication and collaboration has been pointed out as a major component of social learning (Smyth and Mainka, 2010; Karacapilidis et al., 2012). In fact, social media sites like Wikipedia are based on the model of content collaboration by users. The above analysis shows that students in Saudi Arabia are also making use of the content collaboration capabilities of social media to some extent. They are doing this by engaging and sharing their thoughts through blogging and group projects although there appears to be scope for more as most of these are instructor-initiated and students are not utilising the collaborative capabilities of social media beyond what is required by their teachers or University.

The teachers mentioned using social media for communication, classroom teaching assistance, enabling self-learning, collaboration and career advancements. All of these have been pointed out as uses of social media in education by researchers like Smyth and Mainka (2010), Vladlena (2014) and Horn et al. (2015). The use of social media like LinkedIn as tools for career advancements has also been pointed out by Duncan and Barczyk (2013). In addition, both teachers and students indicated that they use social media to enhance teaching and learning. Several studies that deal with the use of social media in education have touched upon this ability of social media to enhance the teaching and learning experiences (Kelm, 2011; Orlanda-Ventayen and Ventayen, 2017; Dijck and Poell, 2018). Hence, the findings of the current study indicate that participants in Saudi Arabia are using social media for similar purposes as stated in literature, and as seen in empirical studies on users from other countries.

5.3.2 Reasons for Social Media Usage

The students of the current study stated that the key reasons behind their use and preference of social media include the speed and flexibility of social media, their accessibility, affordability, peer pressure and fear of missing out. All these have been well documented in literature. Fast and Campbell (2004) and LaFrance and Calhoun (2012) have pointed out that the speed and usability features of search engines and social media have led to students preferring them over traditional sources of information. Others like Raut and Patil (2016) and Orlanda-Ventayen and Ventayen (2017) have pointed out that the ease with which social media applications and sources of information can be accessed makes them highly useful in education. In fact, the speed, flexibility and accessibility of internet and social media has caused students to choose them over traditional sources of information to the extent that terms like “to tweet” have become de facto verbs now. Dijck and Poell (2018) have also pointed out that free social media apps and tools are gaining huge traction among users, educators and education systems today due to the cost benefits.

The peer pressure created by social media is also well-documented in literature (Kieslinger, 2015). A study by Hewlett Packard Labs on social influence in online systems indicated that people often make or change their choices when facing confirmation and conformity pressures (Zeitel-Bank and Tat, 2014). This may be all the more true for people from collectivistic countries like Saudi Arabia. According to Hofstede (2019), people from such cultures highly value collective

integration and conformity. Indeed, participants of the current study indicated that the need to conform is one of the key reasons behind the peer pressure to keep up on social media.

Studies have pointed out that fear of missing out (FoMO) is one of the biggest causes of social media addiction to the extent that Przybylski et al. (2013) developed a scale to measure FoMO in SNS (social networking sites) users. This scale has since then been used and validated by several other studies as well (Alt, 2015; Fox and Moreland, 2015; Oberst et al., 2017). These studies confirmed that users sometimes continued using social media despite not wanting to, due to FoMO. The findings of the current study confirm that students from Saudi Arabia feel the fear and often use social media to avoid missing out. Overall, this indicates that students use social media for reasons similar to those well documented in literature.

The staff members of the current study stated that they use social media in order to meet students in their own space. This is in line with the findings of Dickson and Holley (2010) who state that social media provide the perfect platform for instructors and institutions to meet students in a place that they are familiar and comfortable with. However, Dickson and Holley (2010) also predicted that students may not be comfortable interacting with teachers on social media, which was proven to be untrue in case of the current study. Students expressed willingness and comfort to communicate with teachers on social media, in line with the findings of Hewitt and Forte (2006) and Fischman (2008). Further, the teachers also claimed that they use social media due to the reusability of content, which has been pointed out as an advantage of social media by White, King and Tsang (2011). All this indicates that the reasons for which the participants of the current study use social media are similar to the ones stated in literature.

5.3.3 Barriers and Drawbacks of social media

The findings of the current study have revealed several barriers and drawbacks of social media that make their use in education risky. While some of the barriers are likely to be unique to Saudi Arabia (as discussed in the previous sections), several others are in line with findings in literature. Issues like distraction and wastage of time mentioned by students have been studied extensively in the context of social media usage. Researchers like Wang, Chen and Liang (2011) and Selvaraj (2013) have pointed out that the over stimulation caused by social media can lead to distraction, waste of time and reduced productivity. The issues of addiction, overdependence and attention

seeking behaviour mentioned by teachers have been confirmed by others like Fox and Moreland (2015) and Oberst et al. (2017). They are also in line with the report by Jaffery (2018) who claims that users in Saudi Arabia are addicted to social media due to the anonymity and freedom it offers in an otherwise conservative culture.

The privacy and security issues, information quality issues, legal issues and ethical issues mentioned by participants have also been studied and acknowledged by Cain and Flink (2010), LaFrance and Calhoun (2012), Lederer (2012) and Rennie and Morrison (2013). These researchers have identified poor information quality, cyber-stalking, cyber-bullying, communication with dangerous individuals, malicious behaviour, viruses, hacking, plagiarism and distribution of illegal content and Libel as some of the key drawbacks of using social media in education. The findings of the current study confirm these to a large extent. The participants also mentioned the negative emotional effects of social media which have been confirmed by Maier et al. (2013), Krasnova et al. (2013) and Kieslinger (2015) who have pointed out the ability of social media to foster negative emotions like unhealthy comparisons, jealousy, depression and peer pressure.

Based on these, it is evident that several of the concerns related to the use of social media in education expressed by the participants of the current study are valid and quite common. While the students feel that there should be further integration of social media into teaching and learning despite the concerns, the staff members are understandably more cautious and wary.

5.4 Tying it all Together

Based on the discussion of findings so far, it appears that the education system in Saudi Arabia is in a transitional phase as far as integration of social media is concerned. At one end of the spectrum, it is evident that the view of Saudi Arabian education system as a strict, authoritarian system with no scope for creative thinking, questioning or discussion is either erroneous or outdated. The technology and social media penetration among all groups of participants appears to be quite high, tallying with reports that confirm elevated use of social media in Saudi Arabia (Jaffery, 2018, Global Media Insight, 2019). With the increasing use of technology and social media in teaching and learning, students are exploring various sources and avenues of information, often with the encouragement of their teachers. They are also participating in collaborative efforts like group blogging, communicating with their teachers, participating in discussions inside and outside

classrooms, and exploring innovative uses of social media. The teachers are hosting discussions, using audio-visual aides and using social media in various other forms to aid teaching all with the approval of their University, The Universities themselves are using social media to increase student engagement and allowing the use of social media in teaching and learning. To this extent, it is evident that student-centred learning is not as uncommon in Saudi Arabian education as has been speculated in literature and the use of social media is playing a key role in this.

At the same time, it appears that the changes are happening within the traditional frameworks where teachers and Universities continue to be the authority figures. They direct, monitor and control the use of social media by students. Due to this, the extent of student-centred learning is still limited, with teachers discouraging the overuse of social media for information seeking or learning in general. Moreover, although the students are participating in learning communities to seek information and assistance, they are not contributing to the communities beyond course/teacher requirements.

As discussed in the previous section, this essentially means that although student-centred learning is taking place, it is largely doing so within the framework of a traditional, behaviourist model of teaching and learning as well as a conservative culture. While there is connection, communication and engagement on part of all groups of participants on social media, it is not always uniform with the connection and communication often being uni-directional from teachers or Universities to the students. The engagement and interaction between students themselves is limited to certain types of learning activities, often dictated by teachers. Sharing of knowledge exists but again in a limited manner, and often confined to activities dictated by teachers. While these do represent a huge shift in as far as Saudi Arabian education system is concerned, it nevertheless means that there is only limited adherence to the principles of constructivism, connectivism and communities of practice, all of which are considered suitable in the context of social-media based learning.

The extent to which further integration of social media in the system would be successful in the system remains unclear. The issue seems to be compounded by the lack of clear policy guidelines for teachers regarding the use of social media in teaching. Due to this, the teachers seem unsure about the extent to which they can use and encourage the use of social media in teaching and learning. Indeed, while the students are enthusiastic about further integration of social media in

teaching and learning, the staff members are understandably much more wary and cautious about it. Apart from the general drawbacks and issues related to the use of social media in education, they also emphasize the need to consider the unique cultural and organizational contexts before attempting any further integrations. In this regard, the findings of the current study demonstrate a gap between the attitudes of students and teachers with respect to the use of social media in higher education and lack of policy guidelines within the Universities which need to be bridged before attempting further advancements of social media in teaching and learning.

Based on the discussions so far and a comparison with the findings in literature, a few key differences could also be drawn between the use of social media in Saudi Arabia and Western countries in the context of higher education as shown in Table 5.1 below:

Table 5.1 Difference between Saudi and Western Use of Social Media in Higher Education

Use in Saudi Arabia	Use in Western Countries
Students do not engage in excessive questioning or discussions with teachers on social media as teachers are considered authority figures who must be obeyed always	Students are more likely to engage in constructive discussions with teachers as critical thinking is generally encouraged
Social media is used for surface communication and delivery of information, while the essential nature of teaching and learning remains rooted in associative methods	Literature suggests that social media is being used by students to construct new knowledge, understand course content and support their individual learning approaches
The use of social media to support independent and student centered remains highly limited. Engagement, interactions and communication among students using social media is largely limited to what the teachers ask them to do	Literature suggests that social media is being used to support independent and student centred learning atleast to some extent
Communication between students and teachers is largely unidirectional, with teachers using social media as a broadcasting channel	Literature suggests that the communication between teachers and students is typically interactive
Teachers and administrators try to address the concerns related to the use of social media by censoring, monitoring, restricting and blocking content, some of which is considered excessive by students	There is no indication that Western teachers and administrators engage in censorship that is considered excessive
The gender-segregation in Saudi Arabian education system has an influence on the social media use and attitudes of participants	Since gender segregation is not practiced in Western countries, it is unlikely to have any impact on social media use or behaviour
The life stages of participants influences their use of and attitudes towards social media	Studies that explore the issue from a Western standpoint could not be found and hence there is no indication that this holds true in the Western context

The influence of academic discipline on use and attitudes towards social media was found to be very limited	Several studies have shown a relationship between the academic disciplines of participants and their use of social media
Long processes, standardization requirements, lack of bandwidth are likely to act as barriers for further integration of social media	There is no indication that these could act as impediments in similar-sized large Western Universities

Further successful integration of social media as a learning technology requires acknowledging these differences as well as creating more awareness, constructive dialogues between various groups of participants, careful planning and more active involvement from the governing bodies.

5.4.1 Answering the Research Questions

In order to fulfill the overarching aim of understanding the behaviour and attitudes of higher education students in Saudi Arabia towards the use of social media as a learning technology, the current research proposed three key objectives and seven research questions discussed below:

Objective 1: To explore the snapshot in time of social media as a learning technology in higher education in Saudi Arabia.

1. How are academics/teachers in higher education institutions in Saudi Arabia using social media in teaching and in their interaction with students?
2. How are higher education institutions in Saudi Arabia using social media?
3. Are there any differences in the attitudes of students and staff with respect to the use of social media as a learning technology?

With respect to research question 1, the findings and discussion show that teachers in higher education institutions in Saudi Arabia are using social media for offline communication with students, classroom teaching assistance, enhancement of teaching and learning, enabling self-learning, collaboration with other educators and career advancements. They are also experimenting with advanced social media for uses in teaching although they do not always share them with students. They also use social media to drive discussions with students and interactive classroom

sessions. The key reasons behind their use of social media include the need to meet students in their own space, share reusable content and control the quality of content. At the same time, the teachers described several barriers that prevent use of social media such as irresponsible use by students, distraction and time wastage, poor quality of information, addiction and overdependence and attention seeking behaviour by students.

For research question 2, the findings show that Universities in Saudi Arabia are mainly using social media for marketing, communication and broadcasting. They also allow the use of social media in teaching and learning although they are not directly involved in it beyond acting as regulatory bodies. They monitor and restrict social media content and features as necessary, update social media accounts of the University, and maintain and enforce social media policies. Similar to the teachers, the Universities use social media to meet students in their own space, increase engagement and take advantage of affordable technology.

With respect to research question 3, the findings revealed several differences between the attitudes of students and staff members. Key among them was the willingness of students to communicate more openly with their teachers on social media and their enthusiasm for further integration of social media into teaching and learning, both of which did not find much support among staff members.

Objective 2: To explore the behaviours and attitudes of students towards the use of social media as a learning technology in higher education.

4. How are higher education students in Saudi Arabia using social media as a learning technology?
5. Does the academic discipline of higher education students in Saudi Arabia have an impact on their behaviour and attitudes towards social media as a learning technology?
6. Does the gender of higher education students in Saudi Arabia have an impact on their behaviour and attitudes towards social media as a learning technology?

With respect to research question 4 under this objective, the findings and discussion reveal that students in Saudi Arabia are using social media for several learning activities such as assignment assistance, obtaining academic clarifications, academic collaboration and enhancement of learning

in various ways. They also participate in collaborative projects and discussions initiated by their teachers, and use social media to communicate with teachers as well as Universities. They use social media mainly due to the speed, flexibility, accessibility, and affordability. On the flip side, they also use social media due to the need to conform, peer pressure and the fear of missing out. While the students have an overall positive attitude towards social media, they are aware of drawbacks such as distraction, wastage of time, privacy and security concerns, unreliability of information and negative emotional effects. They are nevertheless keen to see further integration of social media into their learning.

For research questions 5 and 6 under this objective, the findings reveal that gender has an impact on the attitudes towards social media as well as use of social media. This is mainly driven by the cultural rules and expectations from men and women in Saudi Arabia. To this end, culture was also found to be a key factor influencing social media usage and attitudes. On the other hand, academic discipline was found to have only a limited impact on use of social media.

Objective 3: To determine the implications of using social media in Saudi Arabian higher education in order to develop an implementation modelfor advancing the use of social media in teaching and learning in Saudi higher education.

7. How do the usage patterns of social media by institutions, teachers and students, as well as the attitudes towards the use of social media for teaching and learning bode for the future of social media as a learning technology in Saudi higher education?

The findings reveal that although the institutions, teachers and students in Saudi Arabia are using social media to enhance teaching and learning, and to enable student-centred learning, there is scope for advancement, although advancing social media within these institutions is not an easy task. Given the traditional methods of teaching followed inside and outside the classrooms, the cultural expectations, the potential for misuse or improper use, the institutional barriers and other unique conditions prevalent in the system, any further integrations need to be considered within the boundaries of these conditions. The critical success factors for such integrations would include the overcoming of known barriers, creating awareness among students and staff, creating constructive dialogues to bridge the gaps in attitudes and perceptions of students and teachers, providing proper teaching guidelines/policies for teachers and ensuring more institutional support.

These may include clearly identifying risks and creating mitigation plans, holding awareness campaigns, workshops and trainings for students and staff, creating clear policies for different subjects, having focus group discussions, setting social media vision and goals, and having a clear roadmap, all of which are discussed in the forthcoming sections.

5.4.2 Visual Summary of Key Findings

A visual summary of the key findings of the study is presented below in Figure 5.1. This is in line with the objectives of the research and encapsulates a snapshot of social media in Saudi higher education at the current time, the use, behaviours and attitudes towards social media by students, as well as issues that have implications for advancement of social media. These findings pave the way towards developing an implementation model for advancement of social media in Saudi higher education, which is presented in the next chapter.

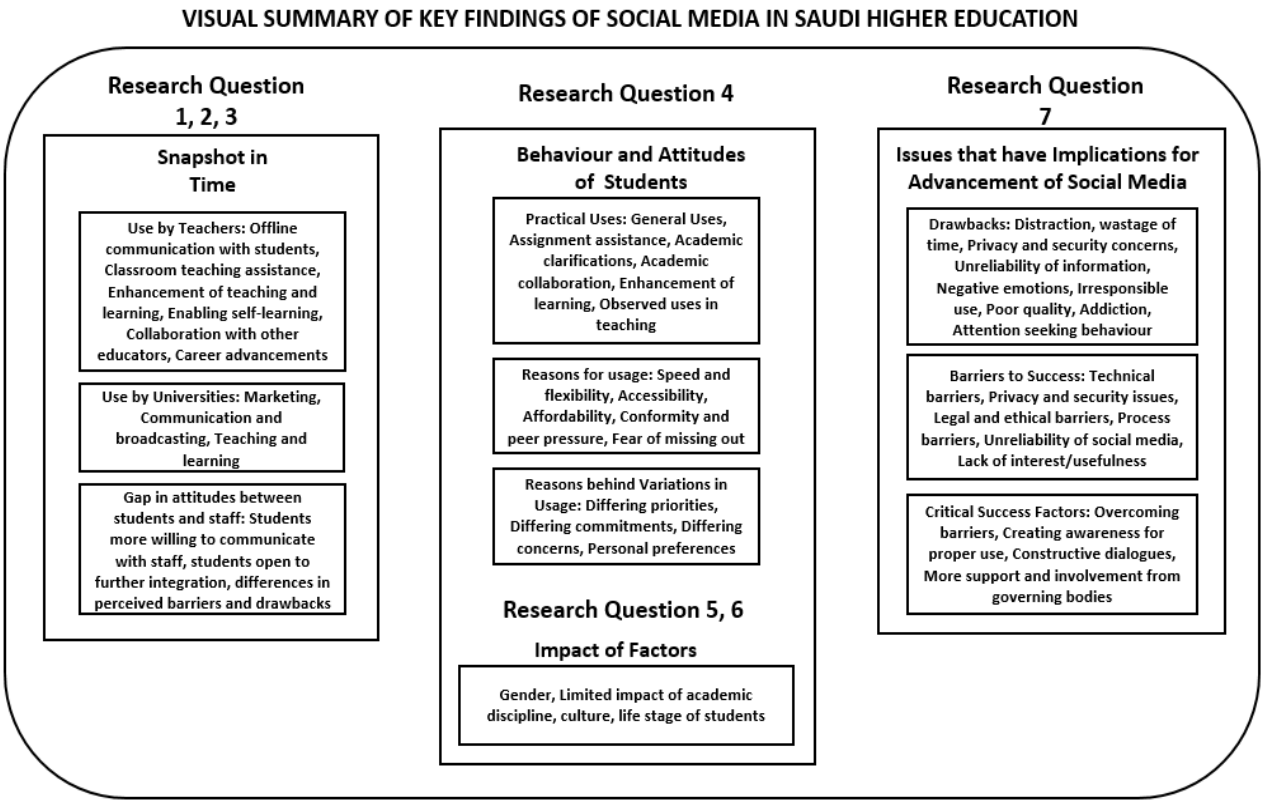

Figure 5.1 Visual Summary of Key Findings

The first section shows the current snapshot of social media in Saudi higher education. This presents the use of social media by teachers and Universities as well as the gap in attitudes between the students and staff members in terms of the use of social media in teaching and learning. This answers the first three research questions and fulfills the research objective to explore the snapshot in time of social media as learning technology in higher education in Saudi Arabia. The second section presents the findings related to the behaviours and attitudes of higher education students in Saudi Arabia with respect to the use of social media as a learning technology. This includes the ways in which they are using social media for learning, the reasons behind the usage, and the reasons behind variations in usage. It also includes the factors that impact the social media usage and attitudes of participants. As discussed previously, the key factors found to have an impact on students and teachers were gender and culture, with academic discipline showing a limited impact. This section answers the next three research questions, and thus fulfils the objective related to the behaviours and attitudes of students towards the use of social media as a learning technology in Saudi higher education.

The third section presents the issues that may have potential implications for the current use and future advancement of social media in Saudi higher education. It outlines the drawbacks related to the current use, as well as the barriers for further integration of social media into teaching and learning. These are collated from the perspectives of the three groups of participants. The section also outlines some of the critical success factors required for successful advancement of social media into Saudi higher education. This answers the final research question and fulfils the objective related to the current and potential future use of social media in Saudi Arabian higher education systems. This will be carried forward in the next chapter to understand the implications of such use and advancements, to provide recommendations for best practices and to develop an implementation modelfor advancing the use of social media in teaching and learning in Saudi higher education.

5.5 Summary

This chapter provided a discussion of findings that emerged from the analysis of data in the previous chapter, and answered all the research questions in doing so. The findings of the study corroborate existing studies to some extent while also illustrating several aspects that are unique

to the Saudi Arabian context. Key among these are the changing attitudes and usage trends related to social media in Saudi Arabian education, the gaps between the attitudes of students and staff, ways in which the use of social media in Saudi education conforms and deviates from the theoretical principles of connectivism and communities of practice, the lack of policy guidelines for teachers with respect to the use of social media in teaching, issues unique to Saudi Arabian classrooms and users, the ways in which factors like gender and culture impact the social media usage and attitudes of users in Saudi Arabian higher education system, the role of the life stages of participants in mediating their social media usage and behaviour and some specific barriers faced within Saudi Arabian Universities towards the use of social media. From these, it is evident that Universities and users in Saudi Arabia are using social media to enhance teaching and learning activities to some extent, although there are issues that prevent further advancements. Based on these and the objectives of the research, a visual summary of key findings of the research was presented in this chapter. The next chapter will take it further to present the implications of further advancements of social media in Saudi higher education, the recommendations for various participant groups to enable such advancements, and an implementation model to guide the process. The next chapter will also discuss the strengths and limitations of the study, and shed light on directions for further research.

CHAPTER 6
6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

The previous chapter highlighted the key findings of the research, and the areas in which they resonated with literature and the areas in which they deviated from it. The findings showcased various aspects of social media usage among the students and staff in the three selected Saudi Arabian Universities, and their attitudes towards use of social media in teaching and learning. Based on these findings, several implications can be drawn out regarding the current and future use of social media in Saudi higher education institutes. These implications in turn pave the path for recommendations with respect to advancing the use of social media in Saudi Arabian higher education.

This chapter describes both the theoretical contributions of the research as well as the practical implications of using social media in teaching and learning in Saudi higher education. It provides several recommendations based on the implications, and constructs an implementation model to highlight the measures to be taken for the advancement of the use of social media in Saudi higher educational institutions. It is hoped that the model will serve as a useful guidepost or starting point not only for Saudi Arabian educational institutions but also for institutes elsewhere that are looking to increase the integration of social media as learning technologies. The chapter also discusses potential directions for further work in this area to further strengthen the model and make it applicable to broader contexts.

6.2 Conceptual Contributions of the Research

Before proceeding to discuss the practical impact and implications of using social media in Saudi Higher education, it is important to identify the areas in which the findings of the current study have furthered the conceptual knowledge. This, in turn will help in establishing the theoretical contributions of the research and pave the way for further discussions regarding practical measures and future work. The theoretical findings of the current research as determined in the previous chapter is provided as a bird's eye view in Figure 6.1:

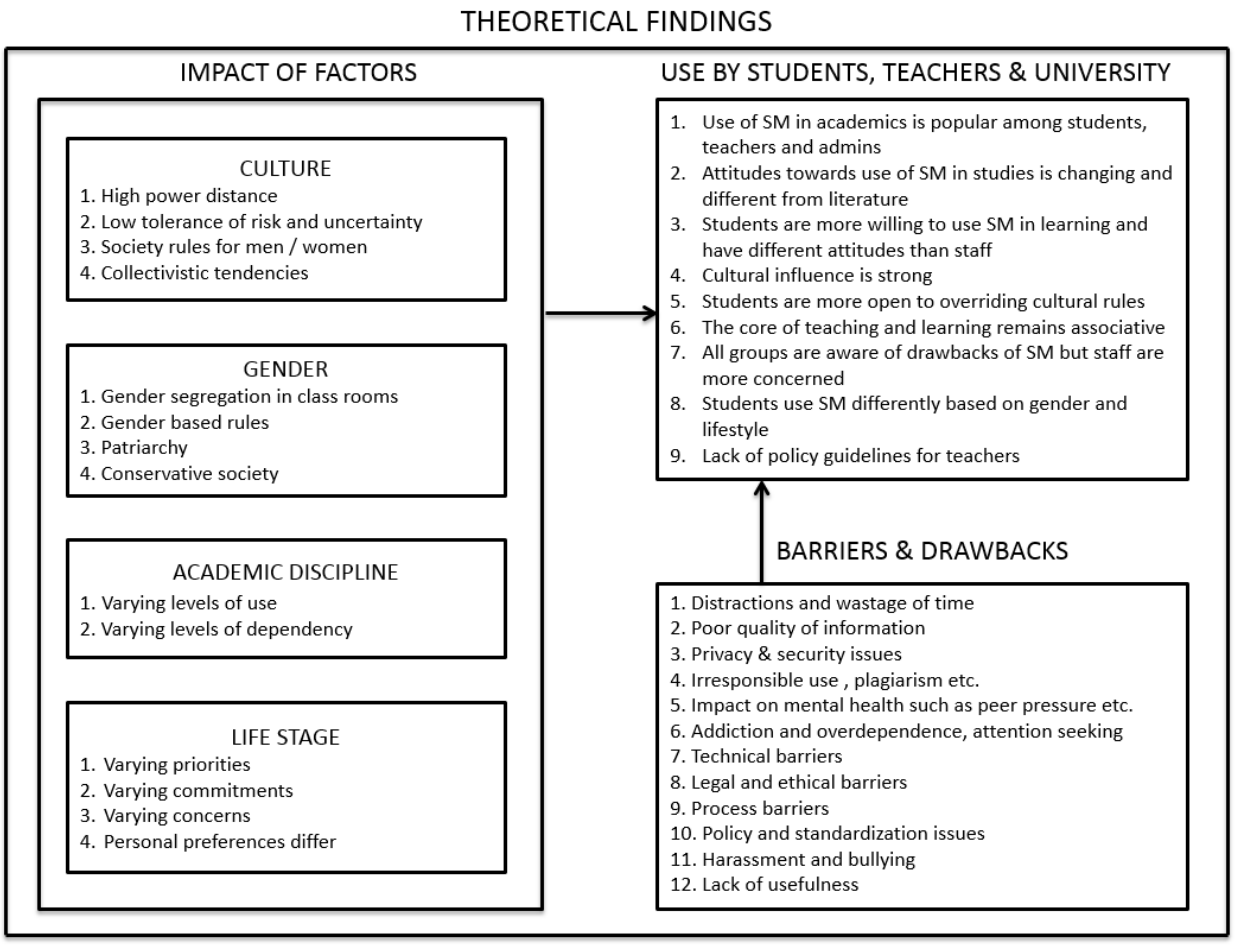

Figure 6.1 Summary of Theoretical Findings

Based on these, the conceptual contributions of the research can be classified into several key areas:

Furthering the understanding of Saudi Arabic culture in learning: This study has examined the use of social media in learning mainly through the lens of Hofstede's (1980) cultural dimensions. Although there have been criticisms of the dimensions and alternate theories, it is generally acknowledged that they provide a useful way to get a sense of the culture-oriented behaviours at a broader level. Hofstede (1980, 2001, 2019) has classified Saudi Arabia as a country as high on the power distance, collectivism and uncertainty avoidance indexes, and other researchers have often used this as a basis to explain the classroom behaviour of students and teachers. Cassell and Blake (2012), Obeidat et al. (2012), Alabdali (2017) and Fenner and Snyder (2017) have all argued that due to the high power distance of countries like Saudi Arabia, teachers have all the power in the classrooms and students accept their words as law. Others like Kaur and

Noman (2015) and Merkin (2017) state that the high collectivistic tendencies also prevent students from questioning teachers or expressing their own opinions as they do not want to disrupt collective welfare. Alabdali (2017) and Cray, McKay and Mittelman (2019) posit that in countries with high uncertainty avoidance, students are used to following rules and structures and have rigid expectations from their teachers. Others have supported these ideas stating that this causes Saudi Arabian students to lack skills such as independent thinking, critical reasoning and self-sufficiency in as far as learning is concerned (Elyas and Picard, 2010; Al Lily, 2011; Al-Seghayer, 2011; Alghamdi, 2014).

