

**School of Information Systems**

**Developing and Assessing a Social Networking Framework for  
Universities in Saudi Arabia**

**Sulaiman Ghazi B Alqahtani**

**This thesis is presented for the Degree of  
Doctor of Philosophy  
of  
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# Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

Signature:

A handwritten signature in blue ink, appearing to be 'Sam', written on a light grey rectangular background.

Date: 18 October 2018

# Acknowledgments

*In the Name of Allah, the Most Beneficent, the Most Merciful*

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## **Abstract**

The interactive and participatory capacities of social networking (Web 2.0) instruments have unleashed a number of possibilities for enhancing teaching and learning in the higher education sector. Hence, many universities are now engaged in harnessing the collaborative capabilities of these tools. While much valuable research has been conducted on this theme, scholarship has tended to be oriented towards academic practices and sample student populations derived from mainstream societies and countries. Yet, little research has been conducted into social networking uptake in higher education sectors in peripheral geo-cultural regions. Therefore, this research aims to focus on the desert kingdom of Saudi Arabia in order to determine the factors that need to be considered when developing a social networking framework for the use of Saudi Arabian universities in order to provide a blueprint of how to incorporate social networking into the sector.

The research uses a mixed methods approach comprising three phases of data collection. The first phase of this research was based on the analysis of results derived from Four focus group discussions with university students at four Saudi Arabian universities. Focus group data was carefully coded and qualitatively analysed to reveal a number of themes that were organized into three main categories: pedagogical, contextual, and technological. These aspects included factors that were seen to influence participants' impressions of social networking sites in education, as well as their predictions for its successful acceptance on the part of the Saudi public. These results were then consolidated for use in the survey phase of the research in order to further test the identified factors from a quantitative perspective.

Next, an online survey was conducted with a sample population of 594 students from Saudi Arabian universities. The technique of Factor analysis was applied to determine the final number of factors to be considered and thus, included in the final framework. The data analysis resulted in a scree plot, eigenvalues and extracted factor loadings that indicated six underlying factors in the survey. These six factors exhibited excellent model fit and strong factor loadings (.5 lowest - .9 highest). To ensure the effectiveness of the final framework, the outcome of this phase was used to refine the framework and examine it via a qualitative open-ended questionnaire conducted with potential users of the framework.

Finally, an online open-ended questionnaire was conducted with eight academic staff, who are the main stakeholders of this framework, in order to examine the final set of factors. The main research outcome is a social networking framework for higher education in Saudi Arabia which can be used by Government departments, funding bodies, university management, administrators and technical support departments for the benefit of teaching staff and learners. The mixed method was used in this research to draw on both qualitative and quantitative data so as to validate the research findings.

This study had several limitations, namely the restricted participation of females who were reluctant to share their views despite the best efforts of the researcher, in comparison to males. This can be attributed to cultural values in a predominantly patriarchal society. A further shortcoming was the knowledge of the participants who had a broad knowledge of social networking but were unfamiliar with sophisticated usage of social networking as it applies to formal education. Moreover, the respondents had a limited awareness of the wide range of available social networking applications.

A number of fertile areas for future research emerged from this research which would greatly extend the current picture of social networking usage in higher education in Saudi Arabia. In terms of replication of the research outlined in this thesis, it is suggested that further studies use experiential data rather than quantitative and qualitative data only. Further study could also be carried out in villages and regional areas in Saudi Arabia as it may offer insights different from those acquired from studies in urban areas. Different analysis methods might also be useful to be considered for research for future studies.

## **Dedication**

*To the loving memory of my grandmothers, Sarah Alangari and Norah Alotaibi, both of whom passed away while I was on this journey. I also dedicate this thesis to my parents and my beloved siblings who supported me throughout.*

## Published work

- 1- Alqahtani, Sulaiman. 2016. "Effects of Social Networking on Higher Education in Saudi Arabia." In *Social Networking and Education: Global Perspectives*, eds Tomayess Issa, Pedro Isaias and Piet Kommers, 291-304. Cham: Springer International Publishing.
- 2- Alqahtani, Sulaiman. *Social Networking Framework for Universities in Saudi Arabia*: Paper presented at the International Conferences on Internet Technologies & Society (ITS), Education Technologies (ICEduTECH), and Sustainability, Technology and Education (STE) (Melbourne, Australia, Dec 6-8, 2016).
- 3- Albahlal, Abdulaziz, Sulaiman Alqahtani, and AL-Hassan Al-Muqri. 2017. "Sustainability Awareness in Saudi Arabia." In *Sustainability, Green It and Education Strategies in the Twenty-First Century*, eds Tomayess Issa, Pedro Isaias and Theodora Issa, 339-351. Cham: Springer International Publishing.
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- 8- Issa, Tomayess, Issa, Theodora, Al-Oqily, Ibrahim, Goktalay, Sehnaz Baltaci, Alqahtani, Sulaiman, Kose, Utku, Almufaraj, Waleed Khalid “Social Networking in the Middle East: Awareness, Culture and Sustainability Perspectives” (Under Review)



# Table of Contents

<b>Abstract .....</b>	<b>1</b>
<b>Published work.....</b>	<b>4</b>
<b>Table of Contents .....</b>	<b>6</b>
<b>List of Figures.....</b>	<b>10</b>
<b>List of Tables .....</b>	<b>13</b>
<b>Chapter 1 Introduction .....</b>	<b>1</b>
1.1 Introduction .....	1
1.2 Background .....	1
1.3 What is Social Networking?.....	5
1.4 Social Networking in Higher Education .....	7
1.5 The Case of Saudi Arabia .....	11
1.6 Current Usage of Social Networking Sites in Higher Education in Saudi Arabia.....	13
1.7 Implications for Research .....	14
1.8 Purpose of Research .....	15
1.9 Research Questions and Significance of the Research .....	16
1.10 Research Design .....	17
1.11 Overview of the Research Flow .....	18
1.12 Conclusion.....	21
<b>Chapter 2 Research Methodology.....</b>	<b>22</b>
2.1 Introduction .....	23
2.2 Significance of Research.....	23
2.2.1 Theoretical Significance .....	24
2.2.2 Practical Significance .....	25
2.3 Research Question .....	25
2.3.1 Primary Research Question .....	26
2.3.2 Secondary Research Question .....	27
2.4 Research Objective .....	28
2.5 Definition of Research .....	29
2.6 Research Types.....	29
2.7 Research Design .....	31
2.7.1 Research Philosophy .....	32
2.7.2 Research Paradigms .....	33
2.8 The Chosen Research Method.....	37
2.8.1 Inductive vs Deductive Approach.....	39
2.8.2 Research Time Horizons .....	41
2.8.3 Survey Research.....	43
2.8.4 Online Survey .....	43
2.8.5 Focus Groups .....	44
2.8.6 Email Interviews .....	47
2.9 Target Population .....	49
2.9.1 Data Collection .....	49
2.9.2 Data Analysis .....	50
2.10 Ethical considerations .....	50

2.11	Reliability and Validity.....	50
2.12	Conclusion.....	51
	<b>Chapter 3 Literature Review .....</b>	<b>53</b>
3.1	Introduction .....	54
3.1.1	Scope of the Literature Review.....	55
3.2	History of Online Technologies .....	56
3.3	World-Wide Usage of Online Technologies.....	59
3.4	Web 1.0, 2.0, 3.0 and beyond.....	59
3.5	Types of Web 2.0 Applications.....	62
3.5.1	Wikis .....	62
3.5.2	Blogs.....	62
3.5.3	Media-sharing Sites.....	62
3.5.4	Tagging and Social Bookmarking.....	63
3.5.5	Social Networking.....	63
3.5.6	Mashups.....	63
3.5.7	Syndication .....	64
3.5.8	Twitter .....	64
3.5.9	Virtual Worlds .....	64
3.5.10	Social Search Engines .....	64
3.5.11	Crowdsourcing .....	64
3.5.12	Snapchat.....	65
3.5.13	WhatsApp .....	65
3.6	The Relationship between Web 2.0 and Social Networking .....	65
3.7	Social Networking in Different Sectors.....	67
3.8	Social Networking in the Higher Education Sector.....	68
3.9	Main Trends in Research into Formal Incorporation of Social Networking in Higher Education .....	72
3.9.1	Pedagogical.....	72
3.9.2	Technological.....	77
3.9.3	Contextual.....	81
3.10	Research Gap.....	88
3.11	The Proposed Framework .....	92
3.12	The Context for Social Networking in Saudi Arabia.....	94
3.12.1	Economy.....	95
3.12.2	Society, Political System and Culture .....	96
3.12.3	Education system in Saudi Arabia .....	97
3.12.4	Higher Education in Saudi Arabia .....	98
3.12.5	Technology Usage.....	100
3.13	Social Networking in the Higher Education Sector in Saudi Arabia .....	103
3.14	Conclusion.....	108
	<b>Chapter 4 Focus Group Results and Analysis.....</b>	<b>109</b>
4.1	Introduction .....	110
4.2	Methodology .....	111
4.2.1	Data Collection .....	111
4.2.2	Focus Group Session.....	112
4.2.3	Data Analysis .....	114

4.2.4	Data Reporting .....	114
4.2.5	Frequency Counts.....	115
4.3	How Participants Experience Social Network Sites .....	115
4.4	Social Network Sites and Uses.....	116
4.5	Pedagogical Factors .....	119
4.5.1	Learning Strategies.....	121
4.5.2	Exposing Students to Academic Use of Social Network Sites Early in their Education.....	122
4.5.3	Multiplicity of Resources .....	123
4.5.4	Impediments to Free flow of Information .....	123
4.5.5	Accuracy of Information .....	124
4.6	Contextual Factors.....	125
4.6.1	Socio-Cultural Factors.....	125
4.6.2	Ethical Concerns .....	126
4.6.3	Flexibility and Openness to Change.....	128
4.6.4	Organisational Context Factor .....	130
4.6.5	National Context Factors .....	131
4.6.6	Stakeholders .....	133
4.7	Technological Factors.....	138
4.7.1	Technological Infrastructure.....	140
4.7.2	Internet Connectivity .....	142
4.7.3	User Experience .....	145
4.8	Current and Predicted Acceptance of Social Network Sites in education .	149
4.8.1	Participant Attitudes Toward Social Network Sites in Education .....	149
4.8.2	Predicting Acceptance of Social Network Sites in Education.....	154
4.8.3	General Participant Suggestions .....	156
4.9	Findings.....	157
4.9.1	SNFSA Framework .....	160
4.10	Conclusion.....	162
	<b>Chapter 5 Online Survey Results and Analysis.....</b>	<b>164</b>
5.1	Introduction .....	165
5.2	Survey Design .....	165
5.3	Target Population and Sample .....	166
5.4	Data Collection.....	166
5.5	Data Cleaning .....	167
5.6	Descriptive Statistics.....	167
5.7	Exploratory Factor Analysis.....	176
5.7.1	Factor Labelling .....	182
5.8	Confirmatory Factor Analysis .....	185
5.8.1	Component One: National Context.....	186
5.8.2	Component Two: Technological Infrastructure and Institutional Support 187	
5.8.3	Component Three: Functionality .....	188
5.8.4	Component Four: Implementation .....	189
5.8.5	Component Five: Social and Institutional Culture.....	190
5.8.6	Component Six: Usability and User Experience .....	191

5.9	Reliability Analysis .....	193
5.10	Participant Comments .....	194
6.1	Introduction .....	198
5.11	Findings.....	199
5.12	Conclusion.....	202
	<b>Chapter 6 Interview Results and Analysis .....</b>	<b>203</b>
6.2	Data Reporting .....	204
6.3	Data analysis .....	204
6.4	Participants.....	207
6.5	Implementation.....	213
6.6	Functionality.....	216
6.7	Usability and User Experience .....	219
6.8	Technological Infrastructure and Institutional support.....	222
6.9	Pedagogy .....	226
6.9.1	Learning Theories .....	228
6.9.2	Learning Strategies.....	229
6.9.3	Learning Activities.....	231
6.10	Social and Institutional Culture .....	234
6.11	National context.....	238
6.12	Framework Evaluation.....	242
6.13	Gender.....	245
6.14	Technical Support.....	249
6.15	User Motivation and Use of Incentives .....	251
6.16	Findings.....	253
6.17	Conclusion.....	256
	<b>Chapter 7 Discussion and Conclusion .....</b>	<b>257</b>
7.1.	Introduction .....	258
7.2.	SNFSA Framework Discussion and Recommendations.....	259
7.2.1	Implementation .....	259
7.2.2	Functionality .....	260
7.2.3	Usability and User Experience.....	261
7.2.4	Technological Infrastructure and Institutional support .....	262
7.2.5	Pedagogy .....	263
7.2.6	Social & Institutional Culture .....	264
7.2.7	National context .....	266
7.3.	Answering the Research Questions .....	266
7.4.	Research Limitations .....	270
7.5.	Significance and Further Research .....	272
7.6.	Conclusion.....	273
	<b>References.....</b>	<b>274</b>
	<b>Appendices.....</b>	<b>304</b>
	Appendix 1: Focus Groups Consent Form.....	305
	Appendix 2: Focus Group Questions .....	306
	Appendix 3: Online Survey Questions.....	308
	Appendix 4: Codes used for the analysis .....	313
	Appendix 5: Interview Questions .....	315
	Appendix 6: Research gap analysis table.....	325

## List of Figures

Figure 1: Design used for this research.....	17
Figure 2: Research Flow .....	18
Figure 3: Research Design .....	31
Figure 4: Epistemological Assumptions for Qualitative and Quantitative Research .	33
Figure 5: Mixed methods approaches .....	38
Figure 6: Chosen approach.....	39
Figure 7: History of Social Networking Sites .....	58
Figure 8: Research gap.....	90
Figure 9: Initial Social Networking Framework for Universities in Saudi Arabia ...	93
Figure 10: Participants' demographical information .....	112
Figure 11: Focus group floor plan .....	113
Figure 12: Steps of Focus group analysis .....	114
Figure 13: Top 200 words used during focus group discussions .....	116
Figure 14: Number of mentions of SNS throughout focus group discussions .....	116
Figure 15: Participant Comments about How SNS are Used in Saudi Arabia .....	119
Figure 16: Themes found in content related to the Pedagogical factors.....	120
Figure 17: Number of comments in related to the Pedagogical factors.....	120
Figure 18: Sub-themes found in content related to the Contextual factors .....	125
Figure 19: Number of coded references in content related to the Technological factors .....	139
Figure 20: Sub-themes found in content related to the Technological factors.....	140
Figure 21: The 200 most frequently used words in content regarding "Internet Connectivity" .....	144
Figure 22: Themes contained within the content related to user experience .....	146
Figure 23: Frequency of comments expression support, opposition, or neutrality about the use of SNS in education in Saudi Arabia .....	150
Figure 24: Factors supporting acceptance of SNS in education in Saudi Arabia ...	151
Figure 25: Factors impeding acceptance of SNS in education in Saudi Arabia .....	152
Figure 26: Coding similarities among themes relevant to SNS as an educational tool in Saudi Arabia .....	153
Figure 27: The frequency of comments identifying the impact of supporting and impeding factors on SNS acceptance .....	154