The findings of the study have highlighted the impact of culture on the behaviour on students in the context of social media use and behaviour. The findings revealed that assumptions of behaviour based on the cultural dimensions of Hofstede (1980, 2001, 2019) are applicable and relevant, but not always necessarily true. It emerged that students did express their own views and opinions both inside and outside classrooms, and often conducted their own research using the internet and social media instead of merely accepting the teachers' words as law. They were also more willing to communicate openly with teachers and participate in their own learning if provided the opportunity to do so. Although the teachers and administrators were more inclined to follow traditional cultural rules, they were aware of the need to meet students in their own space and enable independent learning. To this end, the picture that emerges is of a younger generation that is willing to bend cultural rules in order to have a voice of its own. While culture does play a role in influencing the behaviours of participants, the rules are neither as rigid nor as authoritarian as projected in literature.

While the core logic of Hofstede's model stands, the main contribution of the findings of the study is that it alters the fundamental assumptions regarding relationships between actors. While Hofstede's theory assumes unwavering, unquestioning obedience, the reality shows otherwise. It appears that the participants, particularly students, are inclined towards becoming more independent in terms of learning and the education system as a whole is slowly transitioning towards enabling this as well. Simply put, Saudi Arabia is in a transitional phase with respect to the use of technology and social media which is linked to its cultural views. To this end, it can be said that with the increasing use of social media, even the cultural views are undergoing a shift, particularly with respect to the younger generation. It is hoped that these findings help in

understanding the use of social media within the very specific cultural and pedagogical context of Saudi higher education.

Highlighting the current situation in Saudi Arabia with respect to the use of social media in learning: Research on the use of social media in Saudi Arabia is scarce, with very few studies exploring it from the perspective of teaching and learning. Studies by Alabdulkareem (2014), Alsuraihi et al. (2016) and Fawareh (2016) focused on generic use of social media in education, mostly exploring the willingness of students to use social media or their use of it for specific functions like communication and supervision. There is a marked lack of studies that explore the current and potential future use of social media in Saudi higher education from the perspectives of multiple stakeholders.

The idea behind the current study was to fill this gap by focusing on the use of social media as a learning technology in Saudi higher education, and explore the attitudes and behaviours related to it from the perspective of students, teachers and administrators. In doing so, the study has managed to highlight the current situation in Saudi Arabia with respect to the use of social media in learning. It has shed light on the different ways in which students, teachers and Universities in Saudi Arabia are currently using social media, particularly to further learning. It has also revealed the differences in attitudes between the various stakeholders and what it means for the future of social media in Saudi higher education. While previous studies have postulated that students and teachers are likely to have differences in opinion as far as the use of social media is concerned (Tapscott and Williams, 2007; Dickson and Holley, 2010), this study confirms the same in the context of Saudi Arabia. This can be a fuzzy area. While students in the study were eager to communicate with teachers on social media, it can lead to expectations of preferential treatment by students or mixing of personal and professional boundaries. It can also blur the lines between friendship and authority, which can be highly problematic in a country like Saudi Arabia where teachers rely on their authority to guide students. It can also increase the working hours of teachers if students start messaging them during non-working hours. Hence, the issue needs to be addressed with extreme caution. Nevertheless, the findings reveal that the picture of Saudi education as strict, inflexible and resistant to the use of social media is outdated.

The findings also show that the assumption that Saudi Arabian education system is inherently unsuitable for social media based teaching and learning given their lack of interaction is not completely true either. Certainly, there are barriers and constraints that must be overcome before the use of social media in learning can be advanced. Nevertheless, there appears to be an increasing focus on enabling student centred learning as well as use of social media in learning. It is hoped that these findings will help to provide a much more current and updated profile of Saudi higher education and its participants.

Applicability of theoretical concepts to the use of social media in learning in Saudi higher education: As discussed in the review of literature, the principles of connectivism (Siemens, 2005) and communities of practice (Wenger, 1998) are often touted as suitable to understanding and explaining the learning approaches of students in the digital age. Given their focus on learning communities, interaction and communication between learners, they are also considered suitable to understand and describe how learning occurs within the context of social media (Siemens, 2005; Smyth and Mainka, 2010; Karacapilidis et al., 2012). However, a key problem and a criticism of the applicability of these principles is that they often fail to account for contextual factors. This is particularly important when considering the use of social media in countries like Saudi Arabia where the culture, pedagogic practices and rules are completely different from that of Western countries. The lack of research in this area raises further questions about the issue, more so considering that the ideas of interaction and communication that are central to these principles are said to be lacking in Saudi Arabian education.

One of the key conceptual contributions of the study is that it has studied the use of social media in learning in Saudi Arabia through the lens of connectivism and communities of practice, thereby shedding light on a hitherto unexplored context of use. The findings shed light on the issue from two perspectives in this regard: firstly, they indicate the ways in which Saudi higher education and its participants have been transitioning to more communicative, interactive ways of learning and teaching. They also showcase ways in which students are forming learning communities through social media and participating in it, sharing resources and knowledge, engaging with others and generally adhering to principles of connectivism and communities of practice to enable learning. Secondly, the findings also show the ways in which this adherence is still limited by the culture and pedagogy of Saudi Arabia. It is hoped that these will help to understand the extent to which

the principles of connectivism and communities of practice can be successful in a unique, typically conservative and gender-segregated country like Saudi Arabia and the corresponding limitations. This has implications for the use of social media in teaching and learning which will be discussed in the forthcoming sections.

Impact of the life stage of participants on their use of social media for learning: Finally, one of the key contributions of the current study is the identification of a new factor that may have an impact on the students' use of social media for learning. This factor, termed as "life stage of participants" in the study, refers to the stage of life at which the participants are, in terms of their commitments (family, childcare, career and education), priorities and concerns. It was found in the study that these factors, rather than the age of participants had an impact on the ways in which the students used social media for learning, the features that they considered important while choosing social media for learning, and the amount of peer pressure they experienced in terms of using social for learning.

While there have been studies that have touched upon this issue previously, most of them have explored it from the perspective of participants' age or their digital competence with terms like "digital natives" and "millennials" often used to explain variations in behaviour. However, there have been arguments and criticisms regarding the use of such terms. As the access to technology and social media increases, such terms are becoming increasingly obsolete anyway. To this end, the findings of the current study provide a different way of looking at the issue by proposing that the life stage of participants rather than their age or social media competency is responsible for their behaviour. In doing so, the study relies on the concept of derived demand and posits that the life stage demands of the participants' places demands on their use of social media for learning. Saudi Arabia is said to be a collectivistic country and the people are highly society-oriented. It is also a patriarchal culture with different set of rules for men and women. As such, the demands and commitments that students, particularly women students, from such countries have on their time and life are likely to be different from those of their Western counterparts. Hence, these findings can help in more in-depth understanding of their social media behaviour, particularly in the unique context of Saudi Arabia.

6.3 Practical Implications of using Social Media in Saudi Higher Education

As discussed in the previous section, the findings of the study have revealed that the use of social media in higher education in Saudi Arabia is more advanced and different from what is currently stated in literature. The students, teachers and Universities were found to use social media in teaching and learning for a variety of activities. Admittedly, it could be argued that these activities are merely additional ways to support the traditional methods of teaching and learning, which continue to remain strict, associative and instructor-controlled at the core. At the same time, the very fact of using social media in teaching and learning indicates a paradigm shift in attitudes, given that the use of social media is essentially based on social interactions and communication, neither of which has been acknowledged as common in the context of Saudi Arabian education in literature. Moreover, the findings demonstrate that students in particular are very eager to see increased integration of social media into their curriculum and learning. To this end, it is clear that the current literature does not present an updated picture of the state of social media in Saudi higher education. Further, the findings also reveal that the increased use of social media is having a considerable impact on teaching and learning in Saudi higher education, both positive and negative, which in turn has several implications for the future of social media. Before proceeding to the implications, a brief summary of the impacts of using social media in Saudi higher education is presented below:

Positive impact of using social media: The findings have revealed that the use of social media in teaching and learning can have a lot of positive impact. The student respondents use social media for discussions regarding their assignments and projects, sharing and seeking information and collaborating with others. They reported better communication and interactions with others using social media, particularly when it comes to communication with the opposite sex. They also reported that social media provide a more interactive way of learning, encourage participation and help in increased collaboration with their peers. Students further pointed out the speed and flexibility, accessibility and affordability of social media as key motivators for use. Additionally, almost all the student respondents claimed that the use of social media helps to enhance their studies.

Even the teachers reported several ways in which the use of social media positively impacts teaching and learning. Similar to students, they reported that social media can help in discussions and collaborations, contacting their peers and students, information seeking and information sharing. They also stated that social media supports interactive teaching and learning, improves collaborative learning among students, and helps in enhancing the creation of personal learning environments. They further claimed that social media can help teachers meet students in their own space, allow control and reusability of content, enable self-learning among students and help in broadcasting information faster. With respect to their own professional use, the teachers claimed that social media helps them collaborate with other educators to develop new ideas and methods of teaching and helps in their career advancement. They also pointed towards the abilities of social media to enhance their teaching abilities by helping them discover new platforms to aid teaching and keep up with the latest developments in their fields.

At a University level, the data from administrators revealed that social media has a positive impact in aiding targeted and direct communication with students, ex-students, potential future students and parents. It also helps in disseminating information at a University level in a fast and efficient manner and expanding the outreach of learning initiatives. Further, they help the University meet students and parents in a space comfortable and familiar to the latter group.

Drawbacks of using social media in teaching and learning: While the study indicated a lot of positive ways in which social media is impacting teaching and learning, they also highlighted certain ways in which it can have a negative impact. For the students, these included issues such as distraction and wastage of time, privacy and security concerns and unreliability of information found on social media. The students also mentioned the negative emotional impact of social media by pointing out that it can lead to issues such as unhealthy comparisons, jealousy, peer pressure, fear of missing out, low self-esteem, stress and depression. They also mentioned that the excessive blocking and monitoring by the Universities can hinder smooth learning.

The teachers too mentioned several negative impacts associated with the use of social media. These included irresponsible use by students, distraction and time wastage, poor quality of information available on social media, addiction and overdependence among students and the attention seeking behaviour fostered by social media. They also pointed out the privacy and security issues that can

be caused by social media as well as the legal and ethical issues. Some of these concerns were echoed by the administrators who further added issues such as harassment and bullying to the list. These drawbacks need to be addressed to the extent possible before attempting to integrate social media further into education.

Barriers to further integration of social media: The study also revealed certain barriers that must be considered before attempting advancement of social media within the institutions. The barriers refer to current conditions within the Saudi higher educational institutions that may act as potential roadblocks for further integration of social media. These include technical barriers, privacy and security barriers, legal and ethical barriers, process related barriers, lack of reliable social media for educational use, and lack of interest or usefulness for the stakeholders.Some of these barriers such as technical barriers, process related barriers and legal barriers need to be addressed mostly at the University level while the others require a combined effort from all three groups of stakeholders. The implementation model will expand on this in further detail.

6.3.1 Implications of Research

Based on the impacts of social media discussed above, it can be posited that its use in Saudi Arabian institutions has several implications. It is clear that the use of social media in teaching and learning has tremendous benefits for students and teachers. Further, it is also clear that the use of social media in learning is already advanced among students, much more so than what is stated in literature and they are eager to see further integrations. It is necessary that higher education institutions take note of the readiness of students to use social media in learning and the corresponding benefits, and align their strategies accordingly. In other words, given that the use of social media in education is becoming almost imperative, it is important for institutions to find ways to do it well. Rather than simply identifying the risks related to the use of social media, they need to identify how to leverage the benefits while minimizing the risks. Simply skipping the use of social media is no longer an option for most institutes.

In the context of Saudi Arabia in particular, the findings of the research show that the students are already using social media in order to communicate with others about their learning, do independent information seeking and learning, be part of discussions and develop critical thinking skills. The findings also show that the use of social media is having a positive impact on their

studies and allowing them to be part of their own learning. Due to this, the students want to use social media even further in learning, despite being aware of the risks. Even the teachers and administrators acknowledge the benefits and positive impact of social media on teaching and learning, despite the risks. Accordingly, higher education institutions in Saudi Arabia need to consider the benefits of social media and the demands of students to use social media in learning, and find ways to accommodate them. This has implications for the way pedagogy and curriculums are designed in Saudi Arabia.

Given that social media is inherently based on dialogue, interactions and an open culture, Universities in Saudi Arabia may need to open up more two-way communication and develop a reciprocal relationship with students if they are to take advantage of the interactive nature of social media and accommodate students' current and desired future usage. These require clearly defined roles and responsibilities, boundaries and rules for participation to avoid the inherent problems of social media. Given that there was no consensus among the administrators and teachers of the study about the optimal ways to use social media for teaching, the findings also imply the need for further training of staff members in the use of social media. This requires further understanding of the ways in which social media can be used to enhance training and learning, and their impact on the learning outcomes. Hosting specific social-media training courses for educators is necessary in this regard.

Overall, higher institutions in Saudi Arabia need to have a clear vision for social media integrations. The vision needs to focus on drawing the students' current social media usage into the learning process, leveraging the interactive and community-building aspects of social media, harnessing the ability of social media to drive independent exploration and learning, encouraging staff members to incorporate social media into their teaching practice, and providing guiding principles to navigate the issues related to the use of social media in teaching and learning. The vision would also need to acknowledge the ever-expanding nature of social media and the ways in which Universities would keep track of it and move with it.

In order to fulfil the vision, the institutions also need to develop clear roadmaps and measures for the various group of stakeholders. In other words, there are critical success factors or conditions that need to be fulfilled in accordance with the social media vision of the institutions in order to

leverage the benefits of social media and overcome the barriers associated with them. The fulfilment of these conditions depends on the participation of all groups of stakeholders, each with a different set of responsibilities. This paves the way to provide recommendations to the different group of stakeholders regarding their roles and responsibilities in advancing the use of social media in Saudi higher education while minimizing the potential drawbacks and barriers.

6.4 Recommendations for Advancing the Use of Social Media in Saudi Higher Education

Based on the implications, it is possible to make certain recommendations for advancing the use of social media in Saudi higher education. In doing so, it is important to clearly identify the roles and responsibilities of each group of stakeholders i.e. the students, teachers and University. Each group needs to have specific and well-defined goals for overcoming the drawbacks of using social media, overcoming the barriers related to further integration of social media and maximizing the potential of success. Accordingly, the recommendations as well as the roles and responsibilities of the three groups of stakeholders are presented below:

Universities: The Universities would have the biggest role in overcoming the drawbacks and barriers related to further integration of social media and maximizing the potential for success. Their responsibilities would include leading the social media implementations and ensuring success, building on the positive aspects of social media, leveraging their advantages, ensuring responsible use of social media, ensuring safety, security and privacy of students and staff, ensuring the well-being of students, taking ownership for policies and protocols, taking ownership of infrastructure, technical and process matters and ensuring legal/ethical compliances.

As mentioned previously, in order to fulfil these responsibilities, at the outset, the Universities would need to have a clear vision and roadmap for further integration and use of social media in teaching and learning. The vision would need to draw on the current and desired social media usage of students into the learning process, focus on leveraging the identified advantages of social media and attempt to minimize or eliminate the drawbacks and barriers. Accordingly, risks and barriers need to be identified clearly, and risk mitigation and contingency plans would need to be drawn to address them.

The Universities would need to focus on encouraging community-building among students and teachers through the use of social media, and allowing students to have a voice in their own learning by fostering reciprocal communication with teachers and University on social media. For example, asking for the students' suggestions instead of always giving them directions, asking open ended questions or using social media platforms to host discussions may help to engage them more in their own learning. Other ways to encourage student engagement and interactions include asking them to share content as part of their course, creating digital portfolios for students to display their own work, bringing in experts to host discussions, conducting more group projects using social media tools and involving students in maintenance of class blogs. All these would allow students to develop more critical thinking skills and study more independently away from the campus.

The privacy and security concerns, unreliability of information and poor quality of information can be addressed by educating students and teachers about proper use and safety measures they can take to protect themselves. Generally, the tendency in Saudi Arabia is to block and monitor things deemed unsafe as seen in the findings of the research, mainly due to the conservative and risk-averse nature of the society. Indeed, reports have shown Saudi Arabia to be one of the top internet-censoring countries of the world (Mirza and Al-Abdulkareem, 2011). However, this approach could lead to a losing battle when it comes to social media, given the rate at which social media can and does change and evolve. Indeed, the findings of the current study show that the safety and privacy issues continue to exist despite the filters and blocks by Universities, showing that such measures are not the most optimal ways to address the problem. Moreover, these measures were reported to be a source of irritation and frustration among students, which shows the changing attitudes regarding the use of social media. To this end, a better approach for Universities would be to educate the students and teachers to understand the risks and safety issues related to social media, and enable them to practice safe social media behaviour. Some of the recommendations in this regard would be to:

- Conducting classes online or offline to educate teachers and students about the various types of risks they may encounter on social media
- Educating them about privacy settings and controls available for data protection and security on various social media platforms, and encourage them to use these

- Having clear guidelines about the type of content that is not acceptable or allowed on University social media platforms (for instance, political, racial, religious, personal or doxing information)
- Creating anonymous concern forums where students can report any issues such as cyber-bullying that they may be facing without revealing their identity
- Providing a single point of contact for all University social media related queries to students and teachers

Allowing students to engage in the above process is important as this will allow agreement on the goals, create clarity on what needs to be achieved, create a sense of belonging among students, give them a stake in the success and allow them to voice their concerns. Indeed, according to a report by the National survey for student engagement (2005), engaging students to be part of their own learning allows to create and sustain enthusiasm for the goals and maintain momentum for longer durations. Similarly, Morton, Wells and Cox (2019) report that students can understand implicit parts of their education and the associated expectations only if they are active participants in their educational environment. To this end, the role of Universities is to enable student engagement and participation by conducting awareness campaigns, workshops, and discussion forums. To an extent these could even be accomplished using social media, thereby serving the dual purpose of creating engagement while also giving an opportunity to the students to practice responsible use of social media. In fact, according to Morton, Wells and Cox (2019), one of the key requirements to increase student engagement is the ability to competently use social media with them.

For issues such as distraction, time wastage addiction and overdependence, the Universities will again need to educate students about proper use of social media through awareness campaigns and workshops. The Universities also need to provide guidance and counselling to students to help them cope with the negative emotions, stress and problems that may arise as a result of using social media. Again, these may involve:

- Ensuring that the University social media platforms are free of ads, irrelevant hyperlinks and other sources of distraction

- Educating students about the ways in which social media can lead to wastage of time and productivity techniques to avoid them
- Providing a list of useful social media resources for students to refer to

The Universities also need to create and publish clear social media usage policies, and provide trainings for staff members in order to enable them to use social media efficiently and ethically in teaching and learning. As mentioned previously, there was no consensus among the administrators and teachers of the study about the optimal ways to use social media for teaching. As a result, there are no standardized social media policies or practices in place within the Universities as far as teaching and learning in concerned. Policies that are clearly understood and disseminated are important to ensure optimal use of social media as well as standard practices that can be reviewed for efficiency. The policies need to include aspects such as guidelines for using social media in teaching and learning, best practices, do's and don'ts, references, examples and contact details of support staff. The training of staff members needs to include technical aspects such as installation, privacy settings and monitoring as well as functional aspects such as acceptable and unacceptable ways of using social media for teaching and dispute resolution among students.

The Universities also need to work towards improving the infrastructure, addressing the technical barriers, creating the skill sets needed for quick resolution of issues and easing/supporting the process requirements in order to ensure ease of future social media integrations and use. Finally, it would be the responsibility of Universities to ensure that the needs of students and staff are being met with respect to the use of social media and that there are no problems due to social media usage.

Teachers: The next level of responsibilities in ensuring that the advantages of social media are leveraged and the drawbacks and barriers are minimized would be that of teachers. The teachers would be responsible for following the vision and roadmap set forth by the University, ensuring responsible, innovative and creative use of social media among students to enhance learning, encouraging community-building, communicating constantly with all stakeholders, ensuring the safety and well-being of students and complying with the rules prescribed by their University.

In order to achieve this, the teachers would also need to foster student engagement and ensure participation from students. They would need to open avenues for open and two-way

communication with students, share their own research regarding the innovative ways in which social media can be used to enhance learning and educate students about academically responsible use of social media. Some of the possible ways this could be accomplished include:

- Creating digital portfolios using students' social media profiles, assigning group work and making it count for final assessment of marks.
- Creating subject or assignment specific discussion boards where students can interact with each other and staff members
- Actively using new types or applications of social media for teaching and group projects
- Participating in social media awareness classes conducted by the University and being available to answer any post-session questions from students

The teachers would also need to understand and implement the social media guidelines and policies of the University in the context of teaching. Towards this, they would work with the University to conduct awareness campaigns, workshops and classes to educate students, open up exchange of ideas, address their concerns and identify their needs and interests. They would also participate in campaigns and workshops aimed at staff members. Finally, the teachers would be responsible for following and encouraging students to adhere to security protocols as well as legal and ethical guidelines set forth by the University.

Students: At the last level, the students would have a key role in ensuring their own responsible behaviour while using social media for learning, using social media in innovative ways for learning, participating in discussions and community-building exercises, attending the workshops and awareness campaigns conducted by the Universities, participating in discussion forums related to University-level social media implementations, communicating their needs and concerns to the concerned personnel, understanding and following the social media rules and guidelines set forth by the University and adhering to protocols. In doing so, they would help in advancing the use of social media, enhance their own learning, have a voice in the decisions related to learning, develop critical thinking skills, become more independent in their learning, minimize the negative effects of social media on their own well-being, counter the drawbacks and help the University and teachers in achieving the social media vision.