Figure 28: Frequency of comments predicting success or rejection of SNS use in education in Saudi Arabia .....	155
Figure 29: Social Networking Framework for Universities in Saudi Arabia Version 1 .....	161
Figure 30: Gender breakdown of full sample.....	168
Figure 31: Age breakdown of full sample.....	168
Figure 32: Title breakdown of full sample .....	169
Figure 33: Main Field of Work/Study breakdown of full sample .....	169
Figure 34: Breakdown of student's year of study for full sample .....	170
Figure 35: University Type for full sample.....	171
Figure 36: Education breakdown of full sample .....	171
Figure 37: Social media sites used by full sample.....	172
Figure 38: Non-student uses for social media .....	173
Figure 39: Student uses for social media .....	173
Figure 40: Scree plot for EFA .....	178
Figure 41: Final model for component one: National Context .....	186
Figure 42: Final model for component two: Technological Infrastructure and Institutional Support.....	187
Figure 43: Final model for component three: Functionality .....	188
Figure 44: Final model for component four: Implementation.....	189
Figure 45: Final model for component five: Social and Institutional Culture .....	190
Figure 46: Final model for component six: Usability and User Experience .....	191
Figure 47: Social Networking Framework for Universities in Saudi Arabia Version 2 .....	201
Figure 48: Steps of Interview analysis .....	204
Figure 49: Interview coding tree .....	206
Figure 50: Gender breakdown of interviewed participants.....	208
Figure 51: Level of experience with social networking tools .....	208
Figure 52: Social networking sites can be introduced to higher education .....	209
Figure 53: Participants' agreement on importance of the Implementation factor for the adaptation process.....	213
Figure 54: Participants agreement on importance of the Functionality factor for the adaptation process.....	217

Figure 55: Participants agreement on importance of the Usability and User Experience factor for the adaptation process.....	220
Figure 56: Participants agreement importance of the Technological Infrastructure and Institutional support factor for the adaptation process.....	223
Figure 57: Participants agreement on importance of the Pedagogical factor for the adaptation process.....	227
Figure 58: Participants agreement on importance of the Social & Institutional Culture factor for the adaptation process.....	236
Figure 59: Participants agreement on importance of the National Context factor for the adaptation process.....	240
Figure 60: Participants agreement on evaluation of SNFSA framework.....	243
Figure 61: Participants agreement on importance of the Gender segregation issue for the adaptation process .....	245
Figure 62: Participants agreement on importance of the Technical Support for the adaptation process.....	250
Figure 63: Participants agreement on importance of Motivation and Incentives for the adaptation process.....	252
Figure 64: Conceptual map of overall factors from the interview phase .....	255
Figure 65: Social Networking Framework for Universities in Saudi Arabia (Final Version).....	267
Figure 66: The potential users and beneficiaries of the proposed framework .....	2678

## **List of Tables**

Table 1: Techniques used to generate a research question .....	25
Table 2: Differences between the three research paradigms .....	37
Table 3: Factors derived from the literature.....	91
Table 4: Saudi Arabian universities' statistics of social media usage .....	107
Table 5: Focus groups information.....	111
Table 6: Frequencies and Percentages of Demographic Information.....	174
Table 7: Community Values.....	177
Table 8: Eigenvalues and Total Variance Explained by Component .....	179
Table 9: Factor Loadings for Components One Through Six .....	181
Table 10: Fit Indices for Components 1-6 .....	192
Table 11: Reliability coefficients.....	193
Table 12: Interviews and participant information .....	207



# **Chapter 1**

## **Introduction**

## 1.1 Introduction

This chapter provides the backdrop to the research topic by introducing the theme of social networking, its uses and applications and how it has found a home as a pedagogical tool in higher education institutions world-wide. This is due to its capacity for connectivity and participation which aligns with student-centred methods of teaching and learning. The chapter pinpoints under section 1.3 a number of social networking platforms, such as Facebook and Twitter, and discusses how these have been co-opted for educational purposes. The chapter also introduces in section 1.5 the case of Saudi Arabia which represents a non-mainstream geographical and cultural region about which more research is required on the usage of social networking in higher educational pursuits. Given that social networking usage is not yet well established in universities in Saudi Arabia, the chapter defines the research question, its significance and its possible practical and theoretical outcomes. The chapter also sets out in section 1.10 the research methodology to be used in answering the research question, the design of the research and the research flow in section 1.11. In sum, the chapter suggests that social networking may be of benefit to a modernised Saudi Arabia but that further research is required into the critical success factors that might determine the successful adoption of social networking in this traditionalist and conservative nation.

## 1.2 Background

It is an oft-repeated commonplace that the Internet and web-based applications have radically transformed every aspect of human existence, altering how people communicate, socialise, trade, shop, learn and occupy their leisure time. This is due to the technological shift from one-way, content-centric services (emails, websites, chatrooms) to social-centric models. These act as a channel through which information is created, shared, remixed and repurposed by users who are grouped in terms of shared interests in virtual exchange-based communities ([Morgan, Jones and Hodges 2010](#)). This rampant interconnectivity began with precursors such as AOL, Geocities, Friendster and Orkut and culminated in the release, in 2004, of the ultimate social networking vehicle, Facebook. The transition from Web 1.00 to so-called Web 2.0 technologies has unleashed a multitude of possibilities for shared interactive online

experiences which are generated, shaped and controlled by ordinary individuals rather than web professionals ([Thompson 2007](#); [Kaplan and Haenlein 2010](#); [Hamid, Chang and Kurnia 2009](#)). As will be outlined in section 3.5, a number of collaborative social networking services have emerged, each with slightly differing functionalities and purposes, allowing for shared activities such as group production and editing of content, the exchange of ideas, opinions and media items with like-minded others, the building of personal and professional networks and communities, and the creation of customised repositories for digital objects.

While originally intended for social and leisure purposes, these applications have been readily adapted for use in other contexts. Businesses, for example, particularly within the realms of advertising, marketing and leveraging brand image, have been swift to recognise the potentialities of such developments. Hence, numerous commercial applications have evolved, appropriating Web 2.0 applications as a means of differentiating products and services, addressing target demographics and customising communications with particular markets. The uptake of social networking has also been widespread in such sectors as healthcare, banking and government, and primary and secondary schooling.

In contrast, the higher education sector has only more recently developed an interest in social networking services. This burgeoning interest in what social networking can offer to the higher education sector is driven by the demand for universities to accommodate the needs and preferences of modern learners who attend tertiary institutions expecting to be “engaged, active, social and networked” ([Baran 2013, 6](#)). In order to remain viable in an increasingly competitive market, educational institutions have to tap into the learning methodologies and tools best suited to a neo-millennial cohort. These learners are equipped with such new literacies as swift intake of information, visual, non-linear cognitive processing and multi-tasking. The motivation to produce better teaching and learning mechanisms and, by extension, superior academic results in a global knowledge economy underlies current investigations into the ways in which students interact with digital technologies, coupled with the feasibility of implementing social networking into higher educational pedagogies. This is seen as an imperative if university instruction is to remain relevant to contemporary learners and keep pace with their facility with technology as it

intersects with the task of learning ([Lohnes and Kinzer 2007](#); [Bynum 2011](#)). As these learners are already engaged in and highly conversant with online digital endeavours, by extension, these can be harnessed to increase learning efficiency and build 21<sup>st</sup> century capabilities ([Greenhow, Robelia and Hughes 2009](#)). As a result, the visibility of social media as a supplementary pedagogy in higher education is increasing as a means of enhancing the practices of teaching and learning ([Tess 2013](#)).

The use of these new technologies by the “net-generation” ([Prensky 2005](#)) has escalated in the past decade, with students employing them both socially and educationally. Indeed, social networking sites have now surpassed email as a mode of communication ([Hricko 2011](#)). In terms of educational affordances, social networking tools share a natural affinity with key academic tasks. This is due to their capacity to engender creation and sharing of knowledge within a global context which transcends the boundaries of the traditional classroom ([Seo 2012](#)). These technologies provide the wherewithal for augmenting instructor-led, peer-to-peer and self-directed styles of learning within a community of practice which allows knowledge to be jointly constructed, exchanged, critically evaluated and challenged via activities such as collaborative content creation and peer to peer evaluation ([Duffy 2008](#)). Thus, students can take the lead in the learning process and can also create additional learning opportunities for themselves outside of the realm of the traditional classroom ([Powers et al. 2012](#)). Not only do these technologies open up unlimited spaces for enquiry, connection, interaction and collaboration, but they also promote learner independence, self-direction and ongoing learning, resulting in increased motivation of learners ([Callaghan and Bower 2012](#)). Indeed, a study by [Arquero and Romero-Frías \(2013\)](#) contends that the students in their sample who used social networking sites for learning showed deeper levels of participation and better academic performance. This is mainly due to the instrumentality of these technologies in providing learners with flexible access to information at any time and in any location. They also offer opportunities to co-create, voice ideas and experiences, and self-reflect. As such, these technologies have the capacity not only to add interest and relevance to methods of content delivery, but also to increase learner engagement and involvement, making them the ideal platform to put to use in the service of teaching, learning and research ([Arquero and Romero-Frías 2013](#)).

While the literature on this topic thus far has produced a valuable, if still incomplete, picture of the usage of social networking in higher education, both informally by students themselves, and more formally as an adjunct to university instruction, it is generally the case that such studies are emerging from mainstream (often Westernised, First World) approaches with a global focus. While some research does address contextual differences in the uptake of social networking within and between populations and geographical regions, more needs to be known about how social networking is operationalized within non-mainstream societies and countries. This is in recognition of the fact that cultural background is a determinant of the way in which people approach the use of social networking sites, including issues relating to privacy, disclosure and identity construction ([Gunawardena et al. 2009](#)). Accordingly, this study will examine the potential for social networking in higher education in Saudi Arabia, an Islamic country where social, cultural and gender dynamics are influenced by religious and moral tenets which permeate the daily practices of its citizens. As a resource-rich country striving towards greater modernity and self-sufficiency through a series of ambitious plans that include reform of its educational sector (Khan 2016). Saudi Arabia stands to benefit immensely from the rich opportunities offered by web-based technological developments. In particular, interactive technologies could offer a potential conduit for bringing together students and academic staff in new, less rigid configurations. They also allow male and female students and staff members to intermingle intellectually in a safe environment and serve as a way of exposing Saudi students and staff to global knowledge resources. It would allow a closer engagement between students and teachers in a friendly, supportive environment which goes beyond the formal institutionalised instructor-learner relationships, even allowing students to critically interrogate “expert” knowledge. Moreover, this would mean that teachers and learners have accessibility to a wide range of knowledge resources, including world-class libraries, databases and learning centres, as well as opportunities for ongoing engagement with scholars from other academic institutions (Okoro 2012). These would be significant advances in a society that is relatively “closed off” in its orientation to the rest of the world. However, in order to reap these benefits, it is crucial that a clearer understanding of social networking be reached as this applies to the particular social, cultural and religious climate of the Kingdom. Hence, this research seeks to amplify the current picture of how social networking tools for teaching and

learning purposes are utilised and perceived by Saudi Arabian stakeholders. The broader aim of the thesis, furthermore, is to develop a framework of factors that might underpin the successful implementation of social networking as a higher education pedagogy so that its benefits can be collectively harvested across faculties and universities in the service of a modernised and reinvigorated higher education sector in Saudi Arabia.

### 1.3 What is Social Networking?

As will be developed in section 3.2, social networking has its roots in the 1960s when primitive forms of the Internet and email began to emerge following a surge in interest in computer networking. A milestone in the timeline of social networking was the creation of the Usenet in 1979 which operated as a global discussion medium to which users could post messages. By 1988, Internet Relay Chats (IRC) had become available, popularised by the rise of home computers. The first social media site was called Six Degrees. Created in 1997, it allowed users to profile themselves and connect with others. This was followed in 1999 by the appearance of the first blogging sites. The early to mid-2000s witnessed an explosion of sites such as MySpace, LinkedIn, Flickr, YouTube, Facebook and Twitter. Since then, a number of niche sites have been developed catering for a variety of interests, amongst them Tumblr, Spotify, FourSquare, Pinterest and Instagram.

In contemporary literature, social networking as a term overlaps with other nomenclature such as “Web 2.0” and “social media”. However, the differences between these terms is not well understood or distinguished ([Lenartz 2012](#)). The term Web 2.0 first emerged in 2004 as a name to describe the World Wide Web as a collaborative platform on which users collectively create and modify content ([Kaplan and Haenlein 2010](#)). Web 2.0 can be understood as a means of connectivity which enables users to unite in a digital space via applications and tools accessible through a shared platform ([Alexander 2006](#)). In so doing, it differs from Web 1.0 which was a centralised, server-based system which dispensed content in the form of static web pages to passive recipients. In fact, the only response open to users of Web 1.0 was to read information, whereas the Web 2.0 experience offers a rich, interactive “read-

write” paradigm which reallocates the act of creation to general users who do not need a mastery of arcane knowledge in order to contribute.

In contrast to the overarching term “Web 2.0”, social media refers to the actual tools themselves which foster and facilitate user engagement ([Dabbagh and Reo 2010](#)). [Kaplan and Haenlein \(2010\)](#), for example, nominate six classifications of such tools, namely, collaborative undertakings (e.g. Wikipedia); Social Networking Sites (e.g. Facebook); Content Communities (e.g. YouTube); Blogs and Microblogs (e.g. Twitter); Virtual Social Worlds (e.g. Second Life); and Virtual Game Worlds (e.g. World of Warcraft). These tools and applications differ in their features and properties but usually allow for both public and private messaging as well as the creation and exchange of multimedia artefacts such as photos, audio and video.

Although similar to and related to these concepts, the term “social networking”, and by extension its corollary “social networking sites” (SNS), emphasises the shared purposes and common goals implicit in using social media tools. For [Boyd and Ellison \(2008\)](#), social networking encompasses web-based services that operate via the profiling of participants and the forming of interconnections between users. Thus, a social network comprises an interweaving between networking technology and the emergent community that is formed online. In attempting to distinguish between social media and social networking, [Lenartz \(2012\)](#) suggests that social media defines methods of conveying a message whilst social networking implies the interconnections between identified groups engendered by these methods. In this sense, social networking encompasses the application of such tools to particular usages and situations with a focus on the relationships forged between participants. Users establish accounts which require the creation of a profile enabling them to access the profiles of others in order to connect within shared communities ([Hricko 2011](#)). For example, in the context of education, social networking serves to group people engaged in common academic pursuits, facilitating such tasks as lecturer-student and peer-to-peer communication and discussion, collaboration on group projects and sharing of educational resources. In so doing, social networking has created new academic practices regarding the ways in which people gather and receive information, construct knowledge and participate in academic life. This has involved a shift in pedagogical practices from the supply of printed materials (lecture notes, PowerPoint

presentations) to a passive audience to self-generated and self-directed learning experiences.

## 1.4 Social Networking in Higher Education

Whilst new channels for communicating, interacting and learning are emerging rapidly, it is generally agreed that educational systems have been slow and somewhat reluctant to embrace them ([Tinnerman and Johnson 2013](#)). This may be understood in terms of the difference between paradigms of educational transmission. Educational systems are generally steeped in tradition and centred on a “broadcast” model of education: a fixed physical location, a time-bound learning schedule and delivery of teaching by qualified “experts”. In contrast, reframing of the concept of education, mediated by technology, suggests that learning proceeds from a wide variety of sources and that it occurs outside of the boundaries of time and place. Such a notion challenges conventional ways of conceptualising education and has been regarded with suspicion by some educational planners, many of them “digital immigrants” ([Prensky 2001](#)) from a generation that is not at ease with technological innovation.

Despite this slow-paced uptake, social networking has myriad applications to various aspects of higher education as will be shown in section 3.8. Typically, it has been used in areas of engagement such as student services and academic support. For example, university websites embed social networking tools as a marketing and recruitment conduit and as a means of communicating with prospective and current students and parents. Social networking sites also have application to such areas as student enrolments in courses and counselling on courses and careers ([Hricko 2011](#)). It is also a potent source of academic support, a means of transitioning new students into university life and a tool for combating student attrition. In these cases, new or first year students in particular, can be linked to cohort groups so as to meet and interact with others socially, to receive academic support and advice from study groups, and to access tutoring programs, IT support and library services. Social networking is also used by administration and faculty staff to disseminate important information and make announcements about events and activities on campus.

In terms of academic endeavour, social networking is used by students as an informal channel to discuss academic work as well as to post and answer each other’s questions



and share links and resources such as lecture notes. By so doing, students create supportive linkages which help them to manage university life and academic demands. On a more formal level, social networking can be used in an organised way by faculty staff and students to engage in research and to “project manage” joint undertakings. In this sense, social networking can be used to unite experienced and junior researchers in scholarly networks facilitated by applications such as Twitter. Drafts and revisions of materials can be managed via social networking tools such as blogging to effect publication of successive drafts, alongside storage applications such as Dropbox and meeting management tools like Skype. Databasing and archiving tools like social bookmarking are also of relevance in this regard (Hricko 2011; Tinnerman and Johnson 2013).

Social networking is also finding its way into the classroom as a supplement to traditional styles of learning ([Hung and Yuen 2010](#)). Several studies mention the use of Facebook as a way of creating targeted academic groupings in which peer-to-peer and student-to-lecturer communications and collaborations are enabled ([Jabr 2011](#)). For example, [Ractham and Firpo \(2011a\)](#) describe a five-month trial during which Facebook was embedded as a collaborative technology in a university course. The usages of Facebook spanned a number of functions including informal communication between participants, private and group messaging, posting of updated information and sharing of links and materials, with the researchers finding in favour of the networking capacities of Facebook as an educational aid. These findings are echoed by other studies into the use of Facebook in the university classroom with similar outcomes recorded ([English and Duncan-howell 2008](#); [Schroeder and Greenbowe 2008](#); [Kayri 2010](#); [Ryan, Magro and Sharp 2011](#); [Petrović et al. 2012](#); [Çoklar 2012](#); [Duncan and Barczyk 2013](#); [Ventura and Quero 2013](#); [Tsiakis](#); [Judele et al. 2014](#); [Saxena and Majumdar 2015](#); [Sarapin and Morris 2015](#); [Demirbilek 2015](#); [Wang et al. 2012](#); [Gray et al. 2013](#); [Lahiri and Moseley 2015](#); [El Bialy, Jalali and Jaffar 2014](#); [Cuesta et al. 2016](#)).

There have also been pilot case studies of other social networking applications as complementary pedagogies: Twitter, for example, is described in an Australian pilot study by [Saeed and Sinnappan \(2011a\)](#) which concludes that it was useful as a means of communication in an e-commerce unit. [Veletsianos \(2012\)](#), who studied tweets

from 45 scholars and analysed them qualitatively, arrives at similar conclusions about information sharing, making suggestions, networking and identity and impression management via this medium. Recent studies include that of [Kassens-Noor \(2012\)](#) on Twitter-based instruction versus traditional delivery in the classroom. [Clarke and Nelson \(2012\)](#) report that Twitter is a purported means of improving the academic outcomes of Marketing students; likewise [Ferreira, Castro, and Andrade \(2011b\)](#) and [Junco, Elavsky, and Heiberger \(2012\)](#) report that the levels of university learner participation increased as a result of Twitter being used as an engagement strategy.

Blogs and wikis have also been experimentally incorporated into university teaching: studies of blog usage in higher education classes include the work of [Churchill \(2009\)](#) on the formation of a learning community through classroom implementation of blogs. In 2012, several articles offering case studies of inclusion of blogs as a teaching and learning tool in university courses were published ([Powell and Yuan 2013](#); [Bao, Zhang and Wu 2012a](#); [Jimoyiannis 2012](#); [Cano et al. 2012](#); [Lin and Shen 2012](#); [Chang and Yang 2013](#); [Top 2012a](#)). Of these, [Top \(2012a\)](#) investigates the use of blogs at the University of Turkey in two undergraduate ICT classes in order to draw conclusions about sense of community as a predictor of learning effectiveness. [Powell, Jacob, and Chapman \(2012\)](#) examine the role of blogs in academic scholarship as an alternative to peer-reviewed journal articles, while assessment practices around blogging in a literature course at the Catalan University are reviewed by [Cano et al. \(2012\)](#). Research conducted by [Chang and Yang \(2013\)](#) and [Lin and Shen \(2012\)](#) takes up the topic of attitudinal aspects of blog usage in the university classroom through a survey of cohorts of nursing students and undergraduates in a mix of courses, respectively.

In the case of wikis, although wiki technology is reportedly used widely in higher education, it is still under-represented in implementation literature. An early study by [Hazari, North, and Moreland \(2009\)](#) examines motivation, groupwork, and technology to determine student attitudes to wiki. 2009 saw a spate of implementation projects on wiki usage in the higher education classroom, for example, to facilitate knowledge capture through enriched additional learning content ([Ras and Rech 2009](#)) and to boost participation and learner engagement ([Knobel and Lankshear 2009](#)). A more recent study by [Karasavvidis and Theodosiou \(2012b\)](#) evaluates wikibooks in undergraduate courses as a tool for student empowerment via online collaboration. Another

contemporary treatment of the role of wikis in course delivery is provided by [Ventura and Quero \(2013\)](#) who describe the successful use of wiki technology to furnish collaborative and interdisciplinary work by postgraduate students at the University of Malaga.

Moreover, sharing sites such as Flickr, Picasa, Vimeo, YouTube and Slideshare, as well as more recently developed object sharing models such as Cinegram, Instagram and Pinterest, have significant potential to contribute to course delivery in higher education. Indeed, an educational offshoot of YouTube called “Teachertube” is a video resource widely used by educators. However, this research was unable to locate many implementation studies dedicated solely to the usage of these sites in higher education course delivery. One study that does exist examines a case study integrating YouTube into pre- and in-service teacher education whereby video postings were evaluated in terms of their suitability for use in the teaching of English ([Lee and Peng 2012](#)).

Other technologies trialled in university teaching include social bookmarking, mashups and virtual world technology. For example, one report outlines work carried out at the University of Hong Kong in order to develop its own social bookmarking system ([Churchill 2009](#)). Various researchers have incorporated bookmarking into their own educational practices: [Liu et al. \(2008\)](#) present a case study on the incorporation of bookmarking in a course on media instruction at a university in Taiwan and [Greenhow \(2009\)](#) looks at the use of Delicious, Diigo and CiteULike within her own classroom to collaboratively identify and share useful resources that include print materials and web-based readings, while [Farwell and Waters \(2010b\)](#) pilot the technology as a way of fighting the rising costs of publishing course readers and book lists. Other researchers comment on their inclusion of this form of social networking technology in teacher education courses, Information Sciences and Health Science courses ([Edwards and Mosley 2011a](#); [Zorica et al. 2011a](#)).

Turning to mashups, the earliest studies of the application of mashups in university course delivery are those of [Lamb \(2007a\)](#) who comments on the challenges to educators and policy makers of assessing these innovative products, and [Skiba \(2007\)](#) who looks at the applicability to nursing education of remixing technology. Further case studies into the use of mashups in university learning have been conducted by [Taraghi, Ebner, and Schaffert \(2009\)](#) in relation to customisation of learning spaces

and [Wheeler \(2009\)](#) – the latter examining the aggregation of content through using wikis and blogs in tandem. [Ibrahim \(2012\)](#) extends mashups to the academic functions of teaching, research and library resources, while [Bao, Zhang, and Wu \(2012a\)](#) positively review the reusable formats of this technology in the context of foreign language learning.

In relation to virtual world technology, [Wagner and Ip \(2009\)](#) explore Second Life (SL) as a vehicle for action research in a senior course for management information systems students and [Wang and Braman \(2009\)](#) present the results of a number of field trials into using SL in an introductory computer course. Ease-of-use issues and intentionality are covered by [Shen and Eder \(2009\)](#), while [Dreher et al. \(2009\)](#) examine the usages and benefits of SL in Information Systems courses at University of Hamburg and Curtin Business School. Similar implementation cases are described and evaluated by [Warburton \(2009\)](#); [Dalgarno and Lee \(2010\)](#); [Hall and Rapanotti \(2011\)](#); [Moscato and Moscato \(2011\)](#).

Thus, social networking applications have been incorporated into university teaching and learning regimens in order to link and engage participants, drive collaboration and discussion, increase student involvement and build better interaction skills. The deployment of social networking sites in higher education have also served to augment independent, self-paced and personalised learning modes as well as to foster ongoing, lifelong learning unlimited by time and space boundaries.

## 1.5 The Case of Saudi Arabia

Whilst the aforementioned pilot studies of social networking sites in the university classroom have yielded a plethora of valuable insights, they are oriented towards mainstream, often Westernised, contexts and make numerous assumptions about user characteristics, teaching and learning styles and the availability of technological services and infrastructure. Much more needs to be known about the way in which social networking sites are utilised currently – and could be utilised in future – in education in non-mainstream geographical locations, with Saudi Arabia being the focus of the current study as will be discussed in section 3.12.

Indeed, it can be claimed that, despite its religious outlook, the Kingdom has made some transition to modernity. Recent examples include the first-time election of women to local councils in 2015 and the June 2018 lifting of a ban on women driving. Evidence concurs that Saudi Arabia is, in spite of its conservative stance, a prolific consumer of social networking applications. Use of Facebook, for example, is regarded as complementary to the upholding of the social interaction between males and females ([Aljasir, Woodcock and Harrison 2012a](#)). Not only is Facebook a popular platform with more than six million active users, but the usage of YouTube in Saudi Arabia surpasses that of any other country ([Al-Khalifa and Garcia 2013b](#)). Twitter is also widely used with around half of all messages in the Arab world deriving from Saudi Arabia ([Salem, Mourtada and Alshaer 2013](#)). This enthusiastic uptake may be attributed to Saudi Arabia's youthful population [Sallam and Hunter \(2013\)](#) as well as the influences wrought by a new generation of Saudis who are well-educated, often abroad. Thus, there are some encouraging signs that social networking sites could be profitably absorbed into higher education pedagogy without undue resistance.

However, in regard to the Saudi Arabian educational system, it must be noted that the country is still highly traditional and driven by religious forces which permeate every aspect of its social and cultural milieu. Saudi Arabian universities are gender-segregated and Koranic teachings feature prominently. Pedagogies are conservative and comprise the transmission of knowledge by "experts" to relatively passive students. In the face of this religious extremism and its permeation into the university curriculum and pedagogies, a major shortcoming of the current education system is its lack of contemporaneity in terms of learning skills, delivery of knowledge, curricula, technologies and staff professionalism. According to [Alnassar and Dow \(2013\)](#), a rigid curriculum which is predicated on religious instruction stultifies the creativity, problem-solving, critical thinking and academic skills which are the cornerstone of a global, information environment. This is compounded by lack of strategic direction in the use of digital technologies by academic staff, causing students to lag behind in the skills and capabilities demanded by contemporary society ([Smith and Abouammoh 2013](#)).

In a bid to improve the quality of education in Saudi Arabia, the Saudi government has aimed to improve the system of education to meet and exceed global standards. There

have been a number of advancements including the King Abdullah Scholarship Program which sent thousands of Saudi nationals abroad to acquire a university education, and the establishment of the King Abdullah University of Science and Technology (KAUST) in 2009 which is the only university in the country which accepts students of both genders. More recent developments include the establishment of a national technology centre and the launching of a significant program of reform known as Vision 2030. In the case of the former, the centre is tasked with providing support for the integration of electronic curricula as well as training of educators ([Alqarni 2015](#)). With regard to the Vision 2030 plan, which commenced in 2016, the objective is to transform Saudi Arabia into a modern country in terms of its social development, cultural values and education. In particular, the plan entails a shift to modern teaching methods, including electronic media, within a context that would assist students and educators to accept and use the new technologies.

## 1.6 Current Usage of Social Networking Sites in Higher Education in Saudi Arabia

At this time, it is not yet clear to what extent and how Saudi Arabian universities use social media in teaching and learning. Although there is some evidence of usage by universities, it appears that much of this might be for student recruitment and informative purposes, such as the use of Facebook and Twitter as communication channels in conjunction with university websites ([Al-Khalifa and Garcia 2013b](#)).