6.4.1 Proposed Implementation Model for Saudi Higher Education

Based on the above recommendations and the roles and responsibilities of different groups in implementing them, an implementation model is proposed for advancing the use of social media in Saudi higher education. It outlines the various measures to be taken in accordance with the recommendations, the roles of students, teachers and University in implementing the measures and the need/benefits of each measure. Overall, the model is visualized below in Figure 6.2:

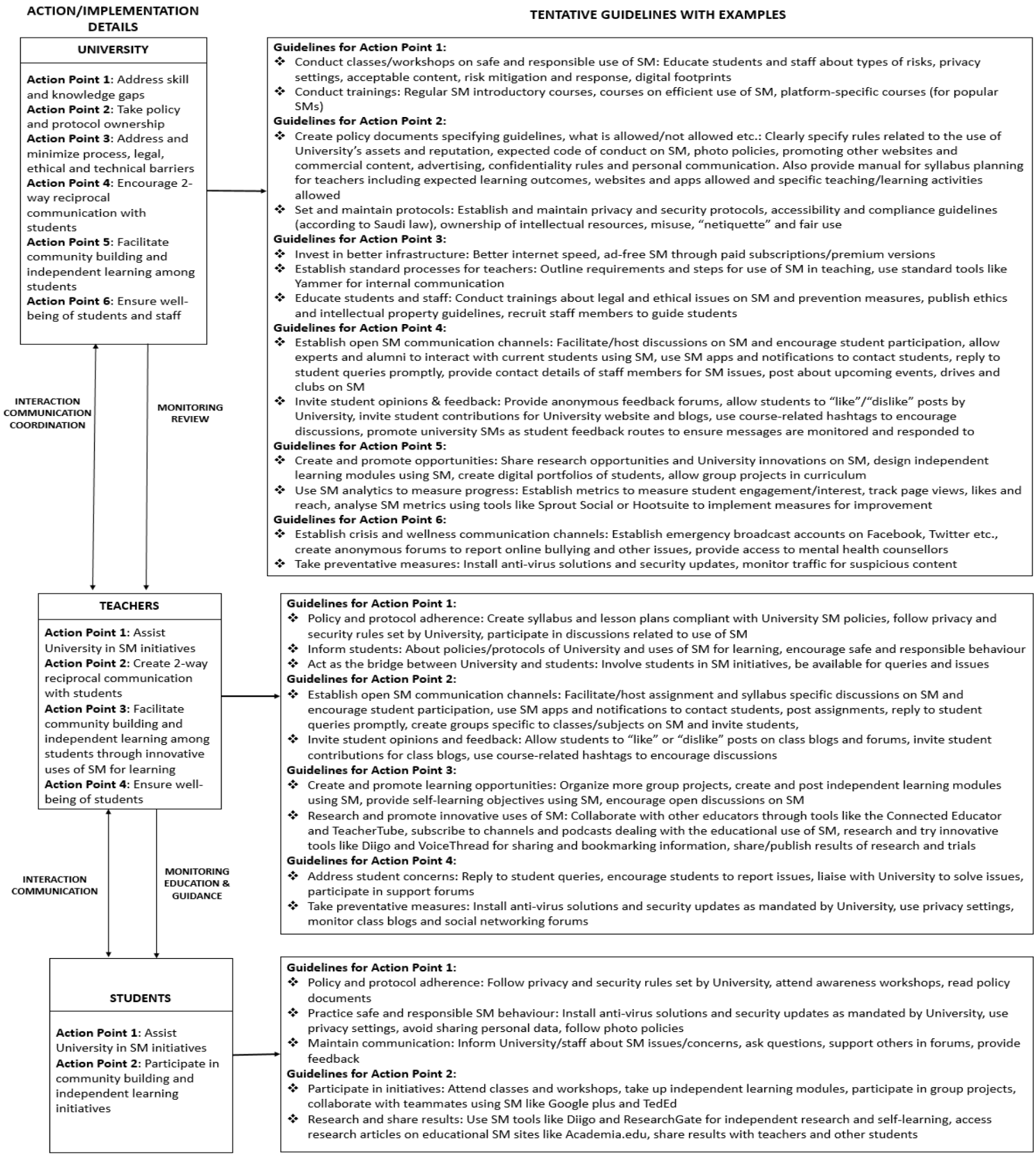

Figure 6.2 Implementation Model for Advancing the Use of social media in Saudi Higher Education

There are four parts or columns that form the structure of the implementation model. The first column shows the various stakeholders who have a range of roles and responsibilities in advancing the use of social media in Saudi higher education. In this case, the stakeholders are the University, the teachers and the students. The next three columns showcase the need for/benefits from the various measures, the roles and responsibilities of the individual stakeholders in implementing the measures and the actual measures that need to be taken. The need/benefits of each measure are based on the need to minimize the drawbacks associated with the use of social media, remove the barriers for further integration and maximize the critical success factors. These in turn are based on the implications of using social media that were identified in the findings. The roles and responsibilities of the University are highest in ensuring success of social media implementations, followed by teachers and then by students. The measures correspond to the practical, tangible steps to be taken by each group.

The model is visualized as a cascading structure in which the measures implemented at each level would have an impact on the lower levels. The measures implemented at a University level would impact the teachers and students, and the measures implemented by teachers would impact the students. Overall, the model is expected to serve as a strategic guide for Universities intending to advance the use of social media for teaching and learning while minimizing the drawbacks/barriers associated with it and maximizing the potential for success.

In addition to the implementation model, a separate set of recommendations and secondary model is also proposed for the government and the Ministry of Higher Education in order to support the advancement of the safe and efficient use of social media. This is important since some of the barriers for the use of social media require support at a higher level. Accordingly, the recommendations and model for the government are presented below:

Government: The main role of the government would be to generally create a more supportive environment for the educational use of social media in Saudi Arabia. This would include providing standard policies and guidelines regarding the use of social media in education, addressing the technical barriers such as bandwidth problems as well as skill-related issues at a broader level, and easing bureaucratic barriers where necessary. In order to achieve this, The Ministry of Higher Educations needs to define specific objectives and measures for the use of social media in

education instead of classifying it under the broader category of “technology use”. Similar to Universities, these objectives and measures would need to draw on the current state of social media within Universities and the desired future usage among stakeholders, while focussing on leveraging the identified advantages of social media and attempting to minimize or eliminate the drawbacks and barriers. These would require consultations with academics and social media experts, conducting discussion panels involving relevant stakeholders and allocating resources for the advancement of social media. It would also require encouraging the development of technical skills for efficient social media management. Some of the possible recommendations in this regard would be:

- Allocating resources to study the educational policies related to social media in other countries and creating similar policies customised to the Saudi Arabian context
- Having periodic discussions with University representatives about the current and desired state of social media in higher education and implementing measures where necessary
- Having clear-cut policies and process guidelines for Universities wishing to advance the use of social media in education, and making them easily accessible
- Bringing the infrastructure and technology stakeholders together to provide the required bandwidth to Universities
- Including the technical skills required for social media management as part of relevant course curriculums
- Developing clear metrics to measure the success of educational social media initiatives such as number of Universities using it, engagement statistics and student satisfaction among others.
- Leading from the front by utilising social media for effective communication and following best practices

These can be visualised as shown in the secondary model in Figure 6.3 below:

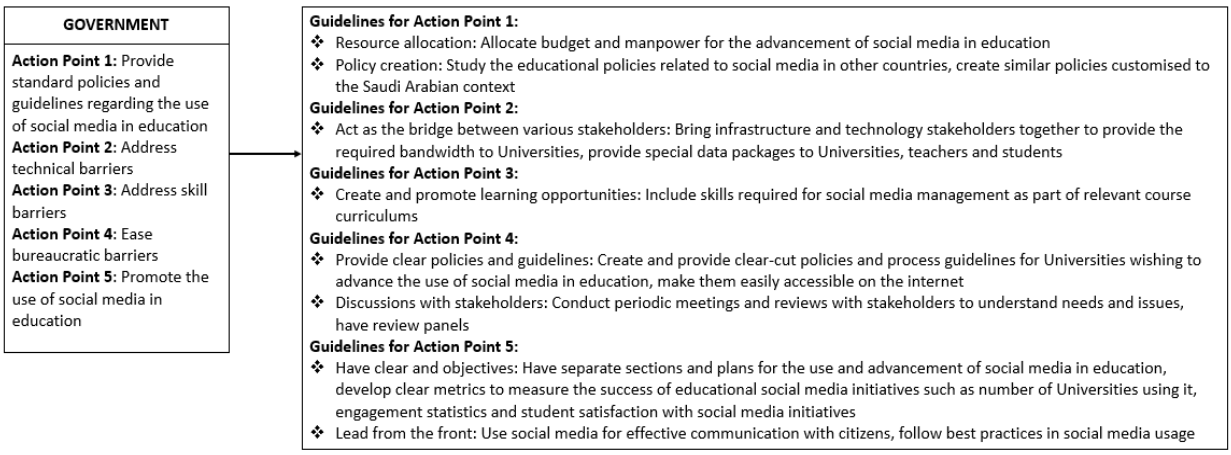

Figure 6.3 Secondary Model for Advancing the Use of social media in Saudi Higher Education at Government Level

In arriving at the recommendations and the above models, the study has made both theoretical and practical contributions to supplement existing studies on the use of social media in higher education. It is hoped that these will fill certain gaps in existing studies regarding the use of social media in the Saudi higher education context by presenting the issue in a holistic manner and including all the important stakeholders.

6.5 Strengths and Limitations of the Research

The findings of the current research have demonstrated that the behaviours and attitudes of users with respect to the use of social media is not one-dimensional. Rather, it is a complex, multi-faceted issue that needs to be explored from the perspective of various stakeholders and contexts. The major contribution of the current research has been to present the issue holistically in the context of Saudi higher education institutions and the various groups of stakeholders within them. In doing so, it has identified issues that appear to be unique to this context as well as issues that appear to be common to the educational use of social media in general. Thus, the study has not only corroborated the findings of existing studies on the use of social media in education but also highlighted behaviours and attitudes that are specific to users in the hitherto minimally-explored Saudi higher education context. Thus, the study has contributed theoretically to the literature on the use of social media in education and to some extent filled the gap related to the exploration of the topic in non-Western contexts. The findings have also led to practical contributions in the form

of an implementation modelthat can act as a starting point for institutions in Saudi Arabia looking to advance the use of social media in their teaching and learning.

Apart from the theoretical and practical contributions, the strength of the study also lies in its mixed mode methodology involving multiple groups of participants. This has provided a holistic, in-depth view of the behaviours and attitudes of these user groups, and highlighted the differences between them as far as the use of social media in education is concerned. As far as the researcher can see, there have been no other studies that have explored the issue from the perspective of multiple groups of participants using multiple methods in the Saudi higher education context. The extensiveness of the methodology and the resultant dataset also means that it can potentially be analysed through various theoretical lenses. This provides a rich set of potential directions for further research.

One of the limitations of the current study is that the findings have revealed a strong influence of culture on several aspects of the participants' behaviour. While this is useful and interesting in the context of the current study and helps to fulfil the aim, it nevertheless means that the findings cannot be generalised to other contexts as it is hard to predict the changes in behaviour in the absence of cultural influences. This is also true for the academic culture of the participant community. The behaviours and attitudes of participants are influenced by the Saudi pedagogical culture, and it is hard to predict the changes in the absence of those influences. This is particularly relevant considering that the culture and pedagogy of Saudi Arabia are quite different from not just western but often times even from other Middle-Eastern countries.

The participants belong to the higher education community, which in itself might be considered a culture, and thus responsible for aspects of their behaviour. For instance, they may use social media differently for their studies compared to students from primary or secondary schools. Moreover, as the research demonstrates, the life stages of participants affects their social media behaviours and attitudes. Given that higher education students are at a different stage of life compared to other students, the findings of the study may not be applicable to other educational contexts. As such, focusing on specific participant groups and contexts has the limitation of failing to capture invisible factors that may be potentially responsible for behavioural or attitude tendencies. Moreover, the participants of the current study belong to large, technologically advanced

Universities in Saudi Arabia. While the Universities are conglomerate enough to be representative of typical large Universities in Saudi Arabia, the students in these are nevertheless likely to have skills and advantages over those studying in, for example, small rural Universities. While it was a deliberate decision to focus on the Saudi higher education community within the selected Universities for this study, it nevertheless means that the findings cannot be generalised to the broader population without further research and analysis.

Another limitation of the study is that the results may be skewed to an extent by self-selection bias. Given that the initial survey was voluntary, it is quite unlikely that users who are not well-versed with technology and social media would respond. While it can be argued that the use of technological devices and social media is extremely common nowadays and there would hardly be any users unfamiliar with them, the possibility of bias must nevertheless be acknowledged. This means that the results may not provide a complete representation of reality in as far as the use of social media in Saudi higher education institutions is considered. The only way to eliminate the bias would be to conduct further research with larger and completely random sample sets.

As discussed in the methodology, the impact of researcher's own involvement on research, particularly qualitative research cannot be denied. Acknowledging this impact becomes pertinent in cases such as the present study, where not only is the topic of personal interest to the researcher, but the researcher herself belongs to the target group of participants in that she is a higher education student and has previously studied in a Saudi higher education institute. To this end, it is possible that the subjective opinions and prior experience of the researcher might have affected the interpretation of results to some extent. While it can be argued that the researcher's experience is necessary in this context to make sense of certain aspects of the participants' attitudes and behaviour, particularly those related to Saudi Arabia's culture and education system, it must nevertheless be acknowledged that the findings are representative of a single viewpoint or perspective. The same research at the hand of a researcher belonging to a different demographic may offer different insights from an outsider's perspective.

Finally, the findings of the study represent attitudes and behaviours at a particular point in time and do not consider changes that may occur over time. This is a limitation given the rapid rate at which social media landscape has been changing and the fact that behaviours and attitudes too

generally change over time. Moreover, the users of the study themselves acknowledged that their social media behaviours and attitudes have changed with changes in their stage of life. This limitation can be addressed by conducting annual or bi-annual reviews to track changes in trends over time and to get an updated picture of the issue.

6.6 Directions for Further Research

The findings of the current study have implications for further research in several areas. As mentioned in the previous section, given the multiple methods and groups of participants, the study has yielded a rich data set and findings which can be analysed through various theoretical lens. This provides several interesting areas for further research. It is also possible to enhance the findings of the current research by extending them to different contexts and groups of participants. With these in mind, the following areas are suggested as potential directions for further research:

Analysing the findings through different theoretical lenses:

Given the cultural influences seen in the findings of the current study, it would be interesting to analyse the findings through various cultural theories. The current study has attempted to do so using Hofstede's (1980) cultural dimensions. However, as discussed in literature, there are other cultural theories that can be considered relevant. Analysing the findings of the study through the lens of these theories could provide improved or alternative explanations for the social media behaviours and attitudes of users and help to enhance the findings. Also, the current study has analysed the findings through the principles of connectivism and communities of practice. The findings can also be analysed from the perspective of other educational theories, technological theories or psychological theories to provide different perspectives of the issue.

Extending the study to include participants from other contexts: The current study has examined the social media behaviours and attitudes of participants in the context of Saudi higher education. The findings have revealed that the culture of Saudi Arabia and its practices influence the behaviours and attitudes of participants. As mentioned previously, this means that the findings cannot be generalised to other countries or cultures as it is hard to predict the changes in behaviour in the absence of these influences. At the same time, it is also possible that some of the unique cultural or academic traits exhibited by the participants may be applicable to participants from

culturally or pedagogically similar countries. Further, all the participants belong to the higher education sector which may be responsible for certain behavioural or attitude tendencies. Extending the sample set to include participants from other countries, cultures or educational settings can lead to interesting insights while highlighting both common and unique traits of participants. In addition, the participants all belong to large, public, technologically advanced Universities in major cities of Saudi Arabia. It is possible that the findings may not be applicable to participants from smaller universities, or universities in rural areas without good technology access. To make the results fully generalisable, the data set needs to be expanded further to such Universities.

Focusing on specific behaviours and attitudes: The study has highlighted certain unique aspects of participants' behaviours and attitudes such as the changes that occur due to their life stages, gender-specific behaviours and the differences in attitudes of students and staff. A potentially interesting area of future research would be to reexamine the findings with a concentrated focus on these unique aspects. Examining these in depth and in isolation may lead to further interesting insights and explanations for the reasons behind these, which in turn will help in enhancing the understanding of the issue as a whole.

Enhancing the study to eliminate potential biases: As mentioned previously, the results of the study may be skewed due to self-selection bias given the non-random sampling technique used and the voluntary nature of the survey. Enhancing the study by using a bigger sample set that is chosen randomly would help to eliminate the bias, validate the findings and provide a more holistic picture. Also, conducting a series of cross-sectional studies to track current trends annually or bi-annually would help to provide to-to-date pictures of the issue over time and help to eliminate any possible biases that may have arisen due to the fact that the study does not account for changes over time. Finally, given that the subjective experiences and the insider status of the researcher may have introduced biases in the interpretation of results, particularly qualitative, the research may benefit from the point of view of a researcher belonging to a different demographic.

Pragmatic implications of the implementation model: The study has provided an implementation model that is meant to serve as a starting point for Saudi higher education institutions looking to advance the use of social media in their teaching and learning. It is hoped

that institutions outside Saudi Arabia would also be able to make use of the model after making changes according to their needs. In doing so, it is likely that a variety of customisations and changes would be needed depending on factors such as the current social media situation, future needs, budget, availability of skill sets, culture, pedagogical models and expectations of the stakeholders. Enhancing the model to identify and highlight the potential areas of customisations for different contexts would go a long way in increasing the pragmatic applications of the model.

All these suggestions for future directions of research have the potential of enhancing the findings of the current study, validating their applicability in different contexts, generalising them to broader contexts, increasing the practical applications of the framework and overall enhancing the contributions to literature on the use of social media in education.

6.7 Conclusion

There has been a considerable amount of research in recent times on the use and benefits of social media in the higher education context. Universities across the world have taken note of the research and have started to explore the use of social media as assets in their teaching and learning toolkits. Universities in Saudi Arabia have been attempting to follow suit and harness the power of social media in education. Looking back at the findings of the current research however, it appears that these efforts are more concentrated in areas of marketing, communication and information sharing than to improve teaching and learning outcomes. Although there appear to be attempts by the Saudi Arabian Universities and teachers to use social media for teaching and learning, there appear to be cultural, pedagogical, technical, infrastructural, procedural and other institutional barriers that prevent or hinder such endeavors beyond a point. At the same time, it is also evident that the students and even the teachers are seeing the positive impacts of using social media in teaching and learning. It is also evident that at an individual level, students in Saudi Arabia are prolific users of social media for learning and are willing and eager for their increased integration in learning.

Overall, the findings of the study not only shed light on the ways in which social media are currently being used in typical large Saudi higher educational institutions, but also highlight the benefits of the uses, gaps that can be filled, the concerns that must be addressed, and the critical success factors that must be ensured in order to enable continued use and successful advancement of social media into the realm of Saudi higher education. In doing so, they represent a shift in the

understanding of the use of social media in Saudi Universities compared to literature, as well as the changing attitudes of the users. This in turn has implications for the way pedagogies and curriculum are designed in Saudi Arabian Universities in terms of enabling student learning, openness, interactions, communication and social media policies.

The contribution of this study towards advancing the use of social media in higher education institutions is presented as an implementation model. Given that the selected Universities of the study are large, diverse and conglomerate enough to be representative of typical large Universities in Saudi Arabia, it is hoped that the model could act as a starting point for similar institutions to create their own customised plans for social media implementations depending on their own needs, environment, skills and other variable factors.

There are various areas in which the findings of the current study can be improved upon through further research. The benefits of the findings and implementation model can be realized more comprehensively if these directions are explored, the findings are analysed and validated in different settings, and the model is further refined to fit a variety of contexts. In fact, given the rate at which social media and its related technologies evolve and dissipate, it can be posited that the behaviours and attitudes of users will never remain constant. Rather, they will keep changing continuously to adapt to the newer forms of social media. Research in this area is therefore an ongoing, constant, and continuously evolving endeavor.

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APPENDICES

APPENDIX A: Research Objectives and Questions

Objective 1: To explore the snapshot in time of social media as a learning technology in higher education in Saudi Arabia.

- **Research question 1:** How are academics/teachers in higher education institutions in Saudi Arabia using social media in teaching and in their interaction with students?
- **Research question 2:** How are higher education institutions in Saudi Arabia using social media?
- **Research question 3:** Are there any differences in the attitudes of students and staff with respect to the use of social media as a learning technology?

Objective 2: To explore the behaviour and attitudes of students towards the use of social media as a learning technology in higher education

- **Research question 4:** How are higher education students in Saudi Arabia using social media as a learning technology?
- **Research question 5:** Does the academic discipline of higher education students in Saudi Arabia have an impact on their behaviour and attitudes towards social media as a learning technology?
- **Research question 6:** Does the gender of higher education students in Saudi Arabia have an impact on their behaviour and attitudes towards social media as a learning technology?

Objective 3: To determine the implications of using social media in Saudi Arabian higher education in order to develop an implementation model for advancing the use of social media in teaching and learning in Saudi higher education.

- **Research question 7:** How do the usage patterns of social media by institutions, teachers and students, as well as the attitudes towards the use of social media for teaching and learning bode for the future of social media as a learning technology in Saudi higher education?

APPENDIX B: Survey Questionnaire for Academics

Investigating Behaviours and Attitudes towards use of Social Media as a Learning Technology among Higher Education Students in Saudi Arabia

The main aim of this study is to explore the behaviours and attitudes of higher education students towards the use of social media as a learning technology in Saudi Arabia. It also aims to examine the impact of certain factors such as gender and academic discipline on attitude of students towards using social media as a learning technology. The results of this study will contribute to understand the current uses and implications of integrating social media as a learning technology into higher education in Saudi Arabia. The results will also be used further to identify the best practices of integrating social media as a learning technology within the higher education context in Saudi Arabia. This short survey will take approximately 5-10 minutes to complete.

Demographic Details

1. How old are you?

- <30 years
- 30-40 years
- 41-50 years
- 51-60 years
- > 60 years

2. What is your gender?

- Male
- Female

3. What is your nationality?

- Saudi
- Non-Saudi

4. Which University are you currently working in?

- Princess Nourah University
- King Saud University
- Al-Emam University
- Other: _____

5. Please specify your highest academic qualification

- o Bachelor
- o Diploma
- o Master
- o Doctorate
- o Other: _____
- o

6. How many years have you worked in higher education?

- o < 5 years
- o 5-10 years
- o 11-15 years
- o 16-20 years
- o > 20 years

7. What area of studies are you currently teaching (academic discipline) (please tick all that apply?)

- □ Agricultural Sciences
- □ Architecture and Planning
- □ Arts
- □ Basic Sciences
- □ Business Administration
- □ Computing and Information Sciences
- □ Education
- □ Engineering
- □ Health Sciences
- □ Humanities and Social Science
- □ Languages & Translation
- □ Law and Political Science
- □ Sport Science
- □ Tourism & Antiquities
- □ Other: _____

8. What level of education programme are you currently teaching in your university?

- □ Undergraduate
- □ Postgraduate (Masters degree)
- □ Postgraduate (M.Phil, Doctoral)
- □ Other: _____

9. On average, how many hours a day do you spend using digital devices to go online?

- o < 1 hour
- o 1-2 hours
- o 3-4 hours
- o >= 5 hours

Social Media Usage (Social/ Life usage)

As you are probably aware, social media includes websites, platforms or applications that allow users to share and interact with content online.

10. Do you use Social Media for any social or academic purpose?

- o Yes
- o No

11. What is your purpose behind using Social Media? (please tick all that apply)

- □ Social entertainment
- □ Communication
- □ Business work
- □ Academic work
- □ Other: _____

12. Which of the following Social Media do you use for social purpose? (please tick all that apply)

Social Media						
Social Networking Sits	☐ None	☐ Facebook	☐ Google+	☐ LinkedIn	☐ MySpase	☐ Other: __
Blogs	☐ None	☐ WordPress	☐ Blogger	☐ Twitter	☐ eBlogger	☐ Other: __
Crowdsourced Projects	☐ None	☐ Wikipedia	☐ PBWikis	☐ Wikispaces	☐ Wikias	☐ Other: __
Content Communities	☐ None	☐ Youtube	☐ Instgram	☐ Slideshare	☐ Flickr	☐ Other: __

13. What is the frequency with which you use the below mentioned Social Media for social/ general purposes?

	Never	**Daily**	**Weekly**	**Monthly**	**Once per Term**	**Once per year**
Social Networking Sites like Facebook, Google+, Myspace etc.	○	○	○	○	○	○
Blogs like WordPress, Blogger etc.	○	○	○	○	○	○
Crowdsourced Projects like Wikipedia, Wikias etc.	○	○	○	○	○	○
Content Communities YouTube, Flicker etc.	○	○	○	○	○	○

Social Media Usage (Academic usage):

14. Do you use any Social Media to support teaching and learning in anyway?

- o Yes
- o No

15. Which of the following Social Media do you use to support teaching and learning? (Please tick all that apply)

Social Media						
Social Networking Sits	☐ None	☐ Facebook	☐ Google+	☐ LinkedIn	☐ MySpase	☐ Other: __
Blogs	☐ None	☐ WordPress	☐ Blogger	☐ Twitter	☐ eBlogger	☐ Other: __
Crowdsourced Projects	☐ None	☐ Wikipedia	☐ PBWikis	☐ Wikispaces	☐ Wikias	☐ Other: __
Content Communities	☐ None	☐ Youtube	☐ Instgram	☐ Slideshare	☐ Flickr	☐ Other: __

16. What is the frequency with which you use the below mentioned Social Media to support teaching and learning?

	Never	**Daily**	**Weekly**	**Monthly**	**Once per Term**	**Once per year**
Social Networking Sites like Facebook, Google+, Myspace etc.	○	○	○	○	○	○
Blogs like WordPress, Blogger etc.	○	○	○	○	○	○
Crowdsourced Projects like Wikipedia, Wikias etc.	○	○	○	○	○	○
Content Communities YouTube, Flicker etc.	○	○	○	○	○	○

17. What is your number of years of experience using Social Media?

- ○ < 1 year
- ○ 1 – 2 years
- ○ 3 – 4 years
- ○ > 4 years

18. Generally, to what extent are you dependent on social media in teaching and learning?

- o Extremely dependent
- o Very dependent
- o Neutral
- o Slightly dependent
- o Not at all dependent

19. Generally, to what extent do you agree that social media can enhance the learning process?

- o Strong agree
- o Agree
- o Neutral
- o Disagree
- o Strong disagree

20. Which of the below activities do you use with Social Media in order to support teaching and learning? (Please tick all that apply)

- □ Discussions/ Assignments / Project Collaboration
- □ Knowledge / Information Sharing (Online lectures/ audio or video tutorials etc)
- □ Contacting with students
- □ Contacting with teachers
- □ Activities / event updates
- □ Searching for books, articles and other academic information
- □ Other: _____

21. Which features do you think are important when using social media?

	Extremely important	Very important	Neutral	Slightly important	Not at all important
Free/low cost	○	○	○	○	○
Supports teaching and learning activities	○	○	○	○	○
Offers attractive features (multimedia, multi-party chat, emoticons etc)	○	○	○	○	○
Support in my native language	○	○	○	○	○
Privacy settings	○	○	○	○	○
Friend and family are already users	○	○	○	○	○

22. Following are some proposed benefits of using Social Media for academic purposes. To what extent do you agree with the following statements?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Social media provides an interactive way of learning and teaching	○	○	○	○	○
Social media helps in sharing knowledge / documents and common interest easy	○	○	○	○	○
Social media helps reach and contact teachers and peer easily	○	○	○	○	○
Social media improves peer -to -peer learning	○	○	○	○	○
Social media supports collaborative work	○	○	○	○	○
Social media encourages student participation and motivation to learn	○	○	○	○	○
Social media helps in creating personal learning environment	○	○	○	○	○
Social media helps in interacting with the opposite sex	○	○	○	○	○

23. Following are some proposed barriers when using Social Media in teaching and learning process. To what extent do you agree with following statements to consider as limitation?