However, the meagre studies that do exist suggest that students are enthusiastic about the use of social media and have a positive orientation toward using it to support learning ([Aifan 2015](#)). [Alsurehi and Youbi \(2014\)](#) examined student use and perspectives of social media in higher education and found that most survey respondents perceive their incorporation as beneficial. Indeed, research by [Alsuraihi et al. \(2016\)](#) revealed that 95.8% of the students in their sample considered social networking sites as helpful as an educational tool. There is also some limited evidence that academic staff are using social media in their pedagogy ([Alasfor 2016](#); [Alamri 2015](#)). However, there is seemingly no consistent body of knowledge about how these tools are used and how widespread any practices are beyond sporadic individual use as will be discussed in detail in section 3.13.

## 1.7 Implications for Research

This thesis suggests that Saudi Arabia is in a favourable position when it comes to the acceptance and implementation of social networking sites in education. There is a predominantly positive attitude towards these sites, and there is a national commitment to and a dedicated budget for the improvement of education via the incorporation of digital media. The youthfulness of the Saudi population ([Sallam and Hunter 2013](#)) is another positive driver of the acceptance of social networking in education. On the other hand, as will be discussed 3.12, Saudi Arabia is a traditionalist and arch-conservative society and any implementation must take into account the complex contextual variables that may impact on a successful integration of social networking sites. In the case of Saudi Arabia, these might include the rigidity of cultural roles, including gender norms, as well as teaching practices based on cultural understandings of teacher and student behaviours. This often results in rote-learning and memorisation within a context of Islamic teachings. Other factors include the freedom of information available to citizens due to government censorship and restrictions based on religious grounds (Smith and Abouammoh 2013). Furthermore, there exists a heightened sensitivity to the privacy and security issues associated with operating in a digitised environment, due again to cultural norms, behaviours and attitudes related to identity construction. Another group of factors relate to the provision of an adequate technological infrastructure that includes Internet access, the speed and quality of hardware, and the availability of software, as well as the knowledge, experience and expertise of users when working with different technologies as will be discussed 3.9.2.

As Saudi Arabia is not well advanced in the application of social networking to its higher education sector, it is ideally placed to learn from and embrace ideas and best practices derived from global initiatives. To this end, the current research identifies broad patterns in the existing literature on the theme of social networking as a formal accompaniment to teaching and learning. Three distinctive paradigms emerge from the literature: pedagogical, technological/design and contextual studies. Researchers in the pedagogical paradigm evoke theories of learning, such as constructivist theory, so as to specify how academic strategies and tasks might coincide with the capacities of social networking. The pedagogical approach also highlights the positive learning outcomes for students using social networking in their higher education programs. In

contrast, the technological paradigm stresses the architecture of social networking systems and what these might look like in terms of a university-wide implementation, with reference to platforms, tools and required hardware and software. Finally, the contextual approach examines the specific organisational, national and socio-cultural drivers or inhibitors of social networking integration into higher education.

Drawing from these three approaches, this study proposes a framework of key factors that can be used for the implementation of social networking in higher education in Saudi Arabia. The contention of this study is that it is crucial to consider factors deriving from all of these approaches in order to harness the benefits – and reduce the risks – of social networking within the particularised, and often contradictory, cultural space that is occupied by Saudi Arabia.

## **1.8 Purpose of Research**

The aim of this research, as will be elaborated on in section 3.10, is to examine the global phenomenon of social networking, as it applies to the tasks of higher education, within the context of Saudi Arabia. The stance of this study is that Saudi Arabia stands to benefit enormously from the affordances of social networking but has not yet optimally implemented it in its higher education sector. Hence, Saudi Arabia can be guided by world best practice in order to successfully incorporate social networking into university teaching and learning practices. However, Saudi Arabia presents a set of unique socio-cultural conditions that require careful thought if social networking is to be used successfully in its universities. This research seeks to identify key factors that may be required to underpin the implementation of social networking in Saudi Arabian universities. It presents a framework, refined by the input of key stakeholders, comprising core factors relating to key design and functionality components as well as a set of influencing factors which reference how key socio-cultural determinants may impact on these core factors. The resulting model may be of use to government departments, funding bodies, university management, technical support staff and academics who could make use of the insights offered by this research in planning and incorporating social networking into university pedagogy.



## 1.9 Research Questions and Significance of the Research

2.3 and 2.4, it is anticipated that this study will be of theoretical and practical significance. From a theoretical point of view, its goal is to add to current understandings of how social networking applications may be used profitably in the arena of higher education for pedagogical purposes. Therefore, it adds to the extant global literature on how social networking tools have been incorporated into teaching and learning regimens. As a point of difference, this study contributes to greater appreciation of how social networking is received and utilised within non-mainstream academic environments where different values, expectations and cultural roles prevail. In particular, it examines the case of Saudi Arabia which presents a unique set of cultural variables which may determine whether social networking can be optimally implemented in universities in this nation. From a practical perspective, the study's purpose is to establish a set of key factors which might underpin the successful implementation of social networking in the higher education sector in Saudi Arabia. The findings of the research will culminate in a model which can be used as a blueprint for policy-makers, professionals and other stakeholders involved in deciding whether to include social networking tools as an integral part of academic teaching, learning and research in Saudi Arabia. Specifically, the model may alert decision-makers to both the advantages and potential risks of using social networking as an academic tool. Ultimately, the model may benefit students and academic staff who will benefit from the availability of these tools in their educational pursuits.

Therefore, the main question for this research is: *What are the factors that must be included when developing a social networking framework for higher education in Saudi Arabia?*

In order to highlight the socio-cultural context that surrounds and influences the adoption of social networking in Saudi Arabian higher education institutions, the following are the secondary research questions for this study:

- What are the specific cultural, social (including ethical) and technological factors that must be considered when developing a Social Networking framework for higher education in Saudi Arabia?
- What are the perceptions and attitudes of university student and, academics towards the Social Networking Framework for Universities in Saudi Arabia?

## 1.10 Research Design

The research design, which will be explained in detail in section 2.8, is divided into three phases: an initial qualitative phase designed to gather ideas and perceptions about social networking in the context of higher education in Saudi Arabia via focus groups. This initial phase of the data collection process will be used to establish a framework of factors which may prove critical to the successful adoption of social networking in universities in Saudi Arabia. This is followed by a quantitative phase whereby questionnaire responses undergo factor analysis to further refine and add rigour to the framework. Finally, another qualitative phase is conducted via interviews with key university stakeholders in order to arrive at the final framework of factors. Figure 1 shows the design used for this research

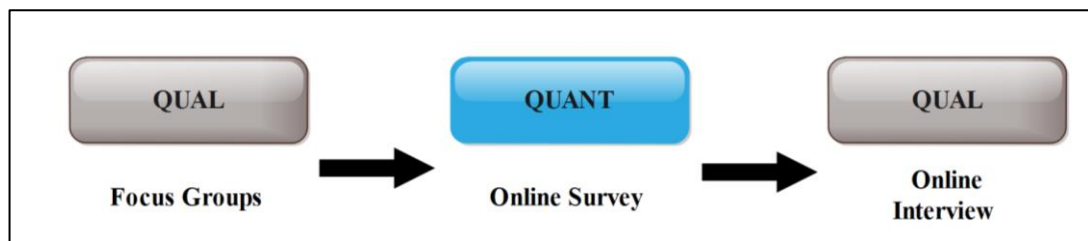


Figure 1: Design used for this research (prepared by the author)

The chosen mixed methodology which combines both qualitative and quantitative approaches was used due to its ability to provide in-depth responses, small group narratives and the rigour associated with a larger sample of respondents which allows for greater generalisability of results. This allowed the researcher to validate and strengthen the findings and to obtain a rich picture of the subject matter under investigation.

## 1.11 Overview of the Research Flow

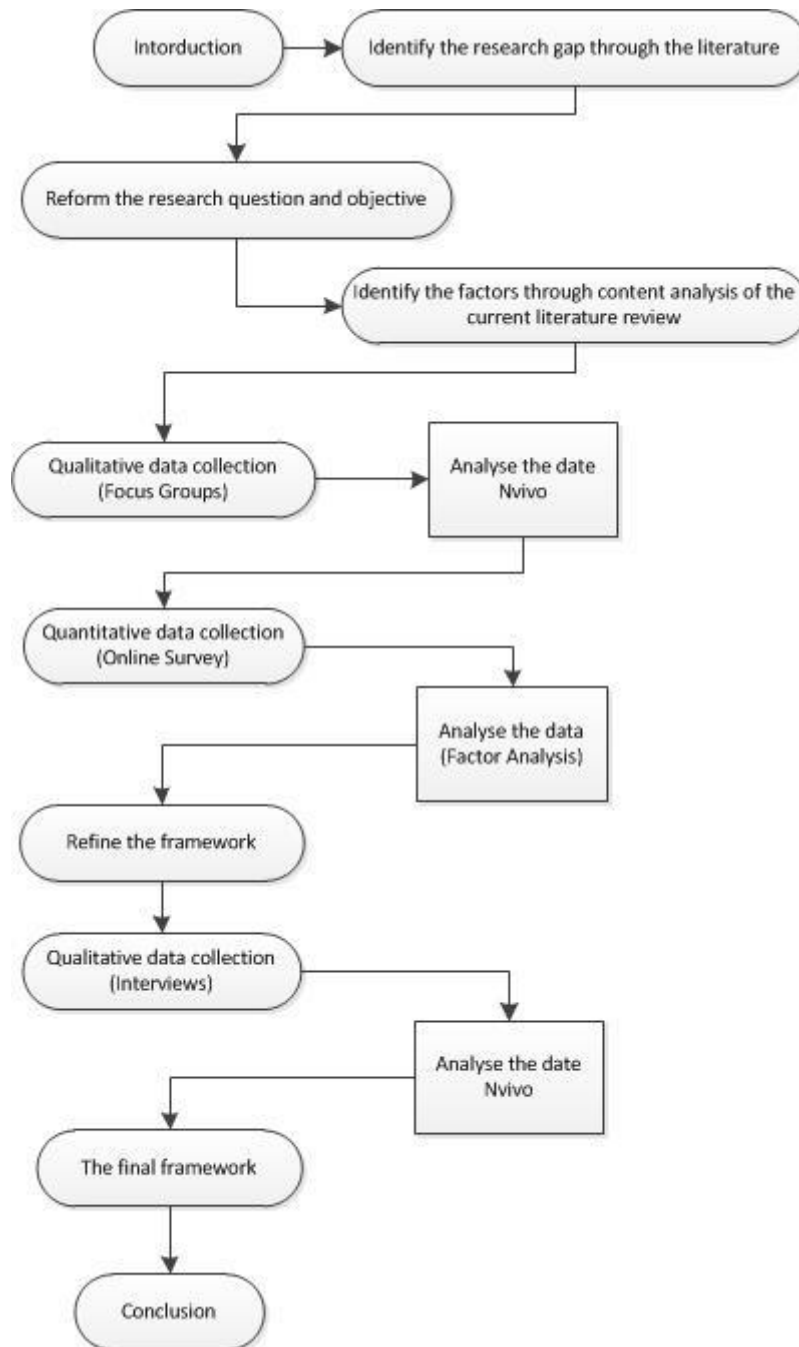


Figure 2: Research Flow (prepared by the author)

The research was conducted in the following phases: a thorough literature review was undertaken in the area of social networking in terms of its applicability to higher education. As a result of reviewing the literature, a research gap was identified, namely, the lack of current research on social networking usage by universities and higher education providers in non-mainstream contexts, in this case, Saudi Arabia. Subsequently, a research question and set of objectives for the research were formulated. By means of content analysis of the current literature, key themes and factors for implementing social networking into higher education in Saudi Arabia were pinpointed and these factors were then further tested by means of qualitative data collection, which was analysed using NVivo 11 software and quantitative data collection, which was analysed using factor analysis. The next phase involved refining the framework of identified factors underlying the successful implementation of social networking into universities in higher education in Saudi Arabia. The refined framework was tested by means of a further qualitative data collection process in the form of interviews of academic staff in Saudi Arabian universities. This data was analysed using NVivo. As a result of this final phase of analysis, an amended final framework of factors underpinning the successful adoption of social networking by Saudi Arabian universities was arrived at.

### **1.11.1 Chapter 1: Introduction**

This section outlines the background to the thesis topic by briefly considering the applicability of Web 2.0 collaborative tools to the higher education sector globally, and then focusing on the need to supplement the current picture of social networking usage in education with a more detailed examination of uptakes in non-mainstream geographic, cultural and social contexts. This sets the scene for the chosen focus of the thesis on the Kingdom of Saudi Arabia which presents a unique cultural landscape.

### **1.11.2 Chapter 2: Significance of the Research, Research Questions and Research Methods**

This chapter explains the rationale for the choice of topic for this thesis, focusing on the factors underlying the successful implementation of social networking in teaching and learning approaches in universities, both generally, and more specifically in

relation to the non-mainstream higher education context of Saudi Arabia which represents a set of contradictions and challenges that require careful investigation prior to the introduction of widespread social networking in university pedagogy in higher education in Saudi. In doing so, it provides some additional information about the specific cultural environment of this country including governmental approaches to education and technology. The chapter then defines the primary and secondary research questions which are answered by the collection and analysis of data in this project. Finally, the section outlines the research methods applied to the collection and analysis of the data, and provides details of the research approach, the sample population used in the survey, and the data analysis tools used.

### **1.11.3 Chapter 3: Literature Review**

This chapter provides a review of the major existing research on social networking in the higher education sector. It commences with a brief history of the development of the Internet and web technologies before defining some of the terminology pertinent to the research area. It also identifies and explains the key Web 2.0 technology types which are considered in this paper. After a brief overview of how social networking has been adopted by other sectors, the literature review focuses on the higher education sector and utilization of online digital technologies in this realm, summarising the main trends in the current research into this topic. The findings of a multitude of researchers are outlined and applied within a particular socio-cultural context in an attempt to specify a more structured framework of success factors pertinent to Saudi Arabian university higher education. The chapter concludes with an examination of the amount of research currently available on social networking in the tertiary sector in Saudi Arabia.

### **1.11.4 Chapter 4: Focus Groups Data Collection and Analysis**

This chapter presents the analysis of data gathered in Saudi Arabia concerning the acceptance of social networking sites for academic purposes. In order to obtain the desired results, themes were identified from the literature review and targeted questions were posed to participants from four universities in the form of group discussions of the role and significance of social networking sites in academia, encompassing current issues, trends and personal experiences to determine the factors

that must be included for developing a social networking framework for high education in Saudi Arabia, whilst maintaining qualitative methodology and analysis.

### **1.11.5 Chapter 5: Survey Data Collection and Analysis**

The data collected via the survey instrument is collated and presented in this chapter. The ways in which the results were arrived at and interpreted are explained and evaluated in the chapter that follows.

### **1.11.6 Chapter 6: Interviews Data Collection and Analysis**

This chapter constitutes the final phase of the research and is dedicated to examining the outcomes of the e-interview phase in order to refine the framework and expose it to stakeholders for evaluation.

### **1.11.7 Chapter 7: Research Findings and Conclusions**

This constitutes the final phase of the research where the results of the data analysis are discussed in detail and their implications described in terms of recommendations for further research. This section also considers the limitations of the research due to restrictions in scope.

## **1.12 Conclusion**

This chapter outlined the background to the research topic by introducing the phenomenon of social networking and how it has been repurposed as a pedagogical tool in universities owing to its capacity for engendering interaction and collaboration. The chapter described a range of social networking platforms, such as Facebook and Twitter, and briefly indicated how and why they have been introduced into higher education. The chapter also highlighted the case of Saudi Arabia which differs culturally from mainstream countries in which the majority of research into social networking has been conducted. Based on this, the chapter defined the research question, its significance and its possible practical and theoretical outcomes. The chapter also elaborated on the research methodology to be used in answering the research question, the design of the research and the research flow.

## **Chapter 2**

# **Research Methodology**

## **2.1 Introduction**

Chapter 1 introduced the topic of social networking within the context of higher education teaching and learning practices and, furthermore, explored its current use in Saudi Arabia. It explained how the country may stand to benefit from the collaborative features of social networking. In the previous chapter, the research question was formulated, the research design and methodology were briefly described, and the intended of the intended research were established.

This chapter outlines crucially important areas in regard to the establishment of the research problem as well as the selection of the research methodology which best suits the needs of this project. Firstly, section 2.2 examines the significance of the research and the value of this study within the context of the social, cultural and economic status of Saudi Arabia today with particular reference to modernisation and reform in its higher education sector. Within this context, it is proposed that there is a need to identify the factors that may influence the successful adoption of social networking tools in universities in Saudi Arabia.

Section 2.4 addresses the specific research objectives as stated in the primary and secondary research questions. The chapter then explains under section 2.8 the chosen research methods, including their underlying philosophical approaches. Lastly, section 2.7 describes in detail the design of the instruments used to gather the data – both qualitative and quantitative - and the analytical tools employed subsequently for statistical analysis.

## **2.2 Significance of Research**

For any research project, it is vital to establish the importance of the research problem and the envisaged contribution that the proposed study will make. There are two main areas of research benefit: practical and conceptual. The first category relates to what the research can contribute to practice and the second pertains to what the study can add to the existing knowledge on a topic. In the case of this research project, the primary benefits are both practical and conceptual. The research aims to extend what is already known about social networking in the higher education sector in Saudi Arabia, and to offer concrete suggestions for future best practice. In this way, it is



hoped that the project can contribute to the formulation of further research directions and questions to guide the implementation of social networking in Saudi Arabian universities.

### 2.2.1 Theoretical Significance

This study aims to contribute to theoretical knowledge about factors underlying the successful implementation of social networking in teaching and learning approaches in universities, specifically in relation to the non-mainstream higher education sector of Saudi Arabia. This in itself poses a set of contradictions and challenges that require careful investigation prior to the introduction of widespread social networking in university pedagogy. By uniting the various approaches drawn from extant literature on the implementation of social networking in universities globally, the research posits a framework of factors which might underpin an integrated and well-considered incorporation of social networking in higher education in Saudi Arabia. Crucial to the development of this framework, however, is the understanding that, while integrating aspects of best practice from other implementation projects is invaluable, it is also essential to consider the immediate context of the host country and its cultural variances so as to avoid the “conceptual mistake” (Elkerdi 2014) of mimicking a set of ideas, systems and tools which may be ill-suited to the teaching and learning needs of Saudi Arabia. While the transcultural diffusion of techniques and the sharing of technologies across geographical borders is inevitable, professionals and policy-makers must be aware of the potential impacts of adopting an educational technology for local conditions. In this light, the framework might prove to be a mapping guide to government departments, funding bodies, university management, administration and technical support teams involved in any future endeavour to integrate social networking within the higher education sector in Saudi Arabia. By extension, students and teaching personnel would benefit from the inclusion of such technologies due to their potential to support key higher education teaching and learning tasks. Furthermore, the framework lends itself to application to other contexts in that it comprises a set of core factors as well as a set of surrounding, contextualised influential factors. This second set of factors can be extended beyond Saudi Arabia and analysed in the context of other socio-cultural, national and economic variables in

order to provide an insight into how social networking might be incorporated into the higher education arena in a range of countries and diverse socio-cultural conditions.

## 2.2.2 Practical Significance

Saudi Arabia could make more use of innovative web-based technologies into its teaching and learning systems in line with international standards (Alqarni 2015). It is argued that Saudi Arabia presents a unique set of variables – having a well-developed technological infrastructure and high user acceptance of social networking combined with traditional, gendered and social roles – which makes it vital to introduce social networking in a carefully coordinated manner which builds on advantages yet controls for risks (Solangi, Al Shahrani and Pandhiani 2018). In so doing, the study aims to identify the factors which will act as a blueprint for successful usage as Saudi Arabia consolidates itself economically, socially and educationally and aims for higher standards of scholarship and innovation. The study will produce a framework of factors which can be considered by stakeholders as they might apply to Saudi Arabian universities with the possibility of extending these insights to other countries and contexts.

## 2.3 Research Question

There are two primary techniques used to generate a research question. The first technique is based on “rational thinking” which is claimed to be a set of activities which involve looking at past research and literature and gathering ideas, in this case on the adoption of social networking tools in pedagogical systems (Gray 2009, 46; Saunders, Lewis and Thornhill 2009). Secondly, Gray (2009, 46) proposes “creative thinking” as an approach, utilizing tools such as brainstorming and SWOT analysis to explore the current state of the issue pertaining to the research question.

*Table 1: Techniques used to generate a research question (Adapted from: Gray (2009, 46))*

Rational Thinking	Creative Thinking
Examining your own strengths and weaknesses	Brainstorming
Examining past projects	Exploring personal preferences using past projects
Searching the literature	Relevance trees/mind-mapping
Acquiring ideas through discussion	Keeping a notebook of ideas

## SWOT analysis

These rational and creative tools of enquiry can help to produce a picture of social networking as a contemporary cutting-edge form of communication, interaction and collaboration that has attracted a vast following, particularly among the younger generation. The phenomenon of social networking has penetrated not only business, health, banking and the media, but also the academic sector. By this means, students can acquire information about institutions and courses as well as use social networking services to organize and enhance their studies, and for a myriad of other socio-educational purposes ([Alzahrani 2011](#)). It is also important to note that social networking has not only become a functionary of social communication, but is also an integral part of the management of institutions. Aligning the provision of services in the educational sector with advances in online technology, such as providing notes online for students, is a significant aspect of higher education today. Moreover, institutions have now embarked on establishing online libraries and online learning programs, facilities highly influenced by social networking ([Ashoor 2000](#)).

Social networking has also been adopted formally by university faculties around the world as a pedagogical tool. However, at present very little research has been conducted on the development of a blueprint or framework regarding the implementation of social networking in the educational system as a pedagogical tool. Moreover, most research addresses mainstream educational contexts and First World teaching and learning regimes which means that little is known about social networking usages and practices in other socio-cultural contexts. Hence, this study is intended to address this gap by identifying factors that need to be considered when developing a social networking framework in the higher education arena in Saudi Arabia.

### 2.3.1 Primary Research Question

The use of social networking tools for education may act as an agent of cultural transformation, potentially improving such areas as student and lecturer communication as well as helping to bridge the communication gap between genders in Saudi Arabia. However, before developing a framework, it is crucial to have a

thorough understanding of the factors that support or prevent the adoption of social networking tools in the nation's education system. Hence, this study will aim at delivering a set of factors that will together act as a general framework for the incorporation of social networking in higher education in Saudi Arabia.

Therefore, the main question for this research is: *What are the factors that must be considered when developing a social networking framework for higher education in Saudi Arabia?*

### 2.3.2 Secondary Research Question

In order to pinpoint the factors that support a social networking system for higher education in Saudi Arabia, a deeper understanding is required of the underpinning issues. In this case, the socio-cultural specifics of incorporating such learning tools must be considered in detail. This approach recognises that the ways in which people interact with technology is strongly influenced by their cultural and social backgrounds. Hence, the manner in which teaching and learning activities are conceptualised and carried out will vary according to differences in social, cultural and geographical realms. Moreover, it also recognises that the use of computers for educational purposes is often validated by a dominant Western discourse that correlates the use of technology with modernisation, development and progress and both normalises and is predisposed towards First World values and ideas about education. ([Ochwa-Echel 2007](#)). Such a vision of individual, economic and national empowerment at the hands of a seemingly universal and value-neutral technological system comes at the expense of indigenous and local forms of knowledge. Hence, [Ochwa-Echel \(2007\)](#) warns that any adoption of technological practices by a developing country – or, in this case, a culture that exists outside of the norms and conventions of Western culture – must be based on a careful “assessment of the original host culture”. As such, culture is a determinant of acceptance and use of technology and may strongly affect the success or otherwise of any attempt to implement a social networking agenda. Therefore, the secondary research questions for this study are:

- *What are the specific cultural, social (including ethical) and technological factors that must be considered when developing a Social Networking framework for higher education in Saudi Arabia?*
- *What are the perceptions and attitudes of university students and academics towards the Social Networking Framework for Universities in Saudi Arabia?*

## 2.4 Research Objective

This research seeks to better understand the implications of introducing social networking applications into learning programs in higher education in Saudi Arabia. In particular, it focuses on social networking, its nature, available applications, and opinions of stakeholders. Most importantly, it considers how it may be best incorporated in order to serve educational purposes in Saudi Arabia, with a focus on cultural, social and technological conditions that are likely to facilitate or hinder the uptake of aspects of social networking applications in teaching and learning. The outcome of this research will be to determine and elaborate on the factors that meet the needs of teaching and learning in Saudi Arabian universities. As stated previously, this would be of use to government departments, funding bodies, university management, administration and technical support teams who could apply the insights acquired from the research to projects for social networking in the university setting. Moreover, the ultimate beneficiaries of the model would be the students and academics/teaching staff of these universities who would harness the advantages of social networking in their learning and teaching activities.

The construction of the framework is divided into two parts: a set of core factors that relate to system design, functionality and usage, and a set of influential factors which reference the specific socio-cultural, national and economic factors that give shape and relevance to the core factors. Whilst the influential factors of this study analyse Saudi Arabian national culture as a determinant of the key core factors, the influential factors in the framework could be applied for analytical purposes to any socio or geo-cultural landscape so as to determine the best mix of success factors for that particular country or society.

## 2.5 Definition of Research

In line with [Crotty \(1998\)](#) who cautions against using research terms interchangeably, it is essential to define the nature of research and the theoretical assumptions underlying it so as to establish a sound basis for conducting research, analysing data and presenting the new knowledge acquired from the investigation. Basically, research can be understood as a quest for new and useable knowledge which stems from a systematic and logically oriented approach to searching for information on a selected topic ([Rajasekar, Philominathan and Chinnathambi 2006](#)). The ultimate goal of research is to generate new knowledge via a systematic investigative approach which reveals truths about human behaviour and experience which can be applied to an extant body of theory and practice ([DePoy and Gitlin 2013](#)).

The process of conducting research, then, comprises the logical and critical investigation of a defined problem in order to arrive at solutions and conclusions at the culmination of this “journey of discovery” ([Cavana, Delahaye and Sekeran 2001](#); [Fellows and Liu 2008](#)). According to [Gray \(2013\)](#), the research process comprises a sequence of actions, starting from defining a broad area for research, narrowing this down to a particular topic, defining objectives and selecting an approach and formulating a plan for collecting information, analysing the data, and then presenting the findings. In so doing, the researcher is guided by the needs of the research as expressed in particular research methods which will result in the construction of a credible knowledge base ([Sekaran 2005](#); [Punch 2005](#)). This research follows the action steps of Gray’s framework through definition of the research problem based on the current literature and on an understanding of the current context in which teaching and learning takes place in Saudi Arabia gained from qualitative research methods such as surveys and focus groups. The qualitative method is used as the primary instrument for collecting data which are then validated and confirmed by quantitative data analysis.

## 2.6 Research Types

Philosophical assumptions about what research is and what might be the most suitable methodologies for achieving the required results are critical for any research-based

study. There are three overarching research types: exploratory, explanatory and descriptive ([Bernard and Bernard 2012](#)). Simply defined, exploratory research is concerned with investigating the new, explanatory research seeks to find cause and effect relationships between phenomena, and descriptive research records phenomena “as they are”. These are not necessarily discrete categories and they may overlap in any given research project. This research is primarily mixed in its orientation. It is descriptive in that it examines trends in existing literature on how social networking has been deployed in universities globally, in addition to describing current usage and understanding of social networking in Saudi Arabia based on data gathered from surveys and focus group questions. The research is also exploratory in that it attempts to generate insights into a new and little-known context, that of the higher education sector in Saudi Arabia. Thus, through surveys and focus groups, it seeks to understand what is currently occurring in universities in Saudi Arabia in order to raise questions about how social networking might best be incorporated into tertiary teaching and learning practices. Furthermore, the research has an explanatory orientation in that it sets out to identify the key variables and their relationships with regard to an analysis of factors which might encourage social networking implementation in Saudi Arabian higher education.