	Strongly agree	Somewhat agree	Natural	Somewhat disagree	Strongly disagree
Privacy issues (I don't want my others to view my profile, cyber-stalking etc)	○	○	○	○	○
Distraction and wastage of time	○	○	○	○	○
Lack of support by the university	○	○	○	○	○
Security issues (hacking, virus etc)	○	○	○	○	○
Limited internet bandwidth	○	○	○	○	○
Unfamiliarity with the functionalities / features of the Social Media	○	○	○	○	○

24.Do you think your gender influences your use of social media in any way (either for academic or non-academic use)?

- Yes
- No

25. Do you think your academic discipline influences your use of social media in any way (either for academic or non-academic use)?

- Yes
- No

26. Does your university support the use of Social Media?

- Yes
- No

27. Does your university have a social media policy?

- o Yes
- o No

28. Would you allow me to contact you to discuss further about the use of Social Media for teaching and learning? If yes, please include your email or phone.

_____

29. Do you have any of the below reasons for not using Social Media? (Please tick all that apply)

- □ Not interested
- □ Lack of technologies that support the use of social media
- □ Concern about privacy and security issues
- □ Not sure how to use it
- □ Waste of time
- □ Not useful in teaching and learning process
- □ Other: _____

Thank you for your participation

APPENDIX C: Interview Guide for Academics

This is a tentative guide that highlights the main topics that may be discussed under section headings and the relevant questions under those. However, the researcher will make decisions regarding the actual questions to ask depending upon how individual interviews develop. If needed, some of the questions may be modified, enhanced or omitted during the actual interviews.

Section A: Introduction / Preliminaries **5m**

The purpose of the study is to explore the views of students about social media in higher education.

As you are probably aware, social media are websites, platforms or applications that allow users to share and interact with content online

It is expected that the research will improve the learning experience for students.

You are being asked to participate because you are an academic at (King Saud University, Princess Nourah University or Al-emam University) which is included in this study.

You as a participant are under no obligation to take part in the interview, your participation is completely voluntary. Even if you agree to participate, you still remain free to withdraw at any given point. Regardless of your decision to participate or not, it will not have any impact whatsoever on your current education or any other aspect.

This interview will last around an hour. If you agree, the interview will be recorded (to assist the researchers with their analysis).

By taking part in the research you will be able to share your views with others and find out what others think about social media in higher education and how it can be improved so as to give the most benefit to as many students as possible.

The confidentiality of your responses are guaranteed by the researchers and your identity will not be revealed at any time. When the research is presented in a report it will not be possible for any member of staff or any other reader to tell whether you participated in the research or what your views were.

Any information that you may share during the course of this interview will be stored in a safe and secure manner.

Steps to do:

Request participants to read the information sheet, encourage them to ask any questions, provide clarifications and then ask the participants to sign and return the consent form to the researcher.

Ask for the participants' permission to audio-record the interviews. If they grant permission, set up the equipment and start the recording. If any of the participants are not comfortable with the audio-recording process, take written notes of the interview instead.

Section B: General **5m**

1. How long been working at university?
2. Can you talk a little about what the term 'social media' means to you?

3. To what extent do you use technology in your teaching? Can you give some examples of where you use technology as part of the curriculum?
   Prompts / follow ups:

   - Do you think technology adds value to teaching? Do you see any problems related to it?

Section C: Social media in teaching (academic) **25m**

4. What sorts of teaching and learning activities do you think social media in higher education typically involves?

5. You said in your survey that you use/ do not use social media for teaching and learning activities in your university. Can you talk a bit more about that?

   Prompts / follow ups:

   - Why do you use/ why not?
   - Do you personally interact with your students on social media app and sites like facebook or twitter etc?
   - Can you give me examples about teaching activities you use with social media?
   - What has been your experience been like? Enjoyable? Not Enjoyable?
   - What do you think are the advantages/ disadvantages?
   - What are the problems you have experienced or you think you may experience by using social media in teaching?
   - What would make you start or stop using social media in teaching?

6. Do you notice any differences in students learning approach between the per-social media and post social media era?

   Prompts / follow ups:

   - Do you see any impact from use of social media on students learning outcomes?
   - Do you think students like to use social media in learning?
   - Do you think students are happy to interact personally with lecturers on social media sites and app? Or does it cross any boundaries?
   - What do think the most important elements thats a students should process for a successful implementation of online learning communities within social media (e.g. commitment, participation.. etc)?

7. What do you think about the privacy and security concerns about using social media in teaching?

   Prompts / follow ups:

- What strategies do you personally have to mitigate those concerns?

8. What do you think about the current state of social media in higher education in your university?

Prompts / follow ups:

- Is it too much? Too little? Just right?
- What part of it do you like? What do you dislike?
- Are there enough safeguards in place to protect the privacy and other concerns of students and teachers?
- Do you feel confident about using social media for teaching?

Section F: Suggestions for Improvement **15m**

9. Do you think that social media use could be more effective in higher education in your university?
10. Do you have any suggestions for improving the current state of social media in higher education in your university?
Prompts / follow ups:

- Do you think there is scope for improvement?
- At university, have you received as much support as you wanted for using information and communications technology (ICT) or not?
- What other training or support would you (have) liked?
- Do you think students receive enough support to use social media for academic purposes?
- What do you think are the factors that determine the successful adoption of social media in higher education?

11. What do you think would encourage you and/or your students to participate in social media in higher education more frequently?

Prompt (if necessary):

- Easier access to PCs / internet/phone with internet access
- more information about the available social media activities
- more preparation
- more support
- improved –social media materials / activities /
- more activities/ learning materials / social media formed a bigger part of the programme
- better integration of social media with the programme

12. Is there anything else you would like to add about how social media at your university could be improved so that it is more useful in supporting your teaching?

Section G: Debrief **5m**

13. Are there any other topics or issues that were missed during the interview but you consider important enough to comment on?

14. Are there any questions about this interview or my overall research that you would like to ask me?

Thank you for participating in this interview; if you have any questions you can ask me now or use the contact details on the information sheets (extra copies available at interview).

APPENDIX D: Survey Questionnaire for Administrators

Investigating Behaviours and Attitudes towards use of Social Media as a Learning Technology among Higher Education Students in Saudi Arabia

The main aim of this study is to explore the behaviours and attitudes of higher education students towards the use of social media as a learning technology in Saudi Arabia. It also aims to examine the impact of certain factors such as gender and academic discipline on attitude of students towards using social media as a learning technology. The results of this study will contribute to understand the current uses and implications of integrating social media as a learning technology into higher education in Saudi Arabia. The results will also be used further to identify the best practices of integrating social media as a learning technology within the higher education context in Saudi Arabia. This short survey will take approximately 5-10 minutes to complete.

Demographic Details

1. Which university are you working at?

- □ Princess Nourah University
- □ King Saude University
- □ Al-Emam University
- □ Other: _____

2. Which department do you belong to?

- o University Management/ Administration
- o Research Center/ Institutes
- o Vice Rectorates
- o Students supports
- o Faculty/ Colleges
- o Deanship/ Associate Deanship
- o Libraries

3. What position do you hold in your university?

- o Director of University
- o Vice Rectorate
- o Dean
- o Head of Department
- o General Administration
- o Other: _____

Social Media Usage

As you are probably aware, social media includes websites, platforms or applications that allow users to share and interact with content online. Based on this definition, please answer the below questions:

4. Does your university use any Social Media?

- o Yes
- o No

5. Does your university have a Social Media Policy?

- o Yes
- o No

6. Does your university have a dedicated administrator to manage and administer your Social Media?

- o Yes
- o No

7. Which of the following best describes your role in the administration of the Social Media in your university?

- o University's Administrator
- o College / Faculty's Administrator
- o Department's Administrator

8. What made your university establish a social media presence? (Tick all that apply)

- □ Wanted to experiment with social media
- □ Competitors were using social media
- □ Taking advantage of affordable technology
- □ University-wide mission and vision
- □ Directive from top management
- □ Students friendly tools
- □ To facilitate teaching and learning
- □ Other: _____

9. Who is your University targeting to engage on your Social Media?

- □ Potential Students / Parents
- □ Existing Students / Parents
- □ Staff
- □ Alumni
- □ General public
- □ Other: _____

10. What does your University intend to achieve through the use of Social Media? Please tick all that apply

- ☐ Better communication with potential students and parents
- ☐ Better communication with current students and their parents
- ☐ Provide better service and satisfaction among users
- ☐ Updating about University activities and events
- ☐ Increase awareness about university
- ☐ Reduced communication costs
- ☐ Improved teaching and learning outcomes
- ☐ Other: _____

11. How often is the content of your University's social media presence updated?

- ☐ Never
- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Once per term
- ☐ Yearly

12. Do you have any of the below concerns related to the use of Social Media in your university? Please tick all that apply

- ☐ Limited internet bandwidth
- ☐ Lack of technologies that support the use of social media
- ☐ University policies and restrictions
- ☐ Students /teachers unfamiliar with the functionalities / features of social media
- ☐ Integrity of information
- ☐ Privacy and security issues
- ☐ Other: _____

13. If you have been doing something interesting with Social Media to either engage students or for teaching, would you allow me to contact you to discuss further? If yes, please include your email or phone.

- o Yes
- o No

14. Do you have any of the below reasons for not using Social Media in your university? Please tick all that apply

Not interested

Do not have the technologies to support the use of social media

Concern about privacy and security issues

Don't Know how to use it

Do not see the benefits of using social media

Teacher resistance

Other: _____

Thank you for your participation

APPENDIX E: Interview Guide for Administrators

This is a tentative guide that highlights the main topics that may be discussed under section headings and the relevant questions under those. However, the researcher will make decisions regarding the actual questions to ask depending upon how individual interviews develop. If needed, some of the questions may be modified, enhanced or omitted during the actual interviews.

Section A: Introduction / Preliminaries **5m**

The purpose of the study is to explore the views of students about social media in higher education.

As you are probably aware, social media are websites, platforms or applications that allow users to share and interact with content online

It is expected that the research will improve the learning experience for students.

You are being asked to participate because you are an administrator at (King Saud University, Princess Nourah University or Al-emam University) which is included in this study.

You as a participant are under no obligation to take part in the interview, your participation is completely voluntary. Even if you agree to participate, you still remain free to withdraw at any given point. Regardless of your decision to participate or not, it will not have any impact whatsoever on your current education or any other aspect.

This interview will last around an hour. If you agree, the interview will be recorded (to assist the researchers with their analysis).

By taking part in the research you will be able to share your views with others and find out what others think about social media in higher education and how it can be improved so as to give the most benefit to as many students as possible.

The confidentiality of your responses are guaranteed by the researchers and your identity will not be revealed at any time. When the research is presented in a report it will not be possible for any member of staff or any other reader to tell whether you participated in the research or what your views were.

Any information that you may share during the course of this interview will be stored in a safe and secure manner.

Steps to do:

Request participants to read the information sheet, encourage them to ask any questions, provide clarifications and then ask the participants to sign and return the consent form to the researcher.

Ask for the participants' permission to audio-record the interviews. If they grant permission, set up the equipment and start the recording. If any of the participants are not comfortable with the audio-recording process, take written notes of the interview instead.

Section B: General **5m**

1. What sort of teaching methods that you have?
2. To what extent do you use technology in your university?

Prompts / follow ups:

- Do you think technology adds value to teaching? Do you see any problems related to it?

3. What are the typical teaching and training methods currently used by CLT in your university?
   Prompts / follow ups:

   - To what extent are these methods used? Are these used by all teachers?
   - Is there any particular reason or reasons for using them?
   - Do the teachers require any particular knowledge or subscribe to any particular belief to use them?

4. Do teachers here like to heavily encourage social learning?

   - For example do they conduct group projects, assignments etc? Or they like to encourage more individual learning?

Section D: Social media in Higher Education Pedagogy **25m**

1. What is your view of the use of social media in higher education institutions?

Prompts / follow ups:

- What has been your experience?
- Do you think students like it?

2. You said in your survey that your university support/ do not support use social media for teaching and learning? Can you talk a bit more about that?
   Prompts / follow ups:

   - Why do you support/ why not?
   - What kind of support does your institution provide for the use of social media?
   - How is your institution supporting teachers' use of social media for Teaching and Learning (e.g. technical, pedagogical, Communities of Practice, financial, etc)?
   - What supports (e.g., financial, infrastructure) has your institution incurred in its social media implementations?
   - Do you have a dedicated social media administrator or department that takes care of the use of social media in the institution?

3. What do you think are the factors that determine the successful adoption of social media in higher education?
   Prompts / follow ups:

   - How is your institution assessing the use and/or impact of social media use?
   - Have you seen any positive/negative impact?
   - What concerns, if any, do you have regarding the use of social media in higher education institutions?
   - What concerns, if any, about student privacy does your institution have regarding the use of social media?

4. You say in your survey that your institution have a Social Media Policy? Can you talk a bit more about that?
   Prompts / follow ups:

- What does it cover?
- What are the penalties for breaching the Social Media Policy?
- Does your institution impose any restrictions on the use of social media within the institution?

5. What do you see as the potential and future of social media in teaching and learning for higher education?

Section F: Suggestions for Improvement **15m**

6. Do you have any suggestions for improving the current state of social media in higher education in your university?
   Prompts / follow ups:

   - Do you think there is scope for improvement?
   - At university, have you received as much support as you wanted for using social media or not?
   - What other training or support would you (have) liked?
   - Do you think students receive adequate training to use social media within University?

7. What do you think would encourage you (or the teachers/students at your institution) to participate in social media in higher education more frequently?
   Prompt (if necessary):

   - Easier access to PCs / internet/phone with internet access
   - more information about the available social media activities
   - more preparation
   - more support
   - improved –social media materials / activities /
   - more activities/ learning materials / social media formed a bigger part of the programme
   - better integration of social media with the programme

8. Is there anything else you would like to add about how social media at your university could be improved so that it is more useful in supporting your teaching?

Section G: Debrief **5m**

9. Are there any other topics or issues that were missed during the interview but you consider important enough to comment on?
10. Are there any questions about this interview or my overall research that you would like to ask me?

Thank you for participating in this interview; if you have any questions you can ask me now or use the contact details on the information sheets (extra copies available at interview).

APPENDIX F: Survey Questionnaire for Student

Investigating Behaviours and Attitudes towards use of Social Media as a Learning Technology among Higher Education Students in Saudi Arabia

The main aim of this study is to explore the behaviours and attitudes of higher education students towards the use of social media as a learning technology in Saudi Arabia. It also aims to examine the impact of certain factors such as gender and academic discipline on attitude of students towards using social media as a learning technology integrating social media as a learning technology. The results of the study will contribute to understand the current uses and implications of integrating social media as a learning technology into higher education in Saudi Arabia. The results will also be used further to identify the best practices of integrating social media as a learning technology within the higher education context in Saudi Arabia. This short survey will take approximately 5-10 minutes to complete.

Demographic Details

1. How old are you?

- 18-20 years
- 21-23 years
- 24-26 years
- 27-29 years
- >= 30 years

2. What is your gender?

- Male
- Female

3. What is your nationality?

- Saudi
- Non-Saudi

4. Which University are you currently enrolled in?

- o Princess Nourah University
- o King Saud University
- o Al-Emam University
- o Other: _____

5. What is the level at which you are currently enrolled in your university?

- o Undergraduate
- o Postgraduate (Masters degree)
- o Postgraduate (M.Phil, Doctoral)
- o Other: _____

6. What field are you currently enrolled in (academic discipline)?

- □ Agricultural Sciences
- □ Architecture and Planning
- □ Arts
- □ Basic Sciences
- □ Business Administration
- □ Computing and Information Sciences
- □ Education
- □ Engineering
- □ Health Sciences
- □ Humanities and Social Science
- □ Languages & Translation
- □ Law and Political Science
- □ Sport Science
- □ Tourism & Antiquities
- □ Other: _____

7. On average, how many hours a day do you spend using digital devices to go online?

- o None
- o < 1 hour
- o 1-2 hours
- o 3-4 hours
- o >= 5 hours

Social Media Usage (Social/ General usage)

As you are probably aware, social media includes websites, platforms or applications that allow users to share and interact with content online. Based on this definition, please answer the below questions:

8. Do you use any Social Media for any social or academic purposes?

- o Yes
- o No

9. What is your purpose behind using Social Media? (please tick all that apply)

- □ Social entertainment
- □ Communication
- □ Business work
- □ Academic work
- □ Other: _____

10. Which of the following Social Media do you use for social/general purposes?

Social Media						
Social Networking Sits	☐ None	☐ Facebook	☐ Google+	☐ LinkedIn	☐ MySpase	☐ Other: __
Blogs	☐ None	☐ WordPress	☐ Blogger	☐ Twitter	☐ eBlogger	☐ Other: __
Crowdsourced Projects	☐ None	☐ Wikipedia	☐ PBWikis	☐ Wikispaces	☐ Wikias	☐ Other: __
Content Communities	☐ None	☐ Youtube	☐ Instgram	☐ Slideshare	☐ Flickr	☐ Other: __

11. What is the frequency with which you use the below mentioned Social Media for social/ general purposes?

	Never	**Daily**	**Weekly**	**Monthly**	**Once per Term**	**Once per year**
Social Networking Sites like Facebook, Google+, Myspace etc.	○	○	○	○	○	○
Blogs like WordPress, Blogger etc.	○	○	○	○	○	○
Crowdsourced Projects like Wikipedia, Wikias etc.	○	○	○	○	○	○
Content Communities YouTube, Flicker etc.	○	○	○	○	○	○

Social Media Usage (Academic usage):

12. Do you use any Social Media to support your studies in anyway?

- Yes
- No

13. Which of the following Social Media do you use for academic purposes?

Social Media						
Social Networking Sits	☐ None	☐ Facebook	☐ Google+	☐ LinkedIn	☐ MySpase	☐ Other: __
Blogs	☐ None	☐ WordPress	☐ Blogger	☐ Twitter	☐ eBlogger	☐ Other: __
Crowdsourced Projects	☐ None	☐ Wikipedia	☐ PBWikis	☐ Wikispaces	☐ Wikias	☐ Other: __
Content Communities	☐ None	☐ Youtube	☐ Instgram	☐ Slideshare	☐ Flickr	☐ Other: __

14. What is the frequency with which you use the below mentioned Social Media for academic purposes?

	Never	**Daily**	**Weekly**	**Monthly**	**Once per Term**	**Once per year**
Social Networking Sites like Facebook, Google+, Myspace etc.	○	○	○	○	○	○
Blogs like WordPress, Blogger etc.	○	○	○	○	○	○
Crowdsourced Projects like Wikipedia, Wikias etc.	○	○	○	○	○	○
Content Communities YouTube, Flicker etc.	○	○	○	○	○	○

15. What is your number of years of experience using Social Media?

- ○ < 1 year
- ○ 1 – 2 years
- ○ 3 – 4 years
- ○ > 4 years

16. Generally, to what extent are you dependent on social media for your studies?

- o Extremely dependent
- o Very dependent
- o Neutral
- o Slightly dependent
- o Not at all dependent

17. Generally, to what extent do you agree that the use of social media enhance your learning?

- o Strong agree
- o Agree
- o Neutral
- o Disagree
- o Strong disagree

17. Which of the activities below do you use with Social Media in order to support your studies? (Please tick all that apply)

- □ Discussions/ Assignments / Project Collaboration
- □ Knowledge / Information Sharing (online lectures, Audio or video tutorials etc)
- □ Contacting teachers
- □ Activities / event updates
- □ Searching for books, articles and other academic information
- □ Contacting with students
- □ Other: _____

18. To what extent do you think the below features are important when using social media?

	Extremely important	Very important	Neutral	Slightly important	Not at all important
Free/low cost	○	○	○	○	○
Supports my studies	○	○	○	○	○
Offers attractive features (multimedia, multi-party chat, etc emoticons etc)	○	○	○	○	○
Support in my native language	○	○	○	○	○
Privacy settings	○	○	○	○	○
Friend and family are already users	○	○	○	○	○

19. Following are some proposed benefits of using Social Media for academic purposes. To what extent do you agree with each of the following statements?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Social media provides interactive way of learning	○	○	○	○	○
Social media helps reach and contact teachers and peers easily	○	○	○	○	○
Social media supports collaborative work	○	○	○	○	○
Social media encourages student participation and motiviation	○	○	○	○	○
Social media helps in interacting with the opposite sex	○	○	○	○	○

20. Following are some proposed barriers when using Social Media in your studies. To what extent do you agree with the following statements to consider as limitation?

	Strongly agree	Somewhat agree	Natural	Somewhat disagree	Strongly disagree
Privacy issues (I don't want my instructors to view my profile, cyber-stalking etc)	○	○	○	○	○
Lack of support by the university	○	○	○	○	○
Distraction and wastage of time	○	○	○	○	○
Security issues (hacking, virus etc)	○	○	○	○	○
Limited internet bandwidth	○	○	○	○	○
Unfamiliarity with the functionalities / features of the Social Media	○	○	○	○	○

21. Do you think your gender influences your use of social media in any way (either for academic or non-academic use)?

- o Yes
- o No

22. Do you think your academic discipline influences your use of social media in any way (either for academic or non-academic use)?

- o Yes
- o No

23. Would you allow me to contact you to discuss further about the use of Social Media to support your studies? If yes, please include your email or phone: _____

24. Do you have any of the below reasons for not using Social Media? (Please tick all that apply)

- □ Not interested
- □ Lack of technologies that support the use of social media
- □ Concern about privacy and security issues
- □ Not sure how to use it
- □ Waste of time
- □ Not useful in my study
- □ Other: _____

Thank you for your participation

APPENDIX G: Interview Guide for Students

This is a tentative guide that highlights the main topics that may be discussed under section headings and the relevant questions under those. However, the researcher will make decisions regarding the actual questions to ask depending upon how individual interviews develop. If needed, some of the questions may be modified, enhanced or omitted during the actual interviews.

Section A: Introduction / Preliminaries **5m**

The purpose of the study is to explore the views of students about social media in higher education.

As you are probably aware, social media are websites, platforms or applications that allow users to share and interact with content online

It is expected that the research will improve the learning experience for students.

You are being asked to participate because you are a student at (King Saud University, Princess Nourah University or Al-emam University) which is included in this study.

You as a participant are under no obligation to take part in the interview, your participation is completely voluntary. Even if you agree to participate, you still remain free to withdraw at any given point. Regardless of your decision to participate or not, it will not have any impact whatsoever on your current education or any other aspect.

This interview will last around an hour. If you agree, the interview will be recorded (to assist the researchers with their analysis).

By taking part in the research you will be able to share your views with others and find out what others think about social media in higher education and how it can be improved so as to give the most benefit to as many students as possible.

The confidentiality of your responses are guaranteed by the researchers and your identity will not be revealed at any time. When the research is presented in a report it will not be possible for any member of staff or any other reader to tell whether you participated in the research or what your views were.

Any information that you may share during the course of this interview will be stored in a safe and secure manner.

Steps to do:

Request participants to read the information sheet, encourage them to ask any questions, provide clarifications and then ask the participants to sign and return the consent form to the researcher.

Ask for the participants' permission to audio-record the interviews. If they grant permission, set up the equipment and start the recording. If any of the participants are not comfortable with the audio-recording process, take written notes of the interview instead.

Section B: General **5m**

1. Can you talk a little about what the term 'social media' means to you?

Section C: Attitudes towards social media **5m**

2. You said in your survey that you use/ do not use social media in your daily life. Can you talk a bit more about that?

   Prompts / follow ups:

   - Why do you use/why not?
   - What has been your experience been like? Enjoyable? Not Enjoyable?
   - What do you think are the advantages/disadvantages?
   - What would make you start or stop using social media?
   - Can you talk a bit more about any other barriers you may have experienced in using social media for academic purposes?