## 2.7 Research Design

The overall research design, depicted in Figure 3 below, shows the six layers of the research methodology adapted from [Saunders, Lewis, and Thornhill \(2009\)](#)

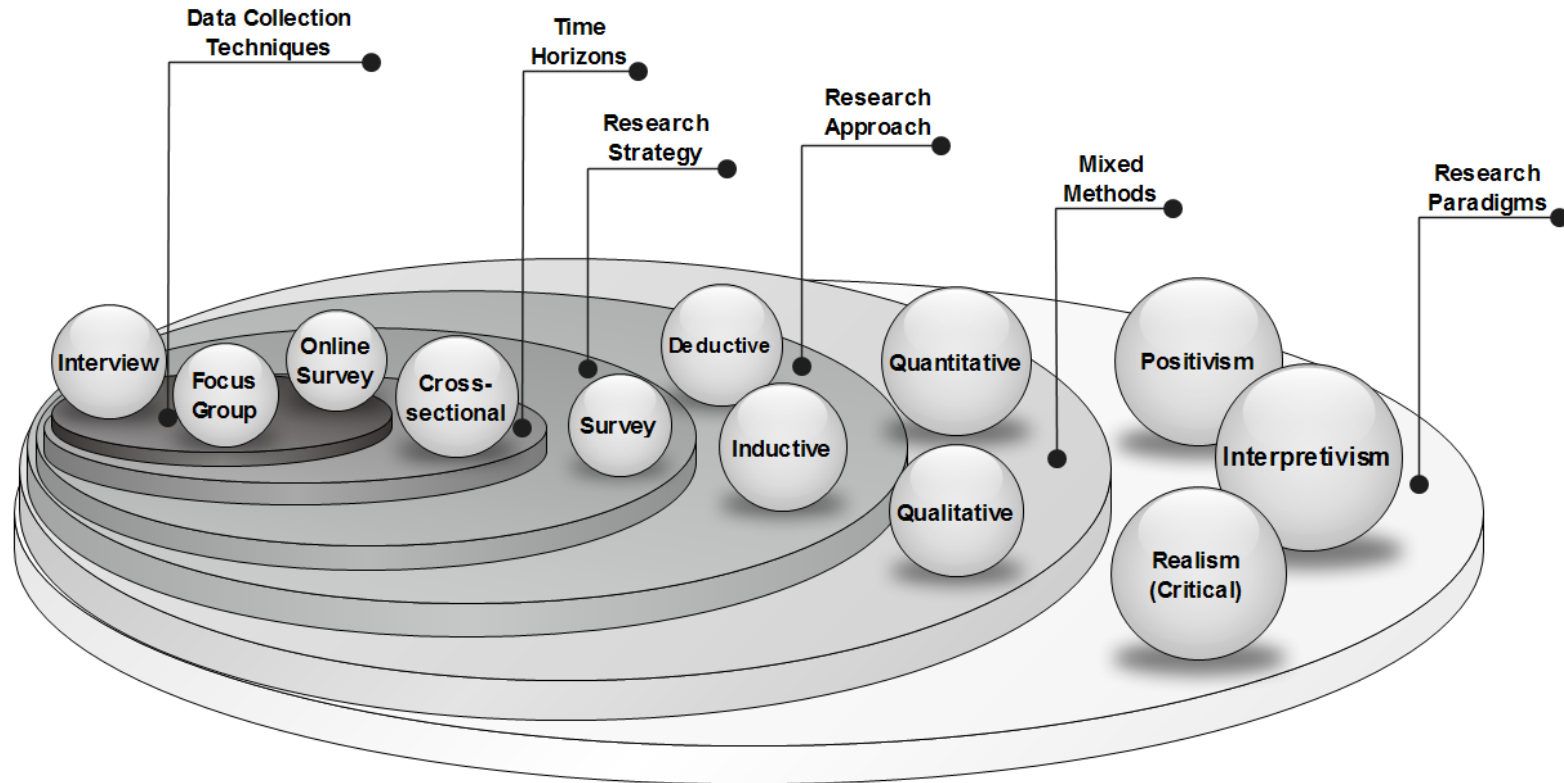


Figure 3: Research Design (Prepared by the author)



## 2.7.1 Research Philosophy

While the previous section outlined the broad orientations of research, this section examines more closely the philosophical underpinnings of research. The philosophical assumptions of research occupy a spectrum with positivism and interpretivism at either extreme ([Easterby-Smith, Thorpe and Lowe 2001](#)). In order to specify at which end of the spectrum a research project is positioned, it is important to define the ontological and epistemological dimensions of the research. This, in turn, will generate the research strategy or methodology to be used ([Burrell and Morgan 1979b](#))(Burrell and Morgan, 2005). According to [Crotty \(1998\)](#), the dichotomous classification of research into ontological and epistemological poles is artificial because an ontological stance implies a particular epistemology and vice versa. However, despite the complementarity of these terms, the discussion that follows will treat ontology and epistemology as separate realms of enquiry and understanding.

### 2.7.1.1 Ontology

Ontology, or the theory of being ([Blaikie 2009](#)), explores the nature of reality and how the existence of phenomena is constituted ([Saunders et al. 2011](#); [Creswell and Clark 2007a](#)). It primarily concerns itself with whether a real world exists independently of human knowledge of it ([Marsh and Furlong 2002](#)). Objectivist ontologies posit that social phenomena exist objectively outside of human actions, awareness and understandings while subjective approaches, in the tradition of [Kant \(1934\)](#), [Heidegger \(1962\)](#) and [Weber \(2004\)](#), contend that human beings, as social actors, determine and are an integral part of the meaning of social phenomena. In essence, ontology questions whether reality is external to individuals, existing “out there” in its own right or whether it is a product of individual cognition.

### 2.7.1.2 Epistemology

Epistemology relates to how knowledge is constructed and defined as “true” ([Tan 2002](#)), and how it is disseminated to others. In the context of a research undertaking, it refers to

how the researcher knows that the body of knowledge presented is valid and reliable. In this sense, epistemology reflects on what can be known about the world and how human beings come to know it. Indeed, epistemology can be framed as “processed knowledge” (Cua and Garrett 2008) whereby reality must be accessed and structured as human experience. According to Blaikie (2009), in order to become knowledge, reality must be mediated via awareness, access and reflection. Quantitative approaches to epistemology suggest that the data obtained is external to the researcher and the position he or she occupies. This supposes that knowledge can be acquired in a manner which is untainted by the perceptions and values of the “knower” and that such knowledge is objective, universal and common to all observers. This approach situates the researcher as an observer of hard and tangible phenomena. In contrast, qualitative epistemological approaches consider the position, values and interpretative frameworks of the researcher to be embedded in the knowledge produced. This suggests that there is no “real world” outside of the meanings attributed by human actors. Furthermore, knowledge can never have absolute truth value; it can better be understood as being consensually and communally defined and accepted (Cua and Garrett 2008). In this sense, the researcher is inextricably implicated in and bound up with the subject(s) of research.

## 2.7.2 Research Paradigms

The conceptual framework used in this study derives from the following approaches as defined by Gephart (1999):

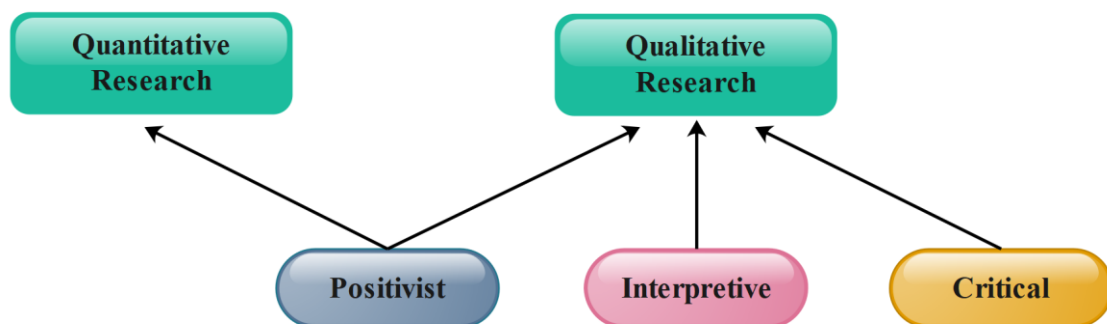


Figure 4: Epistemological Assumptions for Qualitative and Quantitative Research ("*Quantitative Research in Information Systems - Section 2: Philosophical Perspectives*" 2013)

### 2.7.2.1 Positivism

According to positivism, knowledge can be validated based on sensory experiences and proofs. In positivism, reality is something that can be objectively defined and measured using tools which are independent of the researcher and his or her perceptions. Thus, the positivist approach is scientific in that it sees the world as stable, real, objective and external to the mind-sets of individuals; it also posits knowledge as factually constructed, meaning that human beliefs can be categorised as definitively true or false. Positivist theories are, in essence, about *explanation* which is achieved through the foundation of universal *laws* which can be used to account for past events and predict future ones. Methods of enquiry in positivism are predicated on data which is statistical and measurable and from which causal trends and correlations can be extrapolated. In this sense, the outcomes of positivist enquiry represent a one-to-one mapping between research statements and reality, expressed in a certainty that the data obtained measures an independent reality in a way which is reliable and can be replicated by other researchers. [Hacking \(1981\)](#) provides a list of the key features of positivism taken from an historical perspective:

1. Science is an objective, neutral, externally validated “product” which transcends individual cultures and nations as promoted by the school of Logical Positivism in Vienna ([Baronov 2004](#)).
2. Truth is obtained through the establishment of logical, rational and coherent statements.
3. In line with the work of ([Popper 2005](#)), statements must be verifiable and subject to testing for truth value.
4. Science is about valid, proven and normative truths which are separate from the values and perceptions of the researcher.
5. Scientific disciplines are unified and refer to one stable and objective world or reality.
6. Scientific endeavour is descriptive and has as its goal the explanation of phenomena.

While this paradigm dominated research in the latter half of the twentieth century, it has been challenged by critics who maintain that the goal of complete objectivity is an unrealistic ideal. According to [Smith \(2006\)](#), positivism in its pure form, as characterised above, is no longer widely used in academic enquiry. However, elements of a positivist stance are still prevalent in research methods based on hypotheses, deductive reasoning and the notion of causality.

### **2.7.2.2 Interpretation and Interpretative Methods**

In contrast to positivism, interpretative paradigms are premised on the notion that reality is a social construct which exists only in terms of the meanings and interpretations people give to it. Hence, its primary research methods include observation, interviewing and interpretation of events or information rather than “hard facts” and quantifiable data. In sum, context and the subjective interpretations which people assign to phenomena underlie this interpretative framework which aims to explain the subjective reasons and meanings that motivate social action. According to [Burrell and Morgan \(1979a\)](#), interpretivism is not a single paradigm; it belongs in fact to a large family of diverse paradigms which are characterised by their emphasis on human understandings of events and the ways in which social realities are constructed via the mental structures of consciousness. Thus, the approach implies participation and engagement whereby the researcher is not positioned outside the research but situated explicitly as a participant within its specific contexts.

Hence, rather than testing a hypothesis - and its generalisability - through an objective, unified and universal scientific framework, interpretivist theories and methods focus on variables such as cultural diversity, localised realities, socioeconomic conditions and human experiences and perceptions. Truth, in this paradigm, can be seen as defensible knowledge claims rather than objective empirical data and the approach is founded on interpretative awareness and the implications of human subjectivity in constructing and ascribing meanings. Hence, interpretivism favours multidimensionality and circularity over linear cause and effect and rejects the positivist goals of explanation and prediction in order to promote the subjective understandings of a multiplicity of stakeholders.

### **2.7.2.3 Critical Research Methods**

An alternative to both positivist and interpretative approaches is the so-called “mixed methods” critical theory which combines elements of the former two frameworks ([Bisman 2010](#); [Gephart 1999](#)). Widely used in current research, the critical research orientation suggests that reality is not a matter of personal preferences, evaluations or moral attitudes as may be implied by the interpretivist branch of enquiry. Instead, drawing on positivism, it accepts the notion of an objective reality which is independent of human knowledge of it. This ontological realism, however, is combined with an epistemological relativism derived from interpretative stances. Researchers applying the critical paradigm propose that human understanding of reality is socially and historically constituted and human behaviour is constrained or determined by a set of defined beliefs, values and social structures or discourses which become “naturalised” to the extent that they are invisible and taken for granted. The aim of the approach, therefore, is to reveal the social, cultural and political dynamics that are hidden within such discourses in order to expose, critique and potentially transform relationships of power and domination in contemporary society. This involves the deconstruction of concealed power structures that may pertain to culture, gender, race and other variables, thereby granting a voice to the marginalised, the post-colonial and the non-mainstream.

Critical research methods, therefore, challenge positivist methods—both quantitative and qualitative—that make claims of scientific objectivity. In particular, critical social research attempts to reveal the socio-historical specificity of knowledge and to shed light on how particular structures of knowledge contribute to human relations of inequality and oppression.

Table 2 below outlines the key differences between the three research paradigms considered in the foregoing discussion:

Table 2: Differences between the three research paradigms (Adapted from: [Saunders et al. \(2011\)](#))  
(prepared by the author)

	<b>Positivism</b>	<b>Interpretivism</b>	<b>Critical Theory</b>
<b>Aim</b>	Specification of laws to explain objective phenomena	Understanding meanings through human actions and values	Understanding objective reality through socio-historical structures of hierarchy and control
<b>Assumptions About Reality</b>	One unified reality “out there”	Multiplicity of realities	One reality subject to socio-cultural interpretations
<b>Assumptions About Knowledge</b>	Objective and can be reproduced	Knowledge is difficult to specify due to the shifting nature of reality	Knowledge is a construct based on discourses of power and control that shape interpretation including the position of the researcher
<b>Assumptions About Method</b>	Hypothesis and deductive methods in order to explain what is already in existence - Deductive	Methods derived from human values and perspectives - Deductive	A combination of methods which include an analysis of the researcher’s own stance and its implicit relations of power - Inductive
<b>Stance Toward Values</b>	Neutral and value-free	Avoidance of judgement by researcher	Awareness of issues of equality, power and control
<b>Whose Voice is Represented in Accounts?</b>	Product of research is impersonal, objective and error-free	Personal voice of researcher and research subjects	A multiplicity of stakeholder perspectives analysed through socio-cultural discourses

## 2.8 The Chosen Research Method

This research adopts a critical or “mixed” mode line of enquiry because of its culture-bound focus on higher education in Saudi Arabia ([Creswell and Clark 2007b](#); [Gray 2013](#)). The position taken in this study is premised on the notion of enculturation which is the process by which people learn the requirements of their cultural environment. In this sense, the ways in which academics and students engage with technologies in universities in Saudi Arabia are not value-neutral, but, in fact, represent the intersection between a particular set of cultural understandings and the use of social networking tools. Furthermore, the methods of the critical approach lend themselves to an analysis of

cultural borrowing in order to understand how social networking technology, a carrier of mainstream American and European concepts about the individual, society and education, can be adapted to a socio-cultural milieu that differs in its understandings and guiding values. Hence, the adoption of social networking in university education in Saudi Arabia may require amendment and reconstruction of social networking tools and systems rather than a wholesale and uncritical absorption of a bundle of Western beliefs – and corresponding practices - which proclaim the objectivity, universality and neutrality of technology ([Ochwa-Echel 2007](#)). Figure 5 shows the four mixed methods approaches proposed by ([Gray 2009, 206](#)):

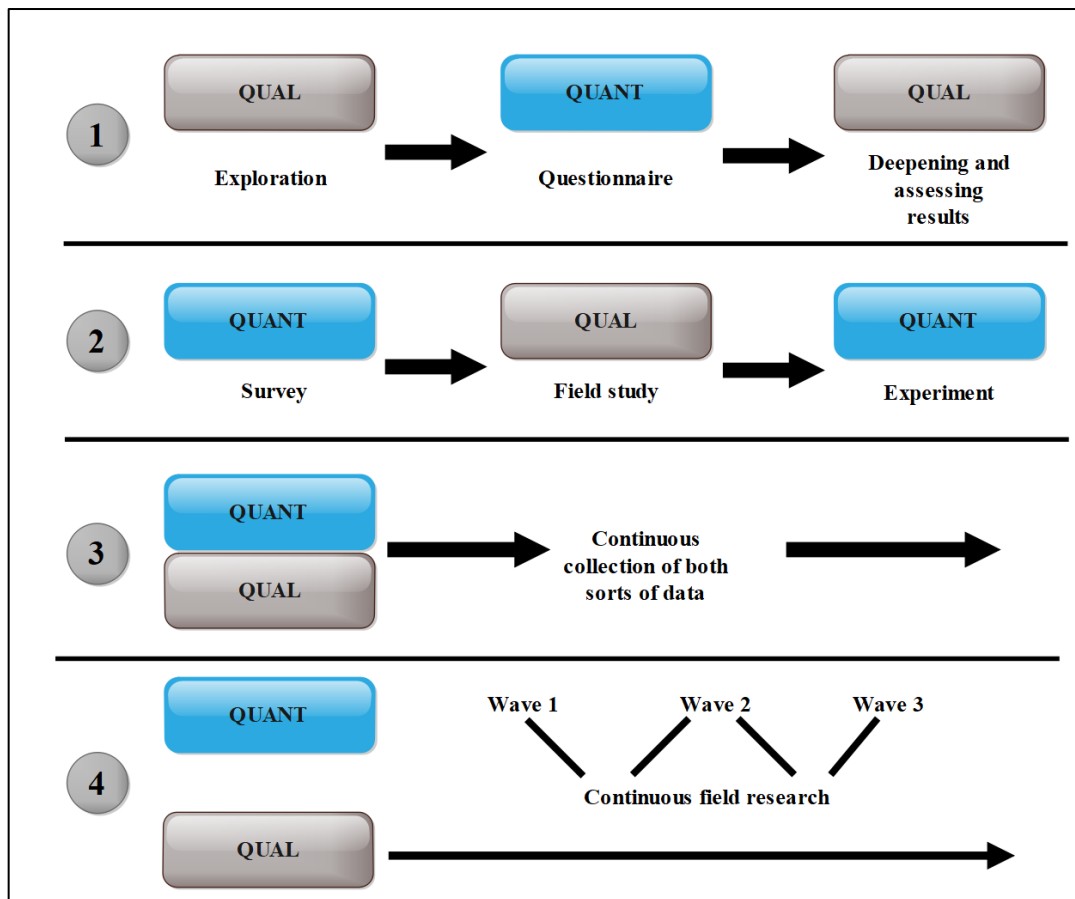


Figure 5: Mixed methods approaches (Adapted from: [Gray \(2009, 206\)](#) ) (Prepared by the author)

In terms of research methods chosen, the study draws on both quantitative and qualitative approaches configured to best support the research questions and yield useable data. The

combination chosen is the first design of the four proposed approaches by (Gray 2009, 206) as shown in Figure 6:

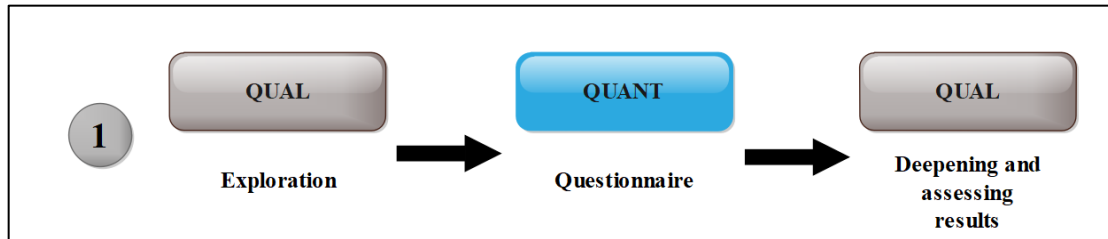


Figure 6: Chosen approach (Prepared by the author)

The initial qualitative phase is designed to gather information based on human experiences, ideas and perceptions through interviews and focus groups. The rationale is to collect data about social networking instruments as they are currently used in tertiary teaching and learning in Saudi Arabia based on the opinions offered by respondents. This background context will be used to generate a tentative framework of factors that might be crucial for the successful adoption of social networking in Saudi Arabian tertiary institutions of learning. The quantitative phase that follows seeks to bring rigour to the framework under development by analysing the results of a questionnaire and using factor analysis to reduce the number of variables in the proposed framework in order to specify the key factors that should be considered prior to implementing social networking. This will be followed by another qualitative stage in which respondents will again offer their opinions of the refined and amended framework under development.

### 2.8.1 Inductive vs Deductive Approach

The inductive method of inquiry starts with specific observations and then makes a broader generalization from these. Inductive reasoning aims to draw general conclusions from individual observations which can also be applied to the whole group being observed. The inductive approach is acceptable as a valid scientific methodology which uses a series of separate specific individual observations and then categorizes these



observations into patterns in order to arrive at generalizations and eventually to infer conclusions. There is a thorough logical process involved in an inductive approach by means of which specific premises are derived from observations so as to generate a conclusion. Inductive reasoning quite often is used in instances that involve prediction, forecasting, or expected behavior. Thus, the inductive approach is applicable to case studies, action research, grounded theory, and other methods of inquiry that are social science experiments and essentially involve people's behaviours. Inductive reasoning is evident when research starts with observations, assembles them into probable patterns, and proposes a generalization that implies a theory that is most probably true ([Rovai, Baker and Ponton 2013, 3](#)). Along these lines, an inductive approach is more conducive to the collection of qualitative data because it employs rich descriptive language which is not possible when research uses numbers alone such as in quantitative research. Moreover, inductive approaches give a researcher the full spectrum of nuances that can be obtained from watching people, listening to descriptions, determining how people will supposedly behave, their likely reactions in the future, implied meanings, and more importantly, new directions for further research studies ([Brink et al. 2006, 14](#)). Intensive interviews and inclusive focus groups are examples of qualitative research methods aligned with an inductive approach. This research is inductive in its orientation in that it uses focus groups as a means of data gathering and subsequent analysis. The aim of conducting focus groups is to obtain rich qualitative data based on participants' lived experiences and then use these to extrapolate more general meanings that can be applied to the field of technology usage in education in Saudi Arabia.

Conversely, a deductive approach involves a premise or assumption and then proceeds to a conclusion that is certain or true based on logic. This is a "top-down" logic as opposed to inductive reasoning which is a "bottom-up" approach. Deductive reasoning provides a near absolute certainty of being correct if the initial premises were also correct; a deductive approach gives a correct conclusion based on sheer logic. This is the benefit of deductive reasoning because it provides certainty in a conclusion compared to an inductive approach that can at best provide only a probable truth. The deductive approach is the equivalent of a mathematical proof which is why most researchers prefer a deductive

rather than an inductive approach. Deductive reasoning begins with a hypothesis or general statement and narrows this down to a specific or logical conclusion. In this respect, if something is true of a class or group, then it is only logical that all members of that class or group have the same features or qualities observed in an overall class or group. Deductive reasoning lends itself easily to a quantitative approach using numbers which are seen as being more precise, systematic, and scientific. Deductive reasoning moves from generally accepted broad principles to very specific conclusions by using an initial theory, generating a new hypothesis, conducting observations to test whether or not the hypothesis is valid, and then drawing the most logical conclusion. This is done by translating abstract ideas or concepts into a concrete statement that becomes testable based on what should happen in an empirical world if the initial hypothesis is valid ([Aneshensel 2012, 35](#)). The use of quantitative methods in research leads to solid proof because it is difficult to argue against numbers; it is up to the researcher to ably discern what the numbers imply in terms of insights and conclusions. The survey is a commonly-used methodology preferred by researchers because the quantitative or statistical data gathered can then be analysed rigorously depending on how the data were derived ([Gorard 2001, 2](#)). This is the most prevalent method today because of the shift towards more evidence-based research. This research utilises a deductive approach by means of a survey which is then analysed using statistical methods, thereby generating data which can be used to test and verify hypotheses.

### **2.8.2 Research Time Horizons**

A research time horizon is the length of time in which a project, plan, or program is expected to be completed. In scientific research, a time horizon is the time required by a researcher to collect relevant data and the way the data is obtained over that period of time. In this regard, there are two ways by which research data is obtained: either cross-sectional or longitudinal. The choice of which time horizon to employ for a particular research project depends on the expected value of information (EVI) that is to be obtained ([Philips, Claxton and Palmer 2008](#)). The choice of a specific time horizon is more or less independent of the research strategy undertaken. In either case, the time horizon serves as

a proxy for all the changes that have already taken place or are still expected to take place in the future.

A cross-sectional horizon involves the collection, use, and analysis of data that is collected from an entire population under study or from representative sections of that population. In a cross-sectional study, all data is collected in relation to a specific point in time rather than over time which is the characteristic of a longitudinal study. This means a cross-sectional study provides specific snapshots that pertain only to what happened at a particular period in time. This time horizon is useful when trying to answer a specific research question or address a particular problem when time is viewed as a constraint, meaning that data needs to be collected and analyzed over a short time span for the purpose(s) of the research.

A longitudinal horizon, on the other hand, refers to the study of events as these unfold over a period of time rather than at just a specific point in time. A longitudinal study takes a longer time frame to collect an adequate amount of research data, either by studying the events retrospectively as these happened over a period of time already in the past or prospectively as these events are expected to occur into the future while the study is undertaken ([Rose, Spinks and Canhoto 2014](#)). A longitudinal study makes several or a series of observations about the study population. This type of time horizon is by its very nature time consuming as it collects data not just once but several times over a period of time. The idea of this approach is to be able to observe any changes or new developments that are expected to occur during the time of study.

This research is based on a cross-sectional time horizon due to its many advantages. The foremost advantage is that large volumes of data can be collected within a shorter timeframe. Several sections of a population under study can be observed simultaneously at a defined moment in time. Moreover, this shorter time horizon is less expensive and the data gathering process requires less effort. Another major advantage of a cross-sectional study is that it is particularly suited to cases where the researcher is looking for causal relationships between one or more independent variables and the dependent variable. The researcher will be able to gather needed data right away at that specific point in time and

there is less chance that participants will withdraw from the study or even that the researcher will abandon the study before it is completed ([Brain 2001](#)). A compelling advantage of a cross-sectional study is that relevant data can be gathered from a large number of people and that data is in large measure comparable because it is not affected by the passage of time, unlike the research data obtained from that of a longitudinal study ([Bailey 2008](#)).

### **2.8.3 Survey Research**

Primary data was collected for this research by means of an online survey. The main usefulness of surveys lies in their ability to collect real-world data about practices, views and events at a given point in time. They are also economical to administer, allow for large-scale data collection which is representative of whole populations across widespread and dispersed distributions of respondents and are generally easy to understand and complete.

Surveys can be associated with both quantitative and qualitative approaches to research. In terms of quantitative analysis, surveys enable the researcher to gather data and to interpret it using statistical methods. The researcher is also able to draw conclusions about relationships between variables and to discern explanatory patterns from the data collected. From a qualitative point of view, the survey is a means of gathering perspectives and views in line with exploratory and descriptive research methodologies. ([Saunders, Lewis and Thornhill 2009](#)). Thus, survey-based research is versatile in that it can be used to determine respondents' attitudes and practices and to find correlations and causal linkages between variables ([Marczyk, DeMatteo and Festinger 2005](#))

### **2.8.4 Online Survey**

The primary instrument for data collection, as described in section 5.2, was an online survey which was distributed to participants via email. The web-based survey has advantages over the pen and paper-based method or email models for a number of reasons: firstly, it offers a low cost, practical option which is highly accessible and easy to

disseminate to respondents; moreover, participants can be reminded to submit their responses and be thanked for their participation; data can be downloaded in desired formats; the incidence of error is reduced as responses do not have to be recoded; and finally, the researcher has full control of the survey design and formatting. In terms of survey design, the researcher is able to draw on a range of visual aids such as pictures, diagrams and drop-down options ([Robson 2011](#)). It is also a highly manageable, customisable tool which delivers high response rates and swift, easier-to-analyse results, especially when results are downloaded in Excel spreadsheet format ([Issa 2013](#)). Its flexibility allows questions to be tailored for particular populations of respondents ([Robson 2011](#)); for example, in this survey, the survey instrument was able to deliver specifically designed questions to students and to academics.

However, the method can lead to such issues as respondents not understanding the survey instructions, the question of participant access to the survey, and potential technological problems associated with the downloading of data ([Issa 2013](#)). This is particularly problematic when respondents come from disadvantaged backgrounds and have little formal education since their ability to effectively participate in a survey is significantly reduced as a result ([Robson 2011](#)). In the case of this particular research, this point would apply to people located in remote villages in Saudi Arabia who lack both technological infrastructure, technical familiarity and educational advantage. Other drawbacks cited include respondents not answering questions in their intended order and invisible costs such as the need for computers and software as a requirement of participation ([Robson 2011](#)).

### **2.8.5 Focus Groups**

Focus groups have been in use for several decades in various fields such as healthcare, marketing and numerous academic sub-disciplines within the social sciences. This is a qualitative method of collecting and analysing data and is distinct in methodology from other qualitative techniques such as interviews and surveys ([Cornelius 2014](#)). As

discussed in Chapter 4, this study will use focus groups as a starting point for the qualitative examination of the main subject of the study.

Historically, the use of focus groups can be traced as far back as the 1920s, where they were used primarily to investigate the intricacies of the market ([Powell and Single 1996a, 500](#)). Presumably, this was done to gain insights into the prevalent market trends. The first major surge of interest in the use of focus groups was noted in the 1980s when marketing experts used it extensively for both local and international marketing studies ([Morgan 1996, 129](#)).

Focus groups centre primarily on the personal experiences and insights of individual members of the group in a relaxed and interactive environment. Each member of the focus group is encouraged to interact and converse with the moderator and other respondents ([Cameron 2005](#)).

It can be further categorized as a “controlled group discussion”, with emphasis on the need for a moderator or facilitator to complete the social arrangements required to produce target outcomes (e.g. complex social insight) ([Powell and Single 1996b](#); [Stollak et al.](#)).