Section D: Attitudes towards social media (academic) **15m**

3. When we say "social media in learning", what does it imply to you?
   Prompts / follow ups:

   - What sorts of activities do you think social media in higher education typically involves?
4. You said in your survey that you use/ do not use social media for academic purposes. Can you talk a bit more about that?
   Prompts / follow ups:

   - Why do you use/why not?
   - Do you keep your social media apps and/or websites active while working on your educational tasks?
   - What has been your experience been like? Enjoyable? Not Enjoyable?
   - What do you think are the advantages/disadvantages?
   - Do you turn to social media for help when you encounter problems in your studies? Do you typically get solutions when you do so?
   - What would make you start or stop using social media for academic purposes?
   - Can you talk a bit more about any other barriers you may have experienced in using social media for academic purposes?

5. What do you think about the current state of social media in higher education in your university?
   Prompts / follow ups:

   - Is it too much? Too little? Just right?
   - What part of it do you like? What do you dislike?
   - Do you feel confident about using social media for studies?
   - Do your instructors use it? If so, can you give some examples?
   - How do you feel about the use of social media for teaching and learning by your instructors? Can you share some of your experiences in using social media in your classes?

Section E: Influencing factors **15m**

6. In the survey you said your gender influences/ does not influence your social media usage in any way. Can you talk more about it?
   Prompts / follow ups:

   - Do think there are particular barriers to using social media for men/ women?
   - Do you feel any different about using social media to communicate with members of opposite gender?

7. In the survey you said your academic discipline influences/ does not influence your social media usage in any way. Can you talk more about it?
   Prompts / follow ups:

   - What are the challenges of studying in your discipline?
   - Do think there are particular barriers to using social media for your discipline?

Section F: Suggestions for Improvement **10m**

8. Do you have any suggestions for improving the current state of social media in higher education in your university?
   Prompts / follow ups:

   - Do you think there is scope for improvement?
   - At university, have you received as much support as you wanted for using information and communications technology (ICT) or not?
   - What other training or support would you (have) liked?

9. What do you think would encourage you to participate in social media in higher education more frequently?
   Prompt (if necessary):

   - Easier access to PCs / internet/phone with internet access
   - more information about the available social media activities
   - more preparation
   - more support
   - improved –social media materials / activities /
   - more activities/ learning materials / social media formed a bigger part of the programme
   - better integration of social media with the programme

10. Is there anything else you would like to add about how social media at your university could be improved so that it is more useful in supporting your learning?

Section G: Debrief **5m**

11. Are there any other topics or issues that were missed during the interview but you consider important enough to comment on?

12. Are there any questions about this interview or my overall research that you would like to ask me?

Thank you for participating in this interview; if you have any questions you can ask me now or use the contact details on the information sheets (extra copies available at interview).

APPENDIX H: Questionnaire Evaluation Form

I would be extremely grateful to you if you could answer the below questions or provide any additional comments/suggestions that you consider suitable.

Questionnaire introduction:

1. Is the cover page information concise, clear and easy to understand?
   - o Yes
   - o No

Any comments: _____

2. According to you, is the introduction provided at the beginning of the questionnaire suitable and easy to understand?
   - o Yes
   - o No

Any comments: _____

Instructions and scales:

3. Are the instructions in the questionnaire concise, clear and easy to understand?
   - o Yes
   - o No

Any comments: _____

4. Are the individual questions in the questionnaire concise, clear and easy to understand?
   - o Yes
   - o No

Any comments: _____

5. According to you, is the use of 5-point Likert scale (Very Important, Important, Neutral, Not Important, Not at all Important) suitable and easy to understand within the context of this survey?
   - o Yes
   - o No

Any comments: _____

6. Was it easy to use the Likert scale?
   - o Yes
   - o No

Any comments: _____

7. Do you think any of the questions require modifications?
   - o Yes
   - o No

Any comments: _____

8. Do you think any of the statements require modifications?

- Yes
- No

Any comments: _____

Overall questionnaire design

14. Could you please elaborate on the overall ease of answering this survey: _____

15. Do you think there are any specific changes that the survey questionnaire requires?

- Yes
- No

Any comments: _____

16. Finally, could you please provide a few details about yourself?

Name: _____

Contact details phone or email: _____

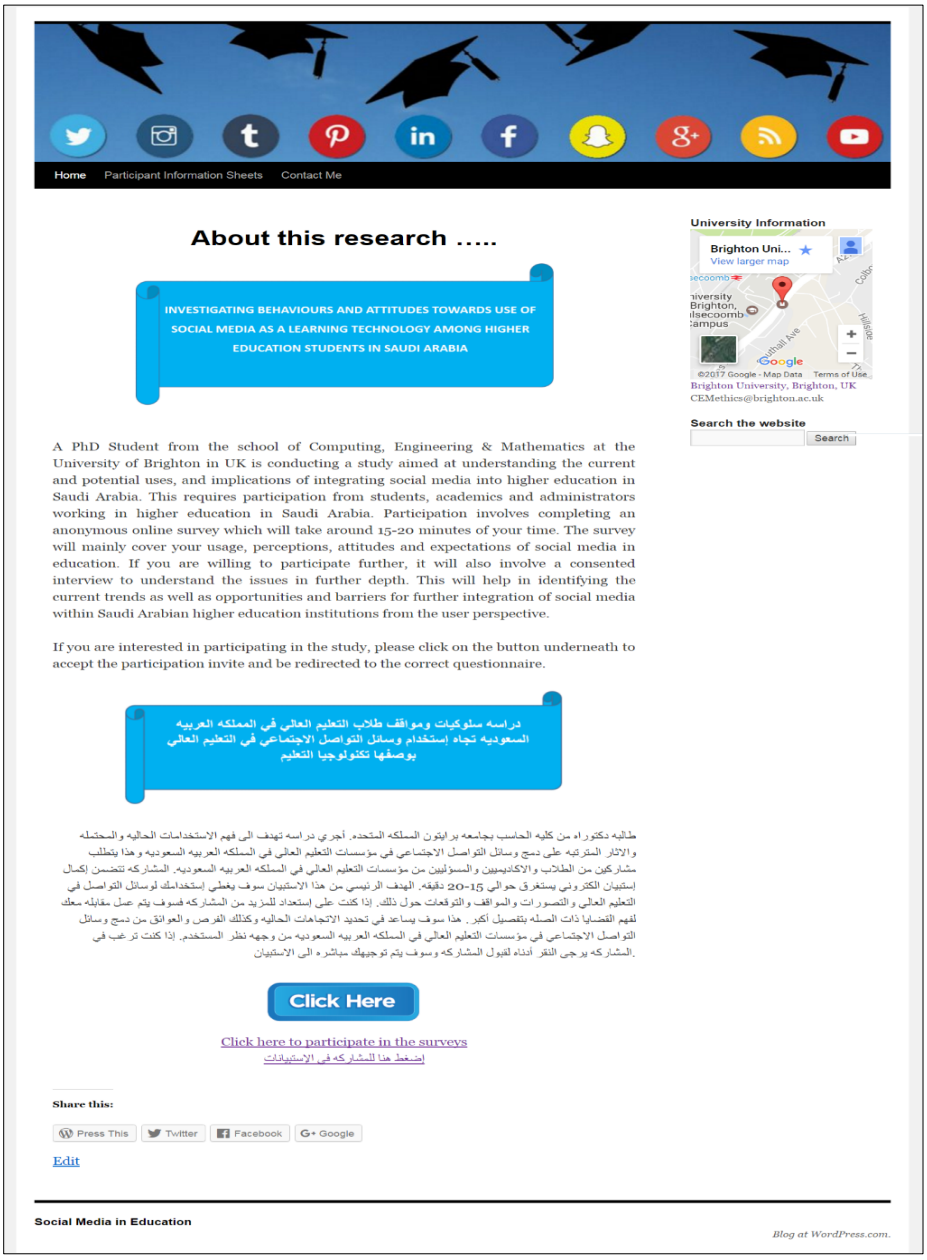
Thank you so much for your contribution in evaluating this survey questionnaire. Your comments will help to make it more suitable, appropriate and understandable.

The researcher,

Fatimah Algarni

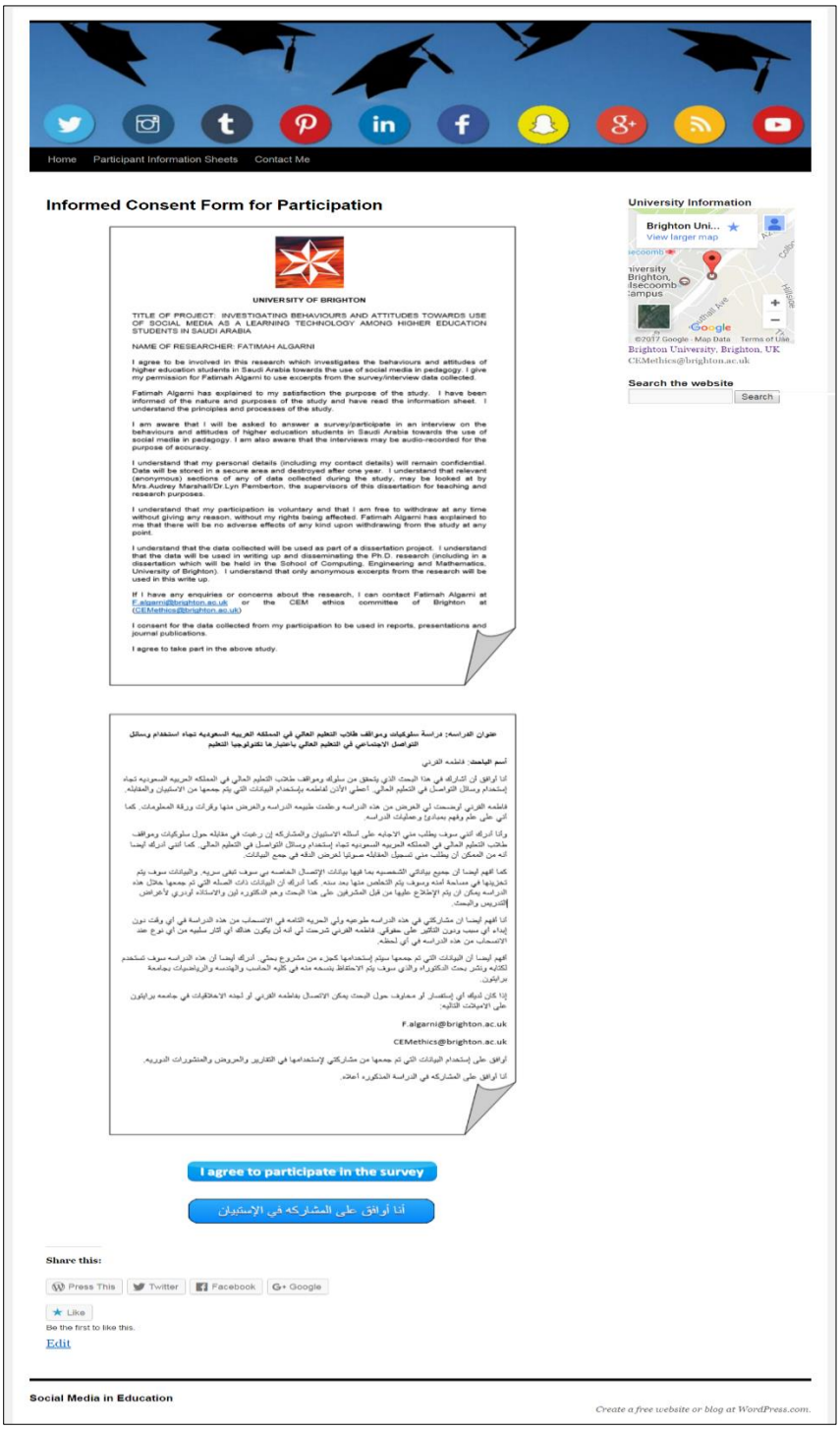
APPENDIX I: Survey Website

The website is accessible at: https://falgharni.wordpress.com/. The main page of the website provides a brief introduction to the research in English and Arabic and directs participants to click on it provided at the bottom if they are willing to participate in the survey:



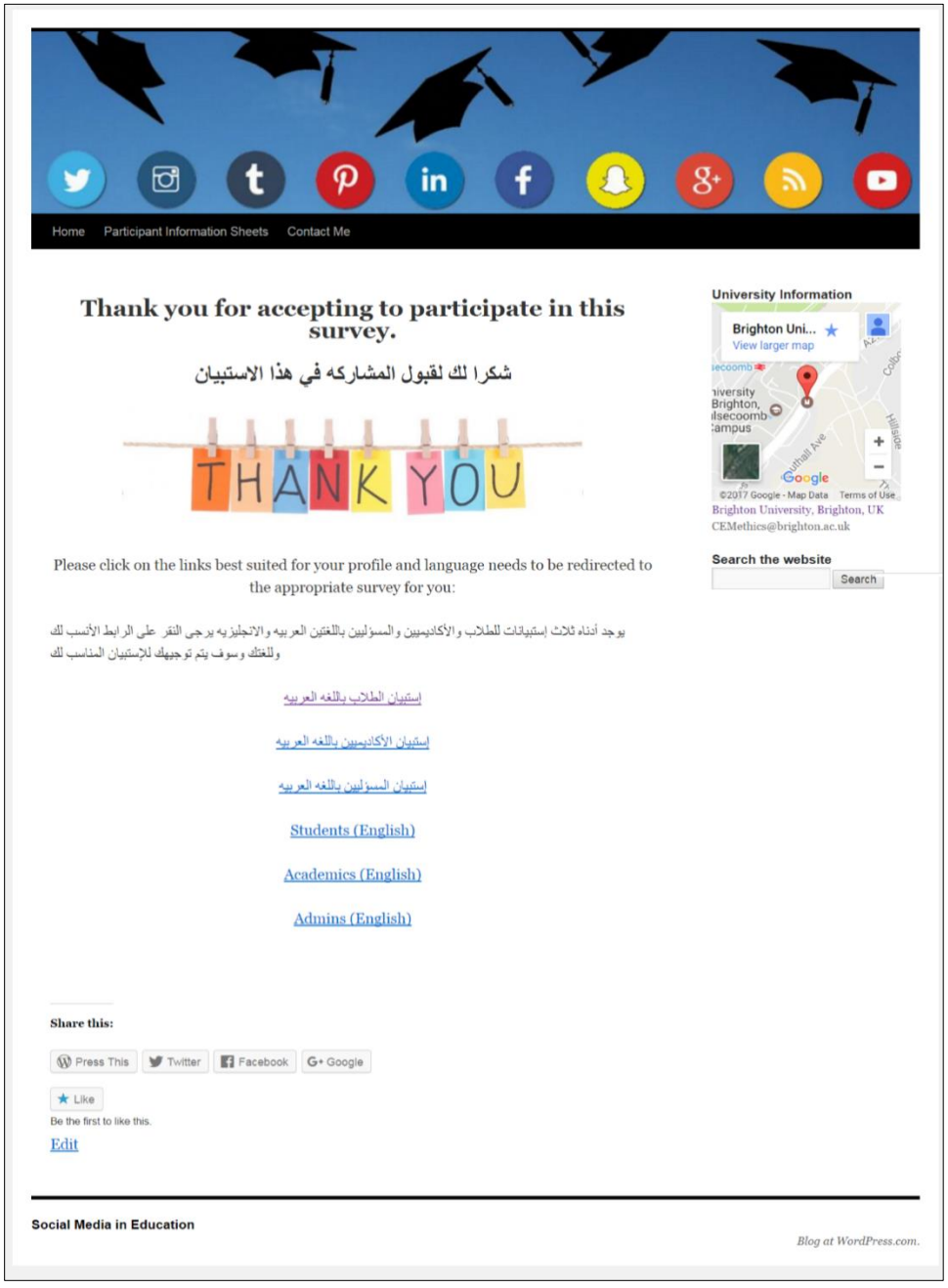
Website Main Page

Once participants click the button indicating their interest, an informed consent form is displayed to them both in English and Arabic. Participants are asked to click on a button indicating consent after reading the form:



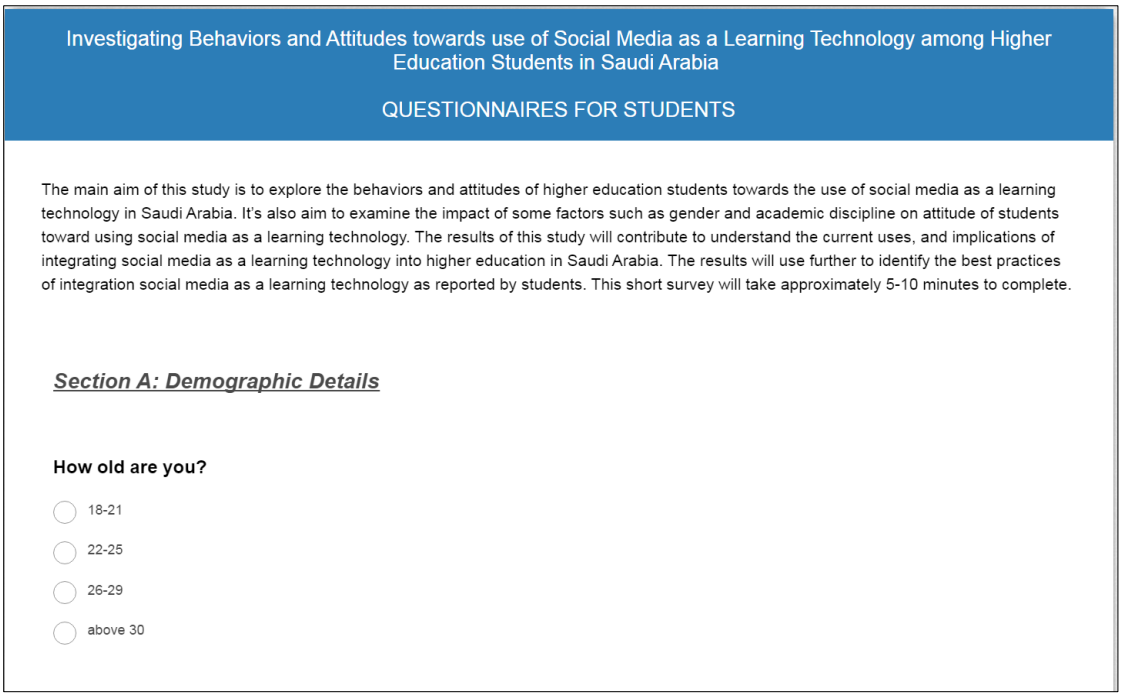
Website Informed Consent Page

Since the button explicitly says “I agree to participate in the survey” and participants cannot proceed to the next page without clicking on it, it indicates explicit consent and eliminates the need for each participant’s individual signature on the consent form. Once the participants indicate consent, they are taken to a page that provides separate links for students’, academics’ and administrators’ surveys in English and Arabic:



Website Survey Link Page

Clicking on the appropriate survey link takes participants to the corresponding survey on the online survey website "Qualtrics" where they can fill the responses as shown in the samples below:



Investigating Behaviors and Attitudes towards use of Social Media as a Learning Technology among Higher Education Students in Saudi Arabia

QUESTIONNAIRES FOR STUDENTS

The main aim of this study is to explore the behaviors and attitudes of higher education students towards the use of social media as a learning technology in Saudi Arabia. It's also aim to examine the impact of some factors such as gender and academic discipline on attitude of students toward using social media as a learning technology. The results of this study will contribute to understand the current uses, and implications of integrating social media as a learning technology into higher education in Saudi Arabia. The results will use further to identify the best practices of integration social media as a learning technology as reported by students. This short survey will take approximately 5-10 minutes to complete.

Section A: Demographic Details

How old are you?

- 18-21
- 22-25
- 26-29
- above 30

Qualtrics Sample Section of Student Questionnaire in English

دراسة سلوكيات ومواقف طلاب التعليم العالي في المملكه العربيه السعوديه تجاه استخدام وسائل التواصل الاجتماعي في التعليم العالي باعتبارها تكنولوجيا التعليم

إستبيان الطلاب لإستخدام وسائل التواصل في التعليم العالي

Student Survey

مساهمتك في اكمال هذا الاستبيان سوف تساعد في تحقيق اهداف الدراسه. الهدف الرئيسي من هذه الدراسة هو استكشاف السلوكيات والمواقف من طلبة التعليم العالي نحو استخدام وسائل التواصل الاجتماعي بوصفها تكنولوجيا التعليم في المملكة العربية السعودية. كما تهدف أيضا إلى دراسة تأثير بعض العوامل مثل الجنس والانضباط الأكاديمي على موقف الطلاب نحو استخدام وسائل التواصل الاجتماعي بوصفها تكنولوجيا التعلم. وسوف تساهم نتائج هذه الدراسة في فهم الاستخدامات الحالية، والآثار المترتبة على دمج وسائل التواصل الاجتماعي، والتعرف على أفضل الممارسات من دمج وسائل التواصل الاجتماعي من قبل الطلاب بوصفها تكنولوجيا التعلم في التعليم العالي في المملكة العربية السعودية. سوف يستغرق هذا الاستبيان حوالي 5-10 دقائق لإكماله

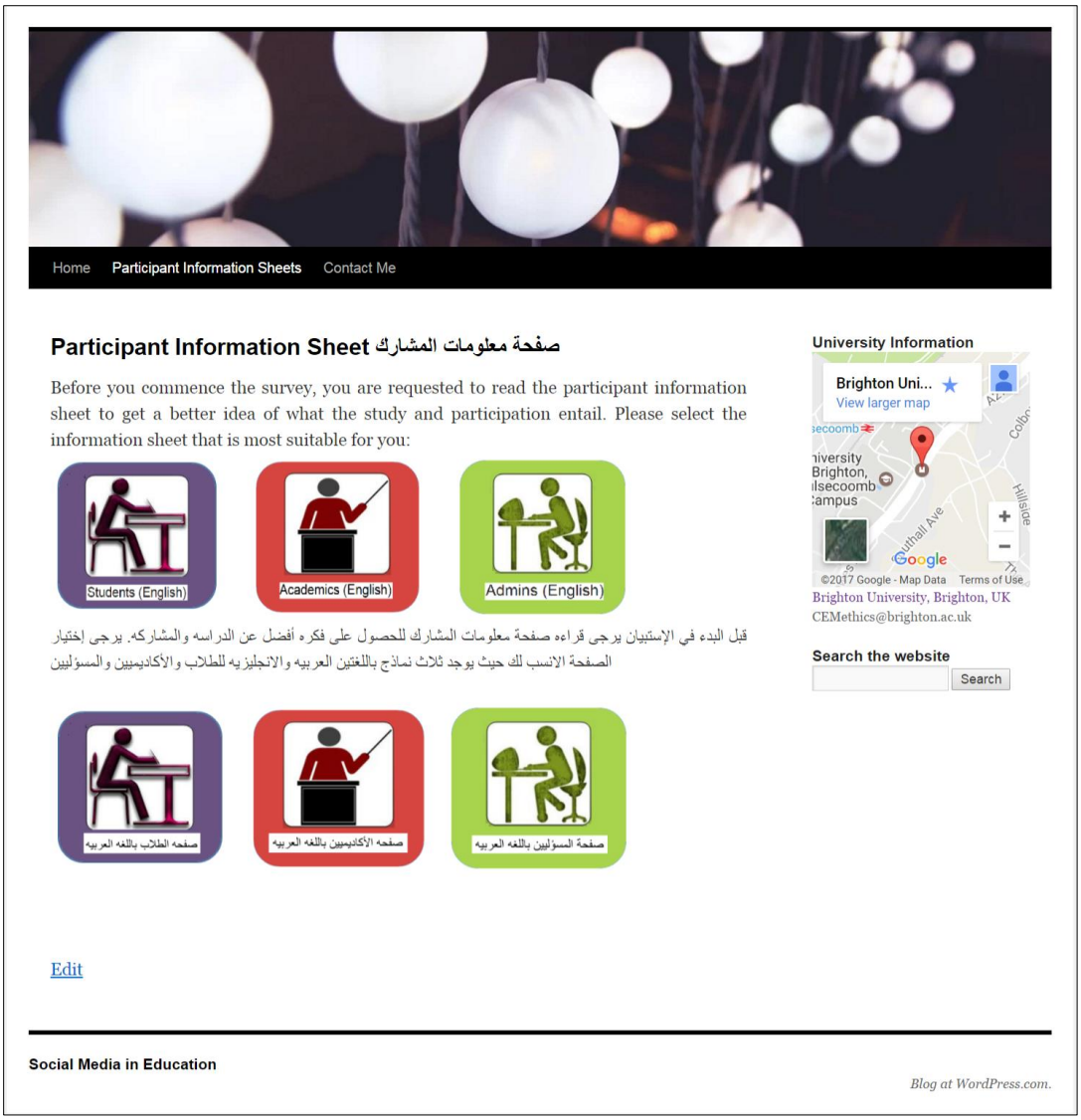
القسم الاول: التفاصيل الديموغرافيه

كم عمرك؟

- 18-21
- 22-25
- 26-29
- فوق 30

Qualtrics Sample Section of Student Questionnaire in Arabic

Participant information sheets are also provided on the website with separate sheets for students, academics and administrators in English and Arabic:



Website Participant Information Page

The information sheets provide details of the study, its purpose and objectives, participants' rights and responsibilities, possible benefits and disadvantages of participation and confidentiality processes. If participants have any questions they can contact the researcher or her supervisors through the details provided at the end of the form:

Participant Information Sheet for Students (English)

Study title: Investigating Behaviours and Attitudes towards use of Social Media as a Learning Technology among Higher Education Students in Saudi Arabia

Invitation paragraph

You are being invited to take part in a research study. 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. Talk to others about the study if you wish.

Please ask Fatimah Algarni 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 study?

This study is being conducted as part of the research requirements towards my Ph.D degree at the School of the Computing, Engineering & Mathematics, University of Brighton. The main aim of this study is to investigate the current and potential uses, and implications of integrating social media into higher education in Saudi Arabia by exploring the behaviours and attitudes of higher education students towards the use of social media as a learning technology.

Why have I been chosen?

The study will involve a number of higher education students belonging to 3 key universities in Saud Arabia, namely Princess Nourah University, King Saud University, and Al-Emam University. You have been chosen for this study as you are a higher education student at one of these universities.

Do I have to take part?

No. It is up to you to decide whether or not to take part. If you do, you will be asked to indicate your consent by clicking a button on this website. You are still free to withdraw at any time and without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not adversely affect you in any way.

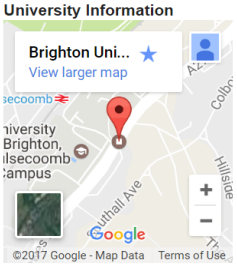
What will happen to me if I take part?

If you decide to take part, you will be requested to participate in a short,anonymous online survey. If you are willing, you may also be requested to participate in a follow-up semi-structured interview at a time and place of your choice. I may request to audio-record the interviews.

Expenses and payments:

NA

University Information



Brighton University, Brighton, UK
CEMethics@brighton.ac.uk

Search the website

Search

Website Sample of Participant Information Sheet for Students in English

Home Participant Information Sheets Contact Me

جامعة برايتون

ورقة معلومات المشارك للطلاب

عنوان الدراسه: عنوان الدراسه: دراسة سلوكيات ومواقف طلاب التعليم العالي في المملكه العربيه السعوديه تجاه استخدام وسائل التواصل الاجتماعي في التعليم العالي باعتبارها تكنولوجيا التعليم.

الدعوه للمشاركه

يتم دعوتك للمشاركة في هذه الدراسه البحثيه. قبل أن تتخذ القرار في المشاركه من المهم أن تفهم لماذا يتم إجراء هذا البحث وماذا سوف يتضمن. يرجى أخذ وقت كافي لقراءه المعلومات التاليه بعنايه والتحدث مع الاخرين عن الدراسه إن كنت ترغب في ذلك.

الرجاء أن تقوم بسؤال فاطمه القرني إذا كان هناك أي شي غير واضح أو اذا كنت ترغب في الحصول على مزيد من المعلومات. خذ وقتك لتقرر ما إذا كنت ترغب في المشاركه في هذه الدراسه.

ماهو الغرض من هذه الدراسة؟

أجريت هذه الدراسه كجزء من متطلبات بحث الدكتوراه الخاص بي من كليه الحاسب والهندسه والرياضيات من جامعه برايتون. الهدف الرئيسي من هذه الدراسه هو التعرف على الاستخدامات الحاليه والمحتمله والاثار المترتبة على دمج وسائل التواصل الاجتماعي في التعليم العالي في المملكه العربيه السعوديه من خلال إستكشاف سلوكيات ومواقف طلاب التعليم العالي من استخدام وسائل التواصل في التعليم بوصفها تكنولوجيا التعليم.

لماذ تم إختيارك ؟

تشمل الدراسه عدد من طلاب التعليم العالي في المملكه العربيه السعوديه والذين ينتمون الى ثلاث جامعات رئيسيه وهي جامعه الملك سعود وجامعه الامام محمد بن سعود الاسلاميه وجامعه الاميره نوره بنت عبدالرحمن. وقد تم إختيارك للمشاركه في هذه الدراسه كونك طالب تنتمي لإحد هذه الجامعات.

هل يجب أن أشارك؟

لا الامر متروك لك لتقرر إذا كنت ترغب في المشاركه من عدمه. إذا وافقت على المشاركه فسوف يطلب منك النقر على أيقونه الموافقه في الموقع. ولك حريه الانسحاب في أي وقت دون إبداء أي سبب. قرار إنسحابك أو عدم المشاركه في أي وقت لن يؤثر عليك بأي شكل من الاشكال.

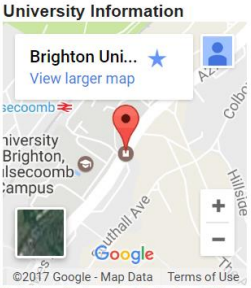
ماذا سيحدث إذا قررت المشاركه؟

اذا قررت المشاركه سوف يطلب منك المشاركه في إستبيان قصير على الانترنت. واذا كنت ترغب فسوف يتم عمل مقابله تابعه للإستبيان في الوقت والمكان المناسب لك ويمكن أن أطلب منك تسجيل المقابله صوتيا.

المصروفات والمدفوعات؟

لايوجد

University Information



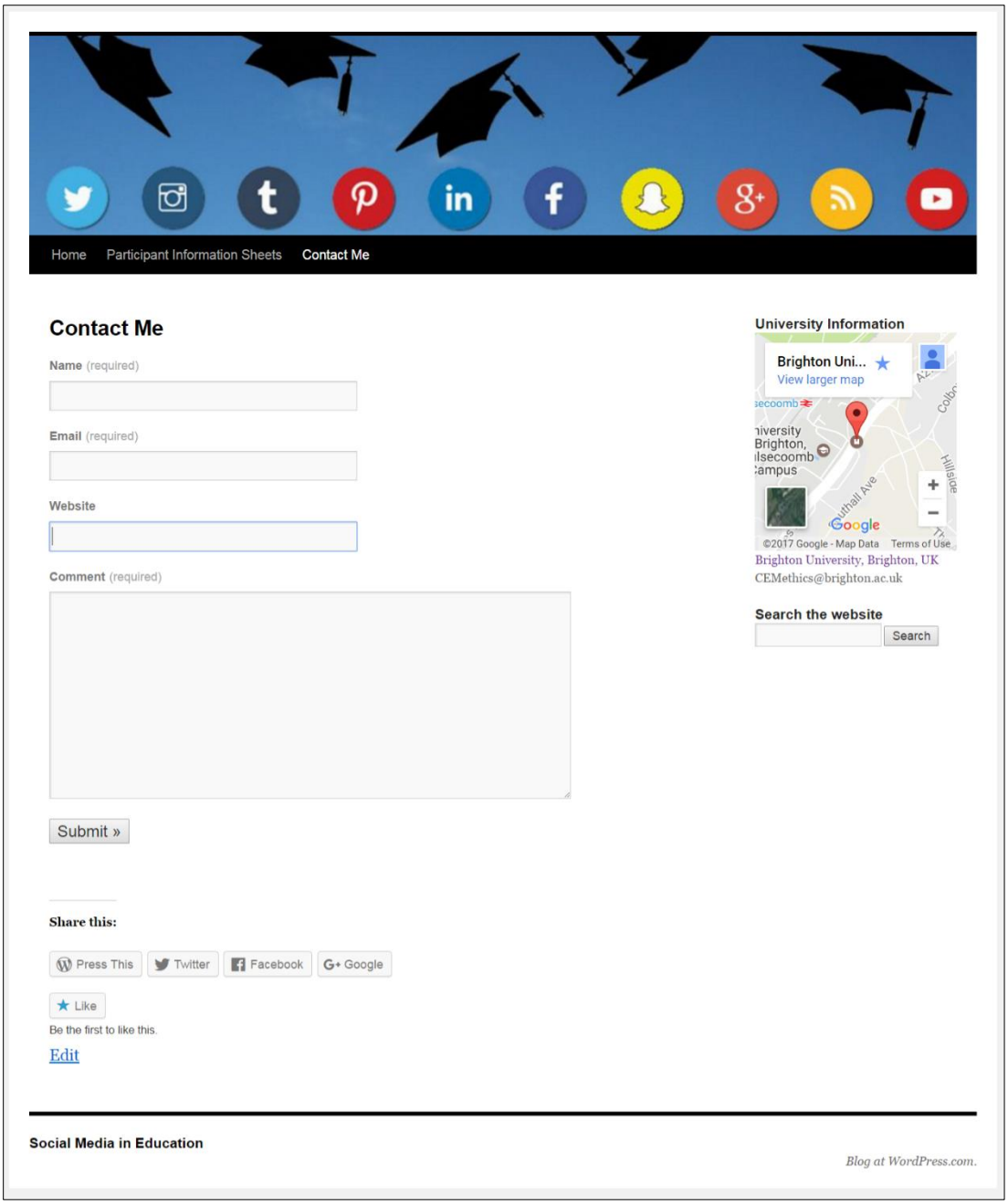
Brighton University, Brighton, UK
CEMethics@brighton.ac.uk

Search the website

Search

Website Sample of Participant Information Sheet for Students in Arabic

Finally, participants can also use the “Contact me” form on the website, which sends an email to the researcher’s personal id:



Website Contact Me Form

APPENDIX J: Quantitative Data Analysis Plan (First three steps)

Preparation of the Codebook: The main aim behind the preparation of the codebook is to ensure that the naming of variables and numbering of responses are both carried out in a consistent manner (Pallant, 2016). The availability of the codebook also avoids any potential confusions later on regarding the abbreviations used, and provides a clear starting point for the data analysis. In defining and naming the variables, Pallant (2016) suggests listing all the variables used in the questionnaires, writing down their names in English and assigning abbreviated values to them as needed for use in the statistical software SPSS. The abbreviated values, (henceforth known as the SPSS variables) should follow the SPSS coding conventions. To this end, they should be unique, begin with a letter, not contain special characters, not contain words that are SPSS special commands and adhere to SPSS character restrictions, which in case of the latest version of SPSS i.e. version 25 is 64 (IBM, 2017). In numbering the responses, Pallant (2016) suggests providing the numerical values as necessary according to which the responses are coded. As a general rule, Pallant (2016) also suggests coding the responses in ascending order beginning with 1. Accordingly, the tables in Appendix K, L and M provide a list of variables used in the student, teacher and administrator surveys respectively, their names in English, abbreviated SPSS variables and the coding values for the responses.

Identification of Dependent/Independent Variables: This step involves determining the nature of the variables identified in the previous step in terms of whether they are dependent or independent variables. According to Punch (2013), independent variables are the variables that are expected to account for or explain the variations in the values of dependent variables. Simply put, independent variables can be considered as the "causes" while dependent variables can be considered as the "effects". Determining the nature of variables in these terms is important to ensure clarity regarding their role in the overall process as well as to determine the tests that must be conducted on them. Accordingly, the variables identified in the previous steps have been classified as independent or dependent although the classification may be modified if necessary as finer distinctions emerge.

For the student survey six independent variables have been identified, for the teachers' survey ten independent variables have been identified and for the administrators' survey, six independent variables have been identified as follow:

Student Survey	Age, Gender, University, Level of study, Academic discipline and Device ownership
Teachers' Survey	Age, Gender, University, Highest Qualification, Years of experience, Academic discipline, Level of study, Device ownership, University support for use of social media, and University social media policy
Administrators' Survey	University, Department, Position, University's reasons for social media presence, Intentions behind University's social media usage and University's concerns about social media usage

Appendix N, O and P showcase the nature of each variable of the student, teacher and administrator surveys respectively

Preparation of the Data File: After preparing the codebook and determining the nature of variables, the next step is to define the steps for preparing the data file that can be provided as the input to SPSS. The current study follows the below steps in doing so:

- Download and install SPSS version 25
- Download the survey data from Qualtrics in excel/csv format
- Import the data file into SPSS for all surveys and save them with unique .sav names
- Name the variables according to the names defined in the codebook.
- Code the responses according to the values defined in the codebook.
- Screen data for errors i.e. identify values that may be out of range based on the response values defined in the codebook
- Clean data i.e. add exclusive and missing elements, correct or delete erroneous values

- Examine the main variables of the data (determine if its categorical, ordinal, interval or Ratio).
- Compute averages, total scores and other new variables as necessary

Qualitative Data Analysis Plan (First three steps)

Organising the Data: To begin with, the audio data was transcribed into written notes by the researcher. Translations from Arabic to English were done as needed, and necessary clarifications were obtained from the participants. The notes were then read and re-read by the researcher several times to ensure that the flow of the interviews were smooth and there were no ambiguities. Again, clarifications were obtained from participants over telephone and emails as required during this process. Participants were also asked if they wished to review the transcripts of their respective interviews to ensure that there are no misunderstandings. However, all the participants declined the offer.

Once the written notes were ready, they were organized into simple files and folders. Each interview was stored in a separate word file with appropriate labels. Initially, the idea of using a qualitative software like nVivo was considered. However, given the shortage of time and skills on part of the researcher, it was decided to organize and code the data manually. The files also contained the demographic and academic details of the participants such as their age, gender, University, discipline, field of study and other relevant variables.

Identification of Codes: The second step was to identify the initial codes from the raw data. In order to do this, the text was read in a literal manner, and codes were assigned to relevant words, phrases and sentences using the "comment" feature of Microsoft word. This is in line with the recommendations of Strauss and Corbin (1998) who stress that a qualitative coding strategy should attempt to include the maximum amount of raw data possible.

The coding was done in an iterative manner with several readings and re-readings of the text. In doing so, open codes were used. According to Weil (2017), open codes are codes that arise from the data rather than being determined by theories or literature. Accordingly, the idea in this step was to identify the happenings in data without consideration of existing theories. Hence, the researcher used her own labels to code the data. This had the added advantage of allowing the researcher to acquaint herself with the data very well.

In identifying the phrases to be coded, the researcher followed the recommendations of Braun and Clarke (2006) according to which the importance or "keyness" of a code or theme can be based on the researcher's subjective opinions as long as the same rules are followed and applied consistently. Accordingly, the phrases were selected for coding based on several criteria deemed important by the researcher including the frequency of their appearance across various interviews, their relevance to the research questions, their role in clarifying the questions raised during quantitative analysis, the importance given to them by the participants themselves and their importance in the context of the overall research topic. These rules were carefully and consistently applied throughout the process of coding and analysis.

Once all the data was coded, the codes were extracted along with the respective phrases into a separate word file. In order to do so, a word Macro was used. The purpose of the macro was to extract the codes along with other relevant details like interview number, page number, scope of comment and date from the original document into a new document for ease of processing. Initially the codes related to each interview were extracted into a different file.

Consolidation into Themes: After extracting the codes and their related information into separate files, the next step was to classify the codes into categories and themes. In order to do this, the codes for each group of participants were imported into consolidated Excel sheets, again for ease of processing. In other words, the codes for all student interviews were consolidated into one excel sheet, the codes for teacher interviews into another and the codes for admins into a third. The idea behind importing the information to excel sheets was to take advantage of the sorting and filtering features of the software, which would ease the filtering of repetitive codes and consolidation of related ones.

Accordingly, first the repetitive codes were merged into single ones. Then, codes that appeared to refer to the same concept or behaviour were also consolidated into singular ones. After this, the codes were reviewed again, and relationships were identified. This is in line with the principles of axial coding in which open codes are organized into categories or hierarchies based on the relationships between them (Weil, 2017). Accordingly, codes that appeared to be related were grouped into broader categories. Again this was done in an iterative manner to ensure that the categories accurately represented what the participants said. The codes and categories were repeatedly re-organised as the analysis continued and a broader picture emerged.

Finally, the principle of selective coding was applied in order to build the categories that emerge during axial coding into elements of existing theories (Weil, 2017). During this process, the categories were examined in the context of literature and mapped to existing terminologies, models or theories wherever significant similarities were found. However, efforts were made to ensure that the codes and categories were not forced into any existing theories unless sufficient organic similarities were found. Wherever this did not happen, the codes and categories were retained as-is. This is in line with the recommendations of Braun and Clarke (2006) who stress that the emergence of new themes should not be overlooked in order to create a perfect theoretical integration. Overall, the process of selective coding was applied in order to identify the core themes of the analysis. In doing so, the recommendations of Fereday and Muir-Cochrane (2006) were followed by ensuring that the themes were logically consistent and meaningful to the research. Again, the process was repeated in an iterative manner. Once the core themes and categories were identified, they were explored and analysed in the context of the findings of primary data in order to jointly arrive at the answers to the research questions.

Appendix K: Student Survey Codebook

	Variable	SPSS Variable	Coding Instructions
1	Age	Age	1 = 18-20 years 2= 21-23 years 3 = 24-26 years 4 = 27-29 years 5 = Above 30
2	Gender	Gender	1 = Female 2 = Male
3	Nationality	Nationality	1 = Saudi 2 = Non-Saudi
4	University	University	1 = Princess Nourah University 2 = King Saud University 3 = Al-Emam University 4 = Other
5	Level of study (studying)	LvlofStudy	1 = Undergraduate 2 = Postgraduate (Masters degree) 3 = Postgraduate (M.Phil, Doctoral etc) 4 = Other
6	Academic discipline (studying)	AcadDispl	1 = Agricultural Sciences 2 = Architecture and Planning 3 = Arts 4 = Basic Sciences 5 = Business Administration 6 = Computing and Information Sciences 7 = Education 8 = Engineering 9 = Health Sciences 10 = Humanities and Social Science 11 = Languages & Translation 12 = Law and Political Science 13 = Sport Science 14 = Tourism & Antiquities 15 = Other
7	Device ownership	DvcOwnshp	1 = None 2 = Smartphone 3 = Desktop 4 = Laptop 5 = Digital Tablet
8	Average daily time spent online	AvgDlyTmeSpntOnline	1 = None 2 = < 1 hour 3 = 1 - 2 hours 4 = 3 - 4 hours 5 = >= 5 hours

9	Everyday Use of SM (yes/no)	GnrlUseOfSM	1 = Yes 2 = No, Skip to: 29
10	Purpose of using SM for general	PrpsOfUsngSMForGnrl	1 = Social Entertainment 2 = Communication 3 = Business work 4 = Academic work
11	Specific SM used for general purposes	SpfcSMUsdForGnrlPrps	SNS 1 = None 2 = Facebook 3 = Google+ 4 = LinkedIn 5 = MySpace 6 = Other Blogs 7 = None 8 = WordPress 9 = Blogger 10 = Twitter 11 = eBlogger 12 = Other CollabPrjcts 13 = None 14 = Wikipedia 15 = PBWikis 16 = Wikispaces 17 = Wikias 18 = Other ContentComm 19 = None 20 = Youtube 21 = Instagram 22 = SlideShare 23 = Flickr 24 = Other
12	Frequency of SM use for general purposes	FrqncyOfSMUseforGnrlPrps	SNS 1 = Never 2 = Daily 3 = Weekly 4 = Monthly 5 = Once Per Term 6 = Once per year Blogs 7 = Never 8 = Daily 9 = Weekly 10 = Monthly

			11 = Once Per Term 12 = Once per year CollabPrjcts 13 = Never 14 = Daily 15 = Weekly 16 = Monthly 17 = Once Per Term 18 = Once per year ContentComm 19 = Never 20 = Daily 21 = Weekly 22 = Monthly 23 = Once Per Term 24 = Once per year
13	Academic use of SM	AcadUseOfSM	1 = Yes 2 = No, Skip to: 29
14	Specific SM used for academic purposes	SpfcSMUsdfForAcadPrps	SNS 1 = None 2 = Facebook 3 = Google+ 4 = LinkedIn 5 = MySpace 6 = Other Blogs 7 = None 8 = WordPress 9 = Blogger 10 = Twitter 11 = eBlogger 12 = Other CollabPrjcts 13 = None 14 = Wikipedia 15 = PBWikis 16 = Wikispaces 17 = Wikias 18 = Other ContentComm 19 = None 20 = Youtube 21 = Instagram 22 = SlideShare 23 = Flickr 24 = Other

15	Frequency of SM use for academic purposes	FrqncyOfSMUseForAcadPrps	SNS 1 = Never 2 = Daily 3 = Weekly 4 = Monthly 5 = Once Per Term 6 = Once per year Blogs 7 = Never 8 = Daily 9 = Weekly 10 = Monthly 11 = Once Per Term 12 = Once per year CollabPrjcts 13 = Never 14 = Daily 15 = Weekly 16 = Monthly 17 = Once Per Term 18 = Once per year ContentComm 19 = Never 20 = Daily 21 = Weekly 22 = Monthly 23 = Once Per Term 24 = Once per year
16	Years of experience using SM	YrsOfExpUsngSM	1 = <1 year 2 = 1-2 years 3 = 3-4 years 4 = >4 years
17	Extent of SM dependency for studies	ExtOfSMDpdncyForStdnts	1 = Extremely dependent 2 = Very dependent 3 = Neutral 4 = Slightly dependent 5 = Not at all dependent
18	Enhancement of studies using SM (yes/no)	EnchmntOfStudiesUsgSM	1 = Strongly Agree 2 = Agree 3 = Neutral 4 = Disagree 5 = Strongly disagree
19	Purpose of using SM for academic	PrpsOfUsgSMForAcad	1 = Discussions/ Assignments / Project Collaboration 2 = Knowledge / Information Sharing 3 = Contacting teachers and Peers 4 = Activities / event updates

			5 = Searching for books, articles and other academic information 6 = Other
20	Importance of various SM features	ImprtncOfVarsSMFtrs	Cost 1 = Extremely important 2 = Very important 3 = Neutral 4 = Unimportant 5 = Very unimportant EaseofUse 6 = Extremely important 7 = Very important 8 = Neutral 9 = Unimportant 10 = Very unimportant StudySupport 11 = Extremely important 12 = Very important 13 = Neutral 14 = Unimportant 15 = Very unimportant Features 16 = Extremely important 17 = Very important 18 = Neutral 19 = Unimportant 20 = Very unimportant NativeLangSupport 21 = Extremely important 22 = Very important 23 = Neutral 24 = Unimportant 25 = Very unimportant PrivacySettings 26 = Extremely important 27 = Very important 28 = Neutral 29 = Unimportant 30 = Very unimportant FriendandFamilyUse 31 = Extremely important 32 = Very important 33 = Neutral 34 = Unimportant 35 = Very unimportant
21	Benefits of SM	BnftsOfSM	InteractiveLrng

			1 = Strongly Agree 2 = Agree 3 = Neutral 4 = Disagree 5 = Strongly disagree KnowledgeShrg 6 = Strongly Agree 7 = Agree 8 = Neutral 9 = Disagree 10 = Strongly disagree Contact 11 = Strongly Agree 12 = Agree 13 = Neutral 14 = Disagree 15 = Strongly disagree PeertopeerLrng 16 = Strongly Agree 17 = Agree 18 = Neutral 19 = Disagree 20 = Strongly disagree CollabWorkSupport 21 = Strongly Agree 22 = Agree 23 = Neutral 24 = Disagree 25 = Strongly disagree EncouragePrtcpn 26 = Strongly Agree 27 = Agree 28 = Neutral 29 = Disagree 30 = Strongly disagree CreatingPLN 31 = Strongly Agree 32 = Agree 33 = Neutral 34 = Disagree 35 = Strongly disagree FacilitatingIntrnwithOppSex 36 = Strongly Agree 37 = Agree 38 = Neutral 39 = Disagree

			40 = Strongly disagree ContactingAuth 41 = Strongly Agree 42 = Agree 43 = Neutral 44 = Disagree 45 = Strongly disagree KeepingUpdts 46 = Strongly Agree 47 = Agree 48 = Neutral 49 = Disagree 50 = Strongly disagree
22	Teachers' use of SM	TchrsUseOfSM	1 = None 2 = Some (0%-40%) 3 = Most (40% - 80%) 4 = All 5 = don't know
23	Teachers' purpose of using SM	TchrsPrpsOfUsngSM	1 = Discussions/ Assignments / Project Collaboration 2 = Knowledge / Information Sharing (online lectures/audio or video tutorials etc) 3 = Contacting with student 4 = Activities / event updates 5 = Source information from students
24	Barriers to SM usage	BarrsToSMUsg	PrivacyIssues 1 = Strongly Agree 2 = Agree 3 = Neutral 4 = Disagree 5 = Strongly disagree TimeWstg 6 = Strongly Agree 7 = Agree 8 = Neutral 9 = Disagree 10 = Strongly disagree UniLackofSpprt 11 = Strongly Agree 12 = Agree 13 = Neutral 14 = Disagree 15 = Strongly disagree DstrctnsandLossofFcs 16 = Strongly Agree 17 = Agree 18 = Neutral

			19 = Disagree 20 = Strongly disagree SecrtyIssues 21 = Strongly Agree 22 = Agree 23 = Neutral 24 = Disagree 25 = Strongly disagree LtdBndwdth 26 = Strongly Agree 27 = Agree 28 = Neutral 29 = Disagree 30 = Strongly disagree UnfamiliaritywthFtrs 31 = Strongly Agree 32 = Agree 33 = Neutral 34 = Disagree 35 = Strongly disagree InfoIntegrty 36 = Strongly Agree 37 = Agree 38 = Neutral 39 = Disagree 40 = Strongly disagree LackofCommtandPartpn. 41 = Strongly Agree 42 = Agree 43 = Neutral 44 = Disagree 45 = Strongly disagree ImprprUse 46 = Strongly Agree 47 = Agree 48 = Neutral 49 = Disagree 50 = Strongly disagree
25	Success criteria for academic use of SM	SuccsCrterForAcadUseOfSM	SupportSMbyUni 1 = Extremely important 2 = Very important 3 = Neutral 4 = Unimportant 5 = Very unimportant StndtTchrPrtcpn 6 = Extremely important

			7 = Very important 8 = Neutral 9 = Unimportant 10 = Very unimportant PrprUse 11 = Extremely important 12 = Very important 13 = Neutral 14 = Unimportant 15 = Very unimportant ResdgnCurr 16 = Extremely important 17 = Very important 18 = Neutral 19 = Unimportant 20 = Very unimportant ImprvIntntConn 21 = Extremely important 22 = Very important 23 = Neutral 24 = Unimportant 25 = Very unimportant ImprvSecandPrvcy 26 = Extremely important 27 = Very important 28 = Neutral 29 = Unimportant 30 = Very unimportant
26	Influence of gender on SM usage	InflnceOfGndrOnSMUsg	1 = Yes 2 = No
27	Influence of academic discipline on SM usage	InflnceOfAcadDisplOnSMUsg	1 = Yes 2 = No
28	*Further contact*	FrthrCntct	1 = Custom Value
29	Reasons for not using SM	*RsnsForNtUsgSM*	1 = Not interested 2 = Lack of technologies that support the use of social media 3 = Concern about privacy and security issues. 4 = Don't know how to use it. 5 = Waste of time 6 = Not useful in my study 7 = Teacher not using/ resistance SM 8 = Other

APPENDIX L: Academics' Survey Codebook

	Variable	SPSS Variable	Coding Instructions
1	Age	Age	1 = >30 years 2 = 30 - 40 years 3 = 40 - 50 years 4 = 50 - 60 years 5 = >60 years
2	Gender	Gender	1 = Female 2 = Male
3	Nationality	Nationality	1 = Saudi 2 = Non-Saudi
4	University	University	1 = Prince Nourah University 2 = King Saude University 3 = Al-Emam University 4 = Other
5	Highest Qualification	HghstQual	1 = Bachelor 2 = Diploma 3 = Master 4 = Doctorate 5 = Other
6	Years of experience	YrsOfExp	1 = <5 years 2 = 5 – 10 years 3 = 10 – 15 years
7	Academic discipline (teaching)	AcadDispl	1 = Agricultural Sciences 2 = Architecture and Planning 3 = Arts 4 = Basic Sciences 5 = Business Administration 6 = Computing and Information Sciences 7 = Education 8 = Engineering 9 = Health Sciences 10 = Humanities and Social Science 11 = Languages & Translation 12 = Law and Political Science 13 = Sport Science 14 = Tourism & Antiquities 15 = Other
8	Level of study (teaching)	LvlofStdy	1 = Undergraduate 2 = Postgraduate (Masters degree) 3 = (M.Phil, Doctoral etc) 4 = Other
9	Device ownership	DvcOwnshp	1 = None 2 = Smartphone 3 = Desktop

			4 = Laptop 5 = Digital Tablet
10	Average daily time spent online	AvgDlyTmeSpntOnline	1 = None 2 = < 1 hour 3 = 1 - 2 hours 4 = 3 - 4 hours 5 = >= 5 hours
11	Everyday Use of SM (yes/no)	GnrlUseOfSM	1 = Yes 2 = No, Skip to: 32
12	Purpose of using SM for general	PrpsOfUsngSMForGnrl	1 = Social Entertainment 2 = Communication 3 = Business work 4 = Academic work
13	Specific SM used for general purposes	SpfcSMUsdfForAcadPrps	SNS 1 = None 2 = Facebook 3 = Google+ 4 = LinkedIn 5 = MySpace 6 = Other Blogs 7 = None 8 = WordPress 9 = Blogger 10 = Twitter 11 = eBlogger 12 = Other CollabPrjcts 13 = None 14 = Wikipedia 15 = PBWikis 16 = Wikispaces 17 = Wikias 18 = Other ContentComm 19 = None 20 = Youtube 21 = Instagram 22 = SlideShare 23 = Flickr 24 = Other
14	Frequency of SM use for general purposes	FrqncyOfSMUseForGnrlPrps	SNS 1 = None 2 = Facebook 3 = Google+ 4 = LinkedIn

			5 = MySpace 6 = Other Blogs 7 = None 8 = WordPress 9 = Blogger 10 = Twitter 11 = eBlogger 12 = Other CollabPrjcts 13 = None 14 = Wikipedia 15 = PBWikis 16 = Wikispaces 17 = Wikias 18 = Other ContentComm 19 = None 20 = Youtube 21 = Instagram 22 = SlideShare 23 = Flickr 24 = Other
15	Academic use of SM (to support teaching/learning)	AcadUseOfSM	1 = Yes 2 = No, Skip to: 32
16	Specific SM used for academic purposes	SpfcSMUsdfForAcadPrps	SNS 1 = None 2 = Facebook 3 = Google+ 4 = LinkedIn 5 = MySpace 6 = Other Blogs 7 = None 8 = WordPress 9 = Blogger 10 = Twitter 11 = eBlogger 12 = Other CollabPrjcts 13 = None 14 = Wikipedia 15 = PBWikis 16 = Wikispaces 17 = Wikias

			18 = Other ContentComm 19 = None 20 = Youtube 21 = Instagram 22 = SlideShare 23 = Flickr 24 = Other
17	Frequency of SM use for academic purposes	FrqncyOfSMUseForAcadPrps	SNS 1 = Never 2 = Daily 3 = Weekly 4 = Monthly 5 = Once Per Term 6 = Once per year Blogs 7 = Never 8 = Daily 9 = Weekly 10 = Monthly 11 = Once Per Term 12 = Once per year CollabPrjcts 13 = Never 14 = Daily 15 = Weekly 16 = Monthly 17 = Once Per Term 18 = Once per year ContentComm 19 = Never 20 = Daily 21 = Weekly 22 = Monthly 23 = Once Per Term 24 = Once per year
18	Years of experience using SM	YrsOfExpUsngSM	1 = <1 year 2 = 1-2 years 3 = 3-4 years 4 = >4 years

19	Extent of SM dependency for teaching/learning	ExtOfSMDpdncyForTchng	1 = Extremely dependent 2 = Very dependent 3 = Neutral 4 = Slightly dependent 5 = Not at all dependent
20	Enhancement of teaching/learning using SM (yes/no)	EnchmntOfTchngUsgSM	1 = Strongly Agree 2 = Agree 3 = Neutral 4 = Disagree 5 = Strongly disagree
21	Purpose of using SM for teaching/learning	PrpsOfUsgSMForTchng	1 = Discussions/ Assignments / Project Collaboration 2 = Knowledge / Information Sharing 3 = Contacting with Students 4 = Activities / event updates 5 = Source information from students 6 = Contacting with Teachers 7 = Other
22	Importance of various SM features	ImprtncOfVarsSMFtrs	Cost 1 = Extremely important 2 = Very important 3 = Neutral 4 = Unimportant 5 = Very unimportant EaseofUse 6 = Extremely important 7 = Very important 8 = Neutral 9 = Unimportant 10 = Very unimportant StudySupport 11 = Extremely important 12 = Very important 13 = Neutral 14 = Unimportant 15 = Very unimportant Features 16 = Extremely important 17 = Very important 18 = Neutral 19 = Unimportant 20 = Very unimportant NativeLangSupport 21 = Extremely important 22 = Very important

			23 = Neutral 24 = Unimportant 25 = Very unimportant PrivacySettings 26 = Extremely important 27 = Very important 28 = Neutral 29 = Unimportant 30 = Very unimportant FriendandFamilyUse 31 = Extremely important 32 = Very important 33 = Neutral 34 = Unimportant 35 = Very unimportant
23	Benefits of SM	BnftsOfSM	InteractiveLrng 1 = Strongly Agree 2 = Agree 3 = Neutral 4 = Disagree 5 = Strongly disagree KnowledgeShrg 6 = Strongly Agree 7 = Agree 8 = Neutral 9 = Disagree 10 = Strongly disagree Contact 11 = Strongly Agree 12 = Agree 13 = Neutral 14 = Disagree 15 = Strongly disagree PeertopeerLrng 16 = Strongly Agree 17 = Agree 18 = Neutral 19 = Disagree 20 = Strongly disagree CollabWorkSupport 21 = Strongly Agree 22 = Agree 23 = Neutral 24 = Disagree 25 = Strongly disagree EncouragePrtcpn

			26 = Strongly Agree 27 = Agree 28 = Neutral 29 = Disagree 30 = Strongly disagree CreatingPLN 31 = Strongly Agree 32 = Agree 33 = Neutral 34 = Disagree 35 = Strongly disagree FacilitatingIntrnwithOppSex 36 = Strongly Agree 37 = Agree 38 = Neutral 39 = Disagree 40 = Strongly disagree ContactingAuth 41 = Strongly Agree 42 = Agree 43 = Neutral 44 = Disagree 45 = Strongly disagree KeepingUpdts 46 = Strongly Agree 47 = Agree 48 = Neutral 49 = Disagree 50 = Strongly disagree
24	Success criteria for academic use of SM	SuccsCrterForAcadUseOfSM	SupportSMbyUni 1 = Extremely important 2 = Very important 3 = Neutral 4 = Unimportant 5 = Very unimportant StndtTchrPrtcpn 6 = Extremely important 7 = Very important 8 = Neutral 9 = Unimportant 10 = Very unimportant PrprUse 11 = Extremely important 12 = Very important 13 = Neutral 14 = Unimportant

			15 = Very unimportant ResdgnCurr 16 = Extremely important 17 = Very important 18 = Neutral 19 = Unimportant 20 = Very unimportant ImprvIntntConn 21 = Extremely important 22 = Very important 23 = Neutral 24 = Unimportant 25 = Very unimportant ImprvSecandPrvcy 26 = Extremely important 27 = Very important 28 = Neutral 29 = Unimportant 30 = Very unimportant
25	Barriers to SM usage	BarrsToSMUsg	PrivacyIssues 1 = Strongly Agree 2 = Agree 3 = Neutral 4 = Disagree 5 = Strongly disagree TimeWstg 6 = Strongly Agree 7 = Agree 8 = Neutral 9 = Disagree 10 = Strongly disagree UniLackofSpprt 11 = Strongly Agree 12 = Agree 13 = Neutral 14 = Disagree 15 = Strongly disagree DstrctnsandLossofFcs 16 = Strongly Agree 17 = Agree 18 = Neutral 19 = Disagree 20 = Strongly disagree SecrtyIssues 21 = Strongly Agree 22 = Agree

			23 = Neutral 24 = Disagree 25 = Strongly disagree LtdBndwdth 26 = Strongly Agree 27 = Agree 28 = Neutral 29 = Disagree 30 = Strongly disagree UnfamiliaritywthFtrs 31 = Strongly Agree 32 = Agree 33 = Neutral 34 = Disagree 35 = Strongly disagree InfoIntegrty 36 = Strongly Agree 37 = Agree 38 = Neutral 39 = Disagree 40 = Strongly disagree LackofCommtandPartpn. 41 = Strongly Agree 42 = Agree 43 = Neutral 44 = Disagree 45 = Strongly disagree ImprprUse 46 = Strongly Agree 47 = Agree 48 = Neutral 49 = Disagree 50 = Strongly disagree
26	Influence of gender on SM usage	InflnceOfGndrOnSMUsg	1 = Yes 2 = No
27	Influence of academic discipline on SM usage	InflnceOfAcadDisplOnSMUsg	1 = Yes 2 = No
28	University support for use of SM	UnvrstySupprtForUseOfSM	1 = Yes 2 = No
29	University social media policy	UnvrstySoclMedPlcy	1 = Yes 2 = No
30	Further contact	FrthrCntct	1 = Custom Value
31	Reasons for not using SM	RsnsForNtUsgSM	1 = Not interested 2 = Lack of technologies that support the use of social media 3 = Concern about privacy and security issues.

			4 = Don’t know how to use it. 5 = Waste of time 6 = Not useful in my study 7 = Teacher not using/ resistance SM 8 = Other

APPENDIX M: Administrators' Survey Codebook

	Variable	SPSS Variable	Coding Instructions
1	University	University	1 = Prince Nourah University 2 = King Saude University 3 = Al-Emam University 4 = Other
2	Department	Department	1 = University Management / Administration 2 = Research Center/ Institutes 3 = Vice Rectorate 4 = Students Supports 5 = Faculty/ Colleges 6 = Deanship/ Associate Deanship 7 = Libraries
3	Position	Position	1 = Director of university 2 = Vice Rectorate 3 = Dean 4 = Head of Department 5 = Admin 6 = Other
4	University Use of SM (yes/no)	UnvrstyUseOfSM	1 = Yes 2 = No, Skip to: 15
5	University SM Policy (yes/no)	UnvrstySMPlcy	1 = Yes 2 = No
6	Dedicated Admin for SM (yes/no)	DedctdAdmnForSM	1 = Yes 2 = No
7	Role in SM administration	RoleInSMAdmn	1 = University's Administrator 2 = College / Faculty's Administrator 3 = Department's Administrator
8	Perceived Importance of SM in Academics	PrcvdImprtncOfSMinAcad	SNS 1 = Extremely important 2 = Important 3 = Neutral 4 = Unimportant 5 = Not at all Important Blogs 6 = Extremely important 7 = Important 8 = Neutral 9 = Unimportant 10 = Not at all Important CollabPrjcts 11 = Extremely important 12 = Important 13 = Neutral 14 = Unimportant

			15 = Not at all Important ContentComm 16 = Extremely Important 17 = Important 18 = Neutral 19 = Unimportant 20 = Not at all Important
9	University Reasons for SM Presence	UnvrstyRsnsForSMPrsnc	1 = Wanted to experiment with social media 2 = Competitors were using social media 3 = Taking advantage of affordable technology 4 = University-wide mission and vision 5 = Directive from top management 6 = Students friendly tools 7 = Facilitate teaching and learning 8 = Other
10	University SM targets	UnvrstySMrgts	1 = Potential Students / Parents 2 = Existing Students / Parents 3 = Staff 4 = Alumni 5 = Public 6 = Other
11	Intentions behind University SM usage	IntntsBhndUnvrstySMUsg	1 = Better communication with potential students and parents 2 = Better communication with current students and their parents 3 = Provide better service and satisfaction among users 4 = Updating university / faculty / student's activities and events 5 = Increase awareness about university 6 = Reduced communication costs 7 = Better marketing of products / services 8 = Other
12	Frequency of SM updating	FrqncyOfSMUpdtng	1 = Never 2 = Daily 3 = Weekly 4 = Monthly 5 = Once per term 6 = Yearly
13	Concerns about SM Usage	CncrnsAbtSMUsg	1 = Limited internet bandwidth. 2 = Lack of technologies that support the use of social media 3 = University is Blocking some of SM applications 4 = Students /teachers unfamiliar with the functionalities / features of SM 5 = Integrity with information 6 = Privacy and security issues

			7 = Other
14	Further contact	FrthrCntct	1 = Custom Value
15	Reasons for University not using SM	RsnsForUnvrstyNtUsgSM	1 = Not interested 2 = Don't have technologies that support the use of social media 3 = Concern about privacy and security issues 4 = Don't know how to use it 5 = Do not see the benefits of using SM 6 = Teacher not using/ resistance SM 7 = Other

APPENDIX N: Nature of Variables for Student Survey

	Variable	SPSS Variable	Nature	Reasoning for Nature
1	Age	Age	Independent	
2	Gender	Gender	Independent	
3	Nationality	Nationality	*NA*	*This variable is used only to determine if the participant is eligible for the survey or not.*
4	University	University	Independent	
5	Level of study (studying)	LvlofStudy	Independent	May depend on age. But since the purpose of the survey is not to establish a relationship between these variables, it is treated as independent variable.
6	Academic discipline (studying)	AcadDispl	Independent	
7	Device ownership	DvcOwnshp	Independent	May depend on age, gender etc but since the purpose of the survey is not to establish a relationship between these variables, it is treated as independent variable.
8	Average daily time spent online	AvgDlyTmeSpntOnline	Dependent	May depend on 1, 2, 4, 5, 6. Because it is possible that some universities/courses encourage/restrict the use of online content during classes which may affect the average time.
9	Everyday Use of SM (yes/no)	GnrlUseOfSM	Dependent	May depend on 1, 2. Unlikely to depend on other 3 as this is about general usage.
10	Purpose of using SM for general	PrpsOfUsngSMForGnrl	Dependent	May depend on 1, 2. Unlikely to depend on other 3 as this is about general usage.
11	Specific SM used for general purposes	SpfcSMUsdForGnrlPrps	Dependent	May depend on 1, 2. Unlikely to depend on other 3 as this is about general usage.
12	Frequency of SM use for general purposes	FrqncyOfSMUseforGnrlPrps	Dependent	May depend on 1, 2. Unlikely to depend on other 3 as this is about general usage.

13	Academic use of SM	AcadUseOfSM	Dependent	May depend on 1, 2, 4, 5, 6 since this is about academic usage of SM.
14	Specific SM used for academic purposes	SpfcSMUsdfForAcadPrps	Dependent	May depend on 1, 2, 4, 5, 6 since this is about academic usage of SM.
15	Frequency of SM use for academic purposes	FrqncyOfSMUseForAcadPrps	Dependent	May depend on 1, 2, 4, 5, 6 since this is about academic usage of SM.
16	Years of experience using SM	YrsOfExpUsngSM	Dependent	May depend on 1, 2, 4, 5, 6. (4,5 and 6 because years of experience may also depend on use within University and the needs of their field of study)
17	Extent of SM dependency for studies	ExtOfSMDpdncyForStdnts	Dependent	May depend on 1, 2, 4, 5, 6.
18	Enhancement of studies using SM (yes/no)	EnchmntOfStudiesUsgSM	Dependent	May depend on 1, 2, 4, 5, 6 (4,5 and 6 because it depends on the usefulness of their University's SM implementation, and the specific needs of their course/level)
19	Purpose of using SM for academic	PrpsOfUsgSMForAcad	Dependent	May depend on 1, 2, 4, 5, 6.
20	Importance of various SM features	ImprtncOfVarsSMFtrs	Dependent	May depend on 1, 2, 4, 5, 6. Some features may be more important for some depending on the needs of their study.
21	Benefits of SM	BnftsOfSM	Dependent	May depend on 1, 2, 4, 5, 6. Some features may be more beneficial for some depending on the needs of their study and the usefulness of their University's SM implementation.
22	Teachers' use of SM	TchrsUseOfSM	Independent	

23	Teachers' purpose of using SM	TchrsPrpsOfUsngSM	Independent	
24	Barriers to SM usage	BarrsToSMUsg	Dependent	May depend on 1, 2, 4, 5, 6. Some barriers may be specific to certain universities, fields or levels of study.
25	Success criteria for academic use of SM	SuccsCrterForAcadUseOfSM	Dependent	May depend on 1, 2, 4, 5, 6. May depend on the needs of their study and the usefulness of their University's SM implementation.
26	Influence of gender on SM usage	InflnceOfGndrOnSMUsg	Dependent	May depend on 1,2. This question needs further probing in interviews to yield meaningful results.
27	Influence of academic discipline on SM usage	InflnceOfAcadDisplOnSMUsg	Dependent	May depend on 1,2,4,5,6. This question needs further probing in interviews to yield meaningful results.
28	*Further contact*	*FrthrCntct*	*NA*	*This variable is used only to determine participants willing to be contacted for interviews*
29	Reasons for not using SM	*RsnsForNtUsgSM*	Dependent	May depend on 1, 2, 4, 5, 6. Participants of certain age, gender etc may experience more barriers compared to others. Also, it may depend on their University's support, field of study, discipline etc.

APPENDIX O: Nature of Variables for Academics' Survey

	Variable	SPSS Variable Name	Nature	Reasoning (for dependent/independent)
1	Age	Age	Independent	
2	Gender	Gender	Independent	
3	Nationality	Nationality	*NA*	*This variable is used only to determine if the participant is eligible for the survey or not.*
4	University	University	Independent	
5	Highest Qualification	HghstQual	Independent	
6	Years of experience	YrsOfExp	Independent	
7	Academic discipline (teaching)	AcadDispl	Independent	
8	Level of study (teaching)	LvlofStdy	Independent	May depend on age, qualification, years of experience etc. But since the purpose of the survey is not to establish a relationship between these variables, it is treated as independent variable.
9	Device ownership	DvcOwnshp	Independent	May depend on age, gender etc but since the purpose of the survey is not to establish a relationship between these variables, it is treated as independent variable.
10	Average daily time spent online	AvgDlyTmeSpntOnline	Dependent	May depend on 1, 2, 4, 7, 8, 28, 29. Because it is possible that some universities/courses encourage/restrict the use of online content during classes which may affect the average time.
11	Everyday Use of SM (yes/no)	GnrlUseOfSM	Dependent	May depend on 1, 2. Unlikely to depend on others as this is about general usage.
12	Purpose of using SM for general	PrpsOfUsngSMForGnrl	Dependent	May depend on 1, 2. Unlikely to depend on others as this is about general usage.

13	Specific SM used for general purposes	SpfcSMUsdfForAcadPrps	Dependent	May depend on 1, 2. Unlikely to depend on others as this is about general usage.
14	Frequency of SM use for general purposes	FrqncyOfSMUseForAcadPrps	Dependent	May depend on 1, 2. Unlikely to depend on others as this is about general usage.
15	Academic use of SM (to support teaching/learning)	AcadUseOfSM(Spprt tchng/lrng)	Dependent	May depend on 1, 2, 4, 5, 6, 7, 8, 28, 29 since this is about academic usage of SM.
16	Specific SM used for academic purposes	SpfcSMUsdfForAcadPrps	Dependent	May depend on 1, 2, 4, 5, 6, 7, 8, 28, 29 since this is about academic usage of SM.
17	Frequency of SM use for academic purposes	FrqncyOfSMUseForAcadPrps	Dependent	May depend on 1, 2, 4, 5, 6, 7, 8, 28, 29 since this is about academic usage of SM.
18	Years of experience using SM	YrsOfExpUsngSM	Dependent	May depend on 1, 2, 4, 5, 6, 7, 8, 28, 29 (because years of experience may also depend on use within University and the needs of their field of teaching)
19	Extent of SM dependency for teaching/learning	ExtOfSMDpdncyForTchng	Dependent	May depend on 1, 2, 4, 5, 6, 7, 8, 28, 29
20	Enhancement of teaching/learning using SM (yes/no)	EnchmntOfTchngUsgSM	Dependent	May depend on 1, 2, 4, 5, 6, 7, 8 (4,5 and 6 because it depends on the usefulness of their University's SM implementation, the specific needs of their course/level and the number of years of experience in teaching)

21	Purpose of using SM for teaching/learning	PrpsOfUsgSMForTchng	Dependent	May depend on 1, 2, 4, 5, 6, 7, 8, 28, 29
22	Importance of various SM features	ImprtncOfVarsSMFtrs	Dependent	May depend on 1, 2, 4, 5, 6, 7, 8. Some features may be more important for some depending on their needs.
23	Benefits of SM	BnftsOfSM	Dependent	May depend on 1, 2, 4, 5, 6, 7, 8. Some features may be more beneficial for some depending on the needs of their study and the usefulness of their University's SM implementation.
24	Success criteria for academic use of SM	SuccsCrterForAcadUseOfSM	Dependent	May depend on 1, 2, 4, 5, 6, 7, 8, 28, 29. May depend on the needs of their study and the usefulness of their University's SM implementation, support, social media policy etc.
25	Barriers to SM usage	BarrsToSMUsg	Dependent	May depend on 1, 2, 4, 5, 6, 7, 8, 28, 29. Some barriers may be specific to certain universities, fields or levels of study. May also be affected by the number of years of experience they have.
26	Influence of gender on SM usage	InflnceOfGndrOnSMUsg	Dependent	May depend on 1,2. This question needs further probing in interviews to yield meaningful results.
27	Influence of academic discipline on SM usage	InflnceOfAcadDisplOnSMUsg	Dependent	May depend on 1, 2, 4, 5, 6, 7, 8. This question needs further probing in interviews to yield meaningful results.
28	University support for use of SM	UnvrstySupprtForUseOfSM	Independent	
29	University social media policy	UnvrstySoclMedPlcy	Independent	

30	Further contact	FrthrCntct	*NA*	*This variable is used only to determine participants willing to be contacted for interviews*
31	Reasons for not using SM	RsnsForNtUsgSM	Dependent	May depend on 1, 2, 4, 5, 6, 7, 8, 28, 29.

APPENDIX P: Nature of Variables for Admin Survey

	Variable	SPSS Variable Name	Nature	Reasoning (for dependent/independent)
1	University	University	Independent	
2	Department	Department	Independent	
3	Position	Position	Independent	
4	University Use of SM (yes/no)	UnvrstyUseOfSM	Dependent	May depend on 9,10,11 and 13
5	University SM Policy (yes/no)	UnvrstySMPlcy	Dependent	May depend on 9,10,11 and 13
6	Dedicated Admin for SM (yes/no)	DedctdAdmnForSM	Dependent	May depend on 4, 5, 9, 10, 11 and 13 as the need for a dedicated admin may be dictated by the University's social media policy, use, goals etc.
7	Role in SM administration	RoleInSMAdmn	Dependent	May depend on 4, 5, 6, 9, 10, 11 and 13 as the individual's role may be dependent on University's social media usage, policy, goals, availability of dedicated admin etc.
8	Perceived Importance of SM in Academics	PrcvdImprtncOfSMinAcad	Dependent	May depend on 2,3,4,5,6 and 7
9	University Reasons for SM Presence	UnvrstyRsnsForSMPrsnc	Independent	
10	University SM targets	UnvrstySMrgts	Dependent	May depend on 9

11	Intentions behind University SM usage	IntntsBhndUnvrstySMUsg	Independent	
12	Frequency of SM updating	FrqncyOfSMUpdtng	Dependent	May depend on 4, 5, 6, 9, 10 and 11
13	Concerns about SM Usage	CncrnsAbtSMUsg	Independent	
14	Further contact	FrthrCntct	*NA*	*This variable is used only to determine participants willing to be contacted for interviews*
15	Reasons for University not using SM	RsnsForUnvrstyNtUsgSM	Dependent	May depend on 13

APPENDIX Q: Analysis Tests for Participant Groups

Students analysis tests

- Age and frequency of general use of SMs

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Frequency of Use - SNS	Between Groups	443.488	4	110.872	52.960	.000
	Within Groups	2080.944	994	2.094		
	Total	2524.432	998			
Frequency of Use - Blogs	Between Groups	7.558	4	1.889	1.974	.096
	Within Groups	951.507	994	.957		
	Total	959.065	998			
Frequency of Use - Collaborative Projects	Between Groups	4.341	4	1.085	2.092	.080
	Within Groups	515.171	993	.519		
	Total	519.512	997			
Frequency of Use - Content Communities	Between Groups	37.023	4	9.256	8.343	.000
	Within Groups	1100.594	992	1.109		
	Total	1137.617	996			

-Age and frequency of academic use of SMs

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Frequency of Academic Use - SNS	Between Groups	262.806	4	65.701	32.555	.000
	Within Groups	1909.184	946	2.018		
	Total	2171.989	950			
Frequency of Academic Use - Blogs	Between Groups	3.571	4	.893	4.941	.001
	Within Groups	170.911	946	.181		
	Total	174.482	950			
Frequency of Academic Use - Collaborative Projects	Between Groups	1.485	4	.371	1.129	.341
	Within Groups	311.506	947	.329		
	Total	312.992	951			
Frequency of Academic Use - Content Communities	Between Groups	19.947	4	4.987	13.075	.000
	Within Groups	361.192	947	.381		
	Total	381.139	951			

Multiple Comparisons

Tukey HSD

Dependent Variable	(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Frequency of Academic Use - SNS	18-20 years	21-23 years	-.244-	.124	.281	-.58-	.09
		24-26 years	-.120-	.140	.914	-.50-	.26
		27-29 years	-.047-	.175	.999	-.53-	.43
		Above 30	-1.668-*	.160	.000	-2.10-	-1.23-
	21-23 years	18-20 years	.244	.124	.281	-.09-	.58
		24-26 years	.124	.130	.876	-.23-	.48
		27-29 years	.197	.167	.765	-.26-	.65
		Above 30	-1.425-*	.151	.000	-1.84-	-1.01-
	24-26 years	18-20 years	.120	.140	.914	-.26-	.50
		21-23 years	-.124-	.130	.876	-.48-	.23
		27-29 years	.073	.180	.994	-.42-	.56
		Above 30	-1.549-*	.165	.000	-2.00-	-1.10-
	27-29 years	18-20 years	.047	.175	.999	-.43-	.53
		21-23 years	-.197-	.167	.765	-.65-	.26
		24-26 years	-.073-	.180	.994	-.56-	.42
		Above 30	-1.621-*	.195	.000	-2.15-	-1.09-
	Above 30	18-20 years	1.668*	.160	.000	1.23	2.10
		21-23 years	1.425*	.151	.000	1.01	1.84
		24-26 years	1.549*	.165	.000	1.10	2.00
		27-29 years	1.621*	.195	.000	1.09	2.15

Frequency of Academic Use - Blogs	18-20 years	21-23 years	.148*	.037	.001	.05	.25
		24-26 years	.079	.042	.323	-.04-	.19
		27-29 years	.112	.052	.206	-.03-	.26
		Above 30	.164*	.048	.006	.03	.29
	21-23 years	18-20 years	-.148-*	.037	.001	-.25-	-.05-
		24-26 years	-.069-	.039	.396	-.18-	.04
		27-29 years	-.036-	.050	.952	-.17-	.10
		Above 30	.016	.045	.997	-.11-	.14
	24-26 years	18-20 years	-.079-	.042	.323	-.19-	.04
		21-23 years	.069	.039	.396	-.04-	.18
		27-29 years	.033	.054	.974	-.11-	.18
		Above 30	.085	.049	.424	-.05-	.22
	27-29 years	18-20 years	-.112-	.052	.206	-.26-	.03
		21-23 years	.036	.050	.952	-.10-	.17
		24-26 years	-.033-	.054	.974	-.18-	.11
		Above 30	.052	.058	.901	-.11-	.21
	Above 30	18-20 years	-.164-*	.048	.006	-.29-	-.03-
		21-23 years	-.016-	.045	.997	-.14-	.11
		24-26 years	-.085-	.049	.424	-.22-	.05
		27-29 years	-.052-	.058	.901	-.21-	.11
Frequency of Academic Use - Collaborative Projects	18-20 years	21-23 years	.052	.050	.831	-.08-	.19
		24-26 years	.063	.057	.800	-.09-	.22
		27-29 years	-.015-	.071	1.000	-.21-	.18
		Above 30	.116	.064	.372	-.06-	.29
	21-23 years	18-20 years	-.052-	.050	.831	-.19-	.08
		24-26 years	.011	.053	1.000	-.13-	.15
		27-29 years	-.067-	.067	.857	-.25-	.12
		Above 30	.064	.061	.834	-.10-	.23
	24-26 years	18-20 years	-.063-	.057	.800	-.22-	.09
		21-23 years	-.011-	.053	1.000	-.15-	.13
		27-29 years	-.078-	.073	.821	-.28-	.12
		Above 30	.053	.066	.931	-.13-	.23
	27-29 years	18-20 years	.015	.071	1.000	-.18-	.21
		21-23 years	.067	.067	.857	-.12-	.25
		24-26 years	.078	.073	.821	-.12-	.28
		Above 30	.131	.079	.459	-.08-	.35
	Above 30	18-20 years	-.116-	.064	.372	-.29-	.06
		21-23 years	-.064-	.061	.834	-.23-	.10
		24-26 years	-.053-	.066	.931	-.23-	.13
		27-29 years	-.131-	.079	.459	-.35-	.08
Frequency of Academic Use - Content Communities	18-20 years	21-23 years	-.182-*	.054	.006	-.33-	-.04-
		24-26 years	-.097-	.061	.503	-.26-	.07
		27-29 years	-.031-	.076	.994	-.24-	.18
		Above 30	-.472-*	.069	.000	-.66-	-.28-
	21-23 years	18-20 years	.182*	.054	.006	.04	.33
		24-26 years	.085	.057	.556	-.07-	.24
		27-29 years	.151	.073	.230	-.05-	.35
		Above 30	-.289-*	.065	.000	-.47-	-.11-
	24-26 years	18-20 years	.097	.061	.503	-.07-	.26
		21-23 years	-.085-	.057	.556	-.24-	.07
		27-29 years	.066	.078	.918	-.15-	.28
		Above 30	-.375-*	.072	.000	-.57-	-.18-
	27-29 years	18-20 years	.031	.076	.994	-.18-	.24
		21-23 years	-.151-	.073	.230	-.35-	.05
		24-26 years	-.066-	.078	.918	-.28-	.15
		Above 30	-.441-*	.085	.000	-.67-	-.21-
	Above 30	18-20 years	.472*	.069	.000	.28	.66
		21-23 years	.289*	.065	.000	.11	.47
		24-26 years	.375*	.072	.000	.18	.57
		27-29 years	.441*	.085	.000	.21	.67

-Level of study and frequency of use SM for academic purpose

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Frequency of Academic Use - SNS	Between Groups	274.391	2	137.195	68.540	.000
	Within Groups	1897.599	948	2.002		
	Total	2171.989	950			
Frequency of Academic Use - Blogs	Between Groups	.909	2	.455	2.483	.084
	Within Groups	173.572	948	.183		
	Total	174.482	950			
Frequency of Academic Use - Collaborative Projects	Between Groups	.903	2	.452	1.374	.254
	Within Groups	312.088	949	.329		
	Total	312.992	951			
Frequency of Academic Use - Content Communities	Between Groups	14.873	2	7.436	19.268	.000
	Within Groups	366.266	949	.386		
	Total	381.139	951			

Multiple Comparisons

Tukey HSD

Dependent Variable	(I) Level of Study	(J) Level of Study	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound
Frequency of Academic Use - SNS	Undergraduate	Postgraduate (Masters degree)	.147	.099	.300	-.09-
		Postgraduate (M.Phil, Doctoral etc)	-1.464-*	.139	.000	-1.79-
	Postgraduate (Masters degree)	Undergraduate	-.147-	.099	.300	-.38-
		Postgraduate (M.Phil, Doctoral etc)	-1.612-*	.143	.000	-1.95-
	Postgraduate (M.Phil, Doctoral etc)	Undergraduate	1.464*	.139	.000	1.14
		Postgraduate (Masters degree)	1.612*	.143	.000	1.28
Frequency of Academic Use - Blogs	Undergraduate	Postgraduate (Masters degree)	.022	.030	.738	-.05-
		Postgraduate (M.Phil, Doctoral etc)	.094	.042	.067	-.01-
	Postgraduate (Masters degree)	Undergraduate	-.022-	.030	.738	-.09-
		Postgraduate (M.Phil, Doctoral etc)	.072	.043	.221	-.03-
	Postgraduate (M.Phil, Doctoral etc)	Undergraduate	-.094-	.042	.067	-.19-
		Postgraduate (Masters degree)	-.072-	.043	.221	-.17-
Frequency of Academic Use - Collaborative Projects	Undergraduate	Postgraduate (Masters degree)	.058	.040	.326	-.04-
		Postgraduate (M.Phil, Doctoral etc)	.071	.056	.420	-.06-
	Postgraduate (Masters degree)	Undergraduate	-.058-	.040	.326	-.15-
		Postgraduate (M.Phil, Doctoral etc)	.013	.058	.971	-.12-
	Postgraduate (M.Phil, Doctoral etc)	Undergraduate	-.071-	.056	.420	-.20-
		Postgraduate (Masters degree)	-.013-	.058	.971	-.15-
Frequency of Academic Use - Content Communities	Undergraduate	Postgraduate (Masters degree)	-.029-	.044	.780	-.13-
		Postgraduate (M.Phil, Doctoral etc)	-.371-*	.061	.000	-.51-
	Postgraduate (Masters degree)	Undergraduate	.029	.044	.780	-.07-
		Postgraduate (M.Phil, Doctoral etc)	-.341-*	.063	.000	-.49-
	Postgraduate (M.Phil, Doctoral etc)	Undergraduate	.371*	.061	.000	.23
		Postgraduate (Masters degree)	.341*	.063	.000	.19

-Dependency and university

ANOVA

Extent of SMT dependency for studies

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	9.963	2	4.982	12.633	.000
Within Groups	373.034	946	.394		
Total	382.997	948			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Extent of SMT dependency for studies

Tukey HSD

(I) University	(J) University	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Princess Nourah University	King Saud University	.158*	.050	.005	.04	.28
	Al-Emam University	-.082-	.051	.244	-.20-	.04
King Saud University	Princess Nourah University	-.158-*	.050	.005	-.28-	-.04-
	Al-Emam University	-.240-*	.049	.000	-.35-	-.13-
Al-Emam University	Princess Nourah University	.082	.051	.244	-.04-	.20
	King Saud University	.240*	.049	.000	.13	.35

-Dependency and academic discipline

ANOVA

Extent of SMT dependency for studies

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	11.723	2	5.861	14.933	.000
Within Groups	370.922	945	.393		
Total	382.645	947			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Extent of SMT dependency for studies

Tukey HSD

(I) Decipline group	(J) Decipline group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	-.289-*	.058	.000	-.43-	-.15-
	3.00	-.118-	.060	.122	-.26-	.02
2.00	1.00	.289*	.058	.000	.15	.43
	3.00	.171*	.045	.000	.07	.28
3.00	1.00	.118	.060	.122	-.02-	.26
	2.00	-.171-*	.045	.000	-.28-	-.07-

*. The mean difference is significant at the 0.05 level.

-Enhancement of studies using SMTs

ANOVA

Enhancement of studies using SMTs

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8.836	2	4.418	20.163	.000
Within Groups	207.497	947	.219		
Total	216.333	949			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Enhancement of studies using SMTs
Tukey HSD

(I) Level of Study	(J) Level of Study	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Undergraduate	Postgraduate (Masters degree)	-.193-*	.033	.000	-.27-	-.12-
	Postgraduate (M.Phil, Doctoral etc)	-.194-*	.046	.000	-.30-	-.09-
Postgraduate (Masters degree)	Undergraduate	.193*	.033	.000	.12	.27
	Postgraduate (M.Phil, Doctoral etc)	-.001-	.047	1.000	-.11-	.11
Postgraduate (M.Phil, Doctoral etc)	Undergraduate	.194*	.046	.000	.09	.30
	Postgraduate (Masters degree)	.001	.047	1.000	-.11-	.11

-Enhancement of studies and academic discipline

ANOVA

Enhancement of studies using SMTs

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.287	2	1.644	7.299	.001
Within Groups	213.029	946	.225		
Total	216.316	948			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Enhancement of studies using SMTs
Tukey HSD

(I) Decipline group	(J) Decipline group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	-.166-*	.044	.000	-.27-	-.06-
	3.00	-.107-*	.045	.049	-.21-	.00
2.00	1.00	.166*	.044	.000	.06	.27
	3.00	.059	.034	.190	-.02-	.14
3.00	1.00	.107*	.045	.049	.00	.21
	2.00	-.059-	.034	.190	-.14-	.02

-Importance of features and Age

Reliability Statistics

Cronbach's Alpha	N of Items
.706	6

ANOVA

ImportanceAvrage

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	115.925	4	28.981	214.363	.000
Within Groups	128.166	948	.135		
Total	244.091	952			

Multiple Comparisons

Dependent Variable: ImportanceAvrage
Tukey HSD

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
18-20 years	21-23 years	.09767*	.03195	.019	.0103	.1850
	24-26 years	.21411*	.03632	.000	.1149	.3134
	27-29 years	.26474*	.04536	.000	.1408	.3887
	Above 30	1.12491*	.04126	.000	1.0121	1.2377
21-23 years	18-20 years	-.09767-*	.03195	.019	-.1850-	-.0103-
	24-26 years	.11644*	.03365	.005	.0245	.2084
	27-29 years	.16707*	.04326	.001	.0489	.2853
	Above 30	1.02724*	.03894	.000	.9208	1.1337
24-26 years	18-20 years	-.21411-*	.03632	.000	-.3134-	-.1149-
	21-23 years	-.11644-*	.03365	.005	-.2084-	-.0245-
	27-29 years	.05063	.04657	.813	-.0767-	.1779
	Above 30	.91081*	.04260	.000	.7944	1.0272
27-29 years	18-20 years	-.26474-*	.04536	.000	-.3887-	-.1408-
	21-23 years	-.16707-*	.04326	.001	-.2853-	-.0489-
	24-26 years	-.05063-	.04657	.813	-.1779-	.0767
	Above 30	.86017*	.05053	.000	.7221	.9983
Above 30	18-20 years	-1.12491-*	.04126	.000	-1.2377-	-1.0121-
	21-23 years	-1.02724-*	.03894	.000	-1.1337-	-.9208-
	24-26 years	-.91081-*	.04260	.000	-1.0272-	-.7944-
	27-29 years	-.86017-*	.05053	.000	-.9983-	-.7221-

-Level of study and importance of features

ANOVA

ImportanceAvrage

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	119.160	2	59.580	453.061	.000
Within Groups	124.931	950	.132		
Total	244.091	952			

-Reliability of breceived barriers

Reliability Statistics

Cronbach's Alpha	N of Items
.700	6

-Gender and breceived barriers

Independent Samples Test

		Levene's Test for Equality of Variances		t	df
		F	Sig.		
BarriersAvr	Equal variances assumed	57.056	.000	-8.602-	953
	Equal variances not assumed			-8.023-	622.748

-Universities and breceived barriers

ANOVA

BarriersAvr

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.213	2	1.607	4.262	.014
Within Groups	358.894	952	.377		
Total	362.107	954			

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Privacy issues	Between Groups	5.783	2	2.891	6.852	.001
	Within Groups	401.329	951	.422		
	Total	407.112	953			
Lack of support by the university	Between Groups	7.202	2	3.601	4.493	.011
	Within Groups	763.055	952	.802		
	Total	770.258	954			
Distraction and wastage of time	Between Groups	2.977	2	1.489	3.780	.023
	Within Groups	374.466	951	.394		
	Total	377.443	953			
Security issues	Between Groups	8.089	2	4.045	5.010	.007
	Within Groups	768.554	952	.807		
	Total	776.643	954			
Limited internet bandwidth	Between Groups	2.283	2	1.141	.718	.488
	Within Groups	1512.821	952	1.589		
	Total	1515.104	954			
Unfamiliarity with the functionalities/features	Between Groups	2.470	2	1.235	.754	.471
	Within Groups	1558.625	952	1.637		
	Total	1561.095	954			

Multiple Comparisons

Tukey HSD

Dependent Variable	(I) University	(J) University	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Privacy issues	Princess Nourah University	King Saud University	.097	.052	.147	-.02-	.22
		Al-Emam University	.196*	.053	.001	.07	.32
	King Saud University	Princess Nourah University	-.097-	.052	.147	-.22-	.02
		Al-Emam University	.098	.050	.124	-.02-	.22
	Al-Emam University	Princess Nourah University	-.196-*	.053	.001	-.32-	-.07-
		King Saud University	-.098-	.050	.124	-.22-	.02
Lack of support by the university	Princess Nourah University	King Saud University	.213*	.071	.008	.05	.38
		Al-Emam University	.134	.073	.158	-.04-	.30
	King Saud University	Princess Nourah University	-.213-*	.071	.008	-.38-	-.05-
		Al-Emam University	-.080-	.069	.484	-.24-	.08
	Al-Emam University	Princess Nourah University	-.134-	.073	.158	-.30-	.04
		King Saud University	.080	.069	.484	-.08-	.24
Distraction and wastage of time	Princess Nourah University	King Saud University	.052	.050	.555	-.07-	.17
		Al-Emam University	.138*	.051	.019	.02	.26
	King Saud University	Princess Nourah University	-.052-	.050	.555	-.17-	.07
		Al-Emam University	.086	.049	.179	-.03-	.20
	Al-Emam University	Princess Nourah University	-.138-*	.051	.019	-.26-	-.02-
		King Saud University	-.086-	.049	.179	-.20-	.03
Security issues	Princess Nourah University	King Saud University	.147	.072	.102	-.02-	.32
		Al-Emam University	.229*	.073	.005	.06	.40
	King Saud University	Princess Nourah University	-.147-	.072	.102	-.32-	.02
		Al-Emam University	.083	.069	.458	-.08-	.25
	Al-Emam University	Princess Nourah University	-.229-*	.073	.005	-.40-	-.06-
		King Saud University	-.083-	.069	.458	-.25-	.08
Limited internet bandwidth	Princess Nourah University	King Saud University	.120	.101	.456	-.12-	.36
		Al-Emam University	.059	.103	.832	-.18-	.30
	King Saud University	Princess Nourah University	-.120-	.101	.456	-.36-	.12
		Al-Emam University	-.061-	.097	.805	-.29-	.17
	Al-Emam University	Princess Nourah University	-.059-	.103	.832	-.30-	.18
		King Saud University	.061	.097	.805	-.17-	.29
Unfamiliarity with the functionalities/features	Princess Nourah University	King Saud University	.112	.102	.515	-.13-	.35
		Al-Emam University	.014	.104	.990	-.23-	.26
	King Saud University	Princess Nourah University	-.112-	.102	.515	-.35-	.13
		Al-Emam University	-.099-	.099	.580	-.33-	.13
	Al-Emam University	Princess Nourah University	-.014-	.104	.990	-.26-	.23
		King Saud University	.099	.099	.580	-.13-	.33

*. The mean difference is significant at the 0.05 level.

Teachers Analysis test

-Age and average time

Correlations

			Age	Average delay time spent online
Kendall's tau_b	Age	Correlation Coefficient	1.000	-.202*
		Sig. (2-tailed)	.	.037
		N	83	83
	Average delay time spent online	Correlation Coefficient	-.202*	1.000
		Sig. (2-tailed)	.037	.
		N	83	83

-University with dependency

	Extent of SM dependency for studies
Kruskal-Wallis H	7.336
Df	2
Asymp. Sig.	.026

Mann-Whitney Test

Ranks

	University	N	Mean Rank	Sum of Ranks
Extent of SMT dependency for studies	King Saud University	32	24.70	790.50
	Al-Emam University	27	36.28	979.50
	Total	59		

Test Statistics[a]

	Extent of SMT dependency for studies
Mann-Whitney U	262.500
Wilcoxon W	790.500
Z	-2.674
Asymp. Sig. (2-tailed)	.007

a. Grouping Variable: University

Mann-Whitney Test

Ranks

	University	N	Mean Rank	Sum of Ranks
Extent of SMT dependency for studies	Prince Nourah University	23	23.30	536.00
	Al-Emam University	27	27.37	739.00
	Total	50		

Test Statistics[a]

	Extent of SMT dependency for studies
Mann-Whitney U	260.000
Wilcoxon W	536.000
Z	-1.040
Asymp. Sig. (2-tailed)	.298

a. Grouping Variable: University

Mann-Whitney Test

Ranks

	University	N	Mean Rank	Sum of Ranks
Extent of SMT dependency for studies	Prince Nourah University	23	31.67	728.50
	King Saud University	32	25.36	811.50
	Total	55		

Test Statistics[a]

	Extent of SMT dependency for studies
Mann-Whitney U	283.500
Wilcoxon W	811.500
Z	-1.489
Asymp. Sig. (2-tailed)	.137

a. Grouping Variable: University

- University and importance of features

Kruskal-Wallis Test

Ranks

	University	N	Mean Rank
ImportanceofFeaturesAvg	Prince Nourah University	23	34.83
	King Saud University	32	49.81
	Al-Emam University	27	37.33
	Total	82	

Test Statistics[a,b]

	ImportanceofFeaturesAvg
Kruskal-Wallis H	7.316
df	2
Asymp. Sig.	.026

a. Kruskal Wallis Test

b. Grouping Variable: University

Mann-Whitney Test

Ranks

	University	N	Mean Rank	Sum of Ranks
ImportanceofFeaturesAvg	Prince Nourah University	23	22.67	521.50
	King Saud University	32	31.83	1018.50
	Total	55		

Test Statistics[a]

	ImportanceofFeaturesAvg
Mann-Whitney U	245.500
Wilcoxon W	521.500
Z	-2.274
Asymp. Sig. (2-tailed)	.023

a. Grouping Variable: University

Mann-Whitney Test

Ranks

	University	N	Mean Rank	Sum of Ranks
ImportanceofFeaturesAvg	Prince Nourah University	23	24.15	555.50
	Al-Emam University	27	26.65	719.50
	Total	50		

Test Statistics[a]

	Importance of FeaturesAvg
Mann-Whitney U	279.500
Wilcoxon W	555.500
Z	-.622
Asymp. Sig. (2-tailed)	.534

Mann-Whitney Test

Ranks

	University	N	Mean Rank	Sum of Ranks
ImportanceofFeaturesAvg	King Saud University	32	34.48	1103.50
	Al-Emam University	27	24.69	666.50
	Total	59		

Test Statistics[a]

	Importance of FeaturesAvg
Mann-Whitney U	288.500
Wilcoxon W	666.500
Z	-2.338
Asymp. Sig. (2-tailed)	.019

Kruskal-Wallis Test

Ranks

	University	N	Mean Rank
Support in my native language	Prince Nourah University	23	33.48
	King Saud University	32	47.06
	Al-Emam University	27	41.74
	Total	82	

Test Statistics[a,b]

	Support in my native language
Kruskal-Wallis H	7.045
df	2
Asymp. Sig.	.030

a. Kruskal Wallis Test

b. Grouping Variable: University

Kruskal-Wallis Test

Ranks

	University	N	Mean Rank
Friend and family are already users	Prince Nourah University	23	29.33
	King Saud University	31	47.37
	Al-Emam University	26	42.19
	Total	80	

Test Statistics[a,b]

	Friend and family are already users
Kruskal-Wallis H	11.960
df	2
Asymp. Sig.	.003

a. Kruskal Wallis Test

b. Grouping Variable: University

-Gender and barriers

Mann-Whitney Test

Ranks

	Gender	N	Mean Rank	Sum of Ranks
PerceivedBarriersAvg	Male	42	47.10	1978.00
	Female	40	35.63	1425.00
	Total	82		

Test Statistics[a]

	PerceivedBarriersAvg
Mann-Whitney U	605.000
Wilcoxon W	1425.000
Z	-2.187
Asymp. Sig. (2-tailed)	.029

a. Grouping Variable: Gender

Mann-Whitney Test

Ranks

	Gender	N	Mean Rank	Sum of Ranks
Lack of support by the university	Male	42	48.00	2016.00
	Female	40	34.68	1387.00
	Total	82		

Test Statistics[a]

	Lack of support by the university
Mann-Whitney U	567.000
Wilcoxon W	1387.000
Z	-2.653
Asymp. Sig. (2-tailed)	.008

a. Grouping Variable: Gender

Mann-Whitney Test

Ranks

	Gender	N	Mean Rank	Sum of Ranks
Security issues (hacking, virus etc)	Male	42	36.69	1541.00
	Female	40	46.55	1862.00
	Total	82		

Test Statistics[a]

	Security issues (hacking, virus etc)
Mann-Whitney U	638.000
Wilcoxon W	1541.000
Z	-2.178
Asymp. Sig. (2-tailed)	.029

a. Grouping Variable: Gender