This method is inadequate if no interaction between the individual members of the focus group occurs ([Smithson 2000, 103](#)). To encourage excellent feedback from the participants and to further improve interaction between the members of the focus group, researchers take into account the length of the session and proper scheduling to make each session convenient for everyone involved ([Powell and Single 1996b](#)).

Generally, qualitative methods of analysis such as this are used when there is a “need to identify or understand new/complex issues” rather than to determine their pervasiveness within the chosen social group ([Powell and Single 1996b, 499](#); [O.Nyumba et al. 2018](#)). Empirical/quantitative studies are often used for the express purpose of determining the prevalence of a condition within a target population. Focus groups, on the other hand, can be used to determine the multifaceted insights of individual respondents in an informal setting where they are able to speak to others about the topics that the moderator introduces to the group ([Smithson 2000, 103](#)).

The main limitation of focus groups is the difficulty of applying empirical methods of inquiry to data gathered from discussions ([Fern 1982](#)). This difficulty arises from the obvious disjointedness of qualitative data and quantitative data. On the other hand, the continued use of focus groups today is linked with the following research advantages: 1.) the emergence of “detailed and valid data” for the purpose of creating new hypotheses ([Powell and Single 1996b, 499](#)); 2.) being able to increase feelings of self-worth in the participants of the study ([Powell and Single 1996b](#)); and 3.) being able to tap into the dynamic communication process that makes ideation and group opinion possible ([Albrect, Johnson and Walther 1993](#)).

To ensure the validity of research that utilizes the focus group method, additional qualitative and quantitative methods of data collection should be employed by the researcher. Additionally, the researcher should also identify and focus on the most pertinent factors of the study in relation to its participants ([Powell and Single 1996b](#)). Researchers should also look into the factors that affect the communication process itself within the focus group to ensure the production of higher quality data through opinion generation ([Albrect, Johnson and Walther 1993](#)). Complex social phenomena such as group polarization ([Morgan 1996](#)), “dominant voices” ([Smithson 2000, 115](#)) and “the group effect” should not be viewed as hindrances but as valid points of interpretation ([Smithson 2000, 116](#); [Morgan 1996, 139](#)).

The ideal group size for focus groups is between six to ten participants ([Powell and Single 1996b](#); [Carey and Asbury 2016](#)). Increasing the size of the focus group may not necessarily mean that the researcher will obtain better results as there are no significant differences between the results of large focus groups and smaller focus groups ([Carey and Asbury 2016](#)).

To keep the study focused on important variables, the researcher should integrate existing data and knowledge about the general subject matter as these will likely influence the variability of responses within the focus group ([Powell and Single 1996b](#)). When selecting participants, the researcher must be independent in the determination of the latter and

he/she must not be influenced by personal recommendations of the study's participants ([Powell and Single 1996b](#); [Carey and Asbury 2016](#)).

### **2.8.6 Email Interviews**

The technique of interviewing for research purposes can take on several forms. For example, interviews can be structured, semi-structured and unstructured. The structured type of interviewing occurs when the interviewer uses the same set of questions with all interviewees who select an answer from a restricted range of responses. In contrast, semi-structured interviewing (also called focused interviewing) identifies a number of key themes and asks questions relevant to them, without a fixed sequence. In unstructured interviewing, the questions are engendered by the social interaction between the participants, although the interviewer maintains ultimate control ([Al-Saggaf and Williamson 2004](#)).

For the purposes of this research, the structured open-ended interview format was chosen based on its capacity to guide respondents while at the same time offering depth of response and the avoidance of the bias inherent in closed-question interviews ([Reja et al. 2003](#)).

An online interview was conducted, as will be discussed in Chapter 6, as this was the most appropriate given the strictures of Saudi society where gender segregation and strict moral codes prevail. In this respect, the interviewer was not able to conduct face-to-face or telephone interviews with female respondents because the gender divide in the country does not permit this. The method was also suitable because, generally speaking, Saudi women are not open to public disclosure and can often present as “shy”; the online interview allowed women to write their responses which was more socially acceptable for them than talking. They were also able to answer the questions in comfortable surroundings such as the office or home. Indeed, online communication was deemed a preferred method of communication for Saudi Arabian females compared to face-to-face or telephone modes. While it would have been possible to conduct telephone interviews with male respondents, it was decided to use one research technique across the sample so



as to avoid bias in the findings. Finally, Saudi society tends to be closed and restrictive in relation to disclosure of personal information and this applies to both genders. As the online interview is relatively anonymous (apart from email addresses for communication purposes as required), it encourages respondents to be open and to respond at length and in greater depth ([Al-Saggaf and Williamson 2004](#)). The online interview is also a democratising mode of communication in that it eliminates verbal and non-verbal cues associated with gender, race, age, status, dress, voice tone and gestures.

There were other advantages to the choice of interview style: the online interview is useful in that it eliminates the time and expense associated with transcribing. It also reduces the cost of recruiting geographically-dispersed interviewees; in this case, participants were drawn from four different universities across various regions of Saudi Arabia. The method was also helpful to the researcher as it eliminated the need to schedule interviews and, moreover, respondents could reply in their own time and at their convenience. It also enabled the researcher to interview more than one participant at a time and conduct interviews without the disruption that can occur with face-to-face or telephone communication ([Meho 2006](#)).

Furthermore, the web-based interview is used to supplement quantitative data to give an in-depth look at the scope of research data. Web-based interviews follow the same guidelines as those for face-to-face interviews, but are conducted via email, taking advantage of the Internet's ability to circumvent issues of time and distance ([Al-Saggaf and Williamson 2004](#)).

Interviews are designed to gather complex data and capture nuances that are normally not shown by the numbers alone in response to questions requiring only "yes or no" answers. This type of data gathering gives the researcher insights into his or her subjects based on the subjects' unique perspectives and related views or shared and individual experiences on the particular issue being studied by the researcher. Hence, the interview is a form of qualitative research which uses open-ended questions to obtain first-hand accounts ([Mack et al. 2005](#)).

## 2.9 Target Population

### 2.9.1 Data Collection

The first phase of the data collection process involved focus groups which examined the initial framework derived from the literature review. The focus groups were conducted face-to-face with students from different universities. The data was then analysed using NVivo, and the findings informed the next phase of data collection.

As will be shown in section 4.2.1, participants were recruited at random on location by being invited by their lecturers and administration staff – via an announcement - to take part voluntarily in the focus groups ([Krueger and Casey 2014](#)). All participants were given a consent form prior to the commencement of the discussion. Also, they were advised of their rights in regard to their participation in terms of confidentiality and anonymity of responses and the prerogative of withdrawing from participation at any stage. Ideally, focus groups should comprise five to twelve people which was the number taken into consideration for this research ([Krueger and Casey 2014](#)).

In terms of quantitative data, the research used an online survey via Qualtrics. While recommended numbers differ, it has been suggested that an ideal sample size for factor analysis is 500 participants ([MacCallum et al. 1999](#); [Comrey and Lee 2013](#)). As will be explained in section 5.4, participants were recruited randomly as is recommended by [Krueger and Casey \(2014\)](#) via a university email invitation as well as social media such as Twitter and Whatsapp. The respondents comprised academic staff and university stakeholders located in Saudi Arabia.

In regard to the online interview as described in section 6.4, six to twelve participants is the ideal number in order to reach saturation of data ([Namey 2017](#)). Therefore, twelve participants, chosen on the basis of their academic standing and level of expertise in social networking, were invited to participate in the interview, eight of whom responded. An initial invitation was sent and, once the participants confirmed their interest in taking part, they were provided with the interview questions and subsequently submitted their

answers. The contact details of both the researcher and supervisor were supplied to all participants in case they needed further assistance and clarification.

### **2.9.2 Data Analysis**

The qualitative data was analysed using NVivo 11 as will be described in section 4.2.3, in order to categorise and classify the nodes identified by the analysis as well as to determine word frequency and perceptions of the participants.

The quantitative data yielded by the survey was analysed using Social Science Statistics Software (SPSS) and the analysis tools contained in Qualtrics. As will be shown in Chapter 5, other statistical data analysis tools were used, namely, Factor Analysis and Descriptive Statistics, to analyse the data and to determine any factors underlying the successful implementation of social networking in teaching and learning approaches in universities, and to ascertain the relationship between the factors.

## **2.10 Ethical considerations**

The focus group questions, surveys and interviews were vetted and approved by the Ethics Committee at Curtin University. Participants were informed of their rights via information sheets explaining the process of data collection. It was explained to them that their participation was entirely voluntary and they could withdraw from the research project at any point (see Appendix 1: Focus Groups Consent Form 1). The researcher and his supervisors provided their contact information to all participants in case clarification was needed. All the information and data collected was kept confidential by the researcher and supervisors.

## **2.11 Reliability and Validity**

The research conducted exploratory factor analysis to analyse the data. The preliminary analysis was undertaken to obtain eigenvalues for the factors in the data. This was followed by the application of Kaiser-Meyer-Olkin (KMO) Measure of Sampling

Adequacy as well as Bartlett's Test of Sphericity in order to establish construct validity and the suitability of the data. The KMO test suggested that the data was adequate and the Bartlett's test confirmed that the correlations between items was sufficient for administering Exploratory Factor Analysis; in the case of the latter, the data should reach a statistical significance of less than 0.5. The use of Exploratory Factor analysis was able to reveal loading on wrong factors or cross-loading on multiple factors, leading to deletion of those items and the re-application of the Exploratory Factor Analysis ([Williams, Brown and Onsmann 2012](#)).

In terms of reliability, internal consistency was evaluated using Cronbach's alpha for each competency in the SPSS. When an alpha value exceeds 0.9, this indicates excellent internal consistency, while a score of at least higher than 0.6 shows an acceptable internal consistency. Excellent internal consistency denotes that survey items are answered in a consistent pattern ([George and Mallery 2010](#)).

In addition, cross-validation between exploratory and confirmatory factor analysis was carried out to check the corroboration of the number of factors, amount of variance, pattern coefficients and data correlations against the original data. This technique is considered to be one of the best methods of validation ([Osborne and Fitzpatrick 2012](#); [Sawaki 2011](#); [Hurley et al. 1997](#)).

## **2.12 Conclusion**

This chapter has established the value and significance of the research in relation to the identification of key factors that might underpin the successful adoption of social networking in Saudi Arabia. In so doing, the chapter has formulated the primary and secondary questions that guide this research. It is anticipated that the research will have both theoretical and practical significance: it adds to the under-represented body of knowledge on how social networking is perceived and used in Saudi Arabia, and it provides concrete guidelines for implementation which could be of use to university administrators, academic staff and students. The chapter has also examined the field of research methodology and situated the research within a critical research paradigm that

emphasises the socio-cultural dimensions of the research question. It also justifies the use of inductive and deductive modes of enquiry, opting for a mixed approach. Finally, the chapter has outlined the types of research instruments used, namely, the focus group, survey and interview which were chosen to yield both quantitative and qualitative insights. Methods of data analysis, namely factor analysis and thematic coding via NVivo are also highlighted in the chapter.

## **Chapter 3**

# **Literature Review**

## **3.1 Introduction**

The previous chapter covered a range of research paradigms and served to situate this research within a mixed methodology using both qualitative and quantitative research streams. The chapter also outlined the research methods to be used and the data analysis selected.

This chapter provides an overview of the extant research into social networking as a pedagogical tool in the higher education setting. In particular, it looks at approaches taken by universities when incorporating social networking into their education systems. This may indicate what might be optimal in the case of Saudi Arabia and any future potential adoption of social networking. The discussion begins by tracing the history of online technologies from the advent of the Internet to the evolution of web-based applications. This is followed by a brief consideration of world-wide uptake statistics which attest to the popularity of social networking; then, definitions are provided of some of the terminology pertinent to this area of study. Subsequently, the chapter identifies and explains the most significant Web 2.0 social networking applications and looks at how social networking has been applied in the business, healthcare and, most significantly, the higher education sectors. The discussion on the usage of social networking in higher education examines a number of classroom-based initiatives in using social networking platforms for teaching and learning purposes. Indeed, as will be argued, most of the existing research in this area centres on individual efforts by university teaching staff and faculties rather than more holistic, integrated implementation projects which unite technical aspects of integration with pedagogical theory and practice. In so doing, the literature review draws on the sparse literature on larger scale implementation projects categorising the approaches that have been taken to date. Finally, the chapter considers the case of Saudi Arabia, examining the extent to which social networking has penetrated this ultra-conservative country, identifying the benefits and risks of introducing social networking in its higher education sector and pinpointing the specific barriers to uptake that might apply. Hence, the chapter lays the groundwork for the research question which

encompasses the factors that might best underpin the successful adoption of social networking in universities in Saudi Arabia.

### **3.1.1 Scope of the Literature Review**

This literature review is designed to cover a number of key themes and to examine scholarly contributions to the growing area of social networking as an educational tool. The review encompasses 255 articles from ICT and educational specialist books, journals and web articles, with an emphasis on literature published between 2001 - 2018.

The review commences with a consideration of the history and development of the Internet and resultant online technologies. It looks at the different phases of web paradigms, namely web 1.0, 2.0 and 3.0, whilst maintaining its focus on the interactive and collaborative phase known as web 2.0, culminating in a round-up of various types of web 2.0 technologies which can be subsumed under the banner term “social networking sites”. These include established applications like Facebook and Twitter, but the chapter also defines and explains lesser known tools such as social bookmarking and mash-ups.

The review then turns to the penetration of social networking into different sectors, such as business and healthcare, before moving to the major focus of the review which is the usage of social networking sites in the higher education sector. In particular, the present study is predicated on the ways in which social networking sites have and can be formally incorporated into university pedagogy as opposed to spontaneous and incidental usages. Based on a careful content analysis of the existing literature, the review categorises the contributions of researchers in this field into three areas: pedagogical, technological or design based and contextual. These represent three orientations in research into the formal incorporation of social networking into the higher education sector. The pedagogical approach refers to articles which relate social networking capacities to theories of learning and related learning strategies and activities. The technological approach, while still referencing the pedagogical foundations and benefits of social networking, focuses on the architecture of these systems, including which platforms, software, hardware and other technical considerations might be optimal for incorporating social networking into



universities. Finally, the contextual research approach takes the view that technology is value-laden and context-bound, necessitating a meticulous investigation of the surrounding social, cultural, economic and political systems – as well as the more immediate organisational context - that influence the implementation of social networking in institutions of higher learning. Having loosely categorised the literature according to these three approaches, the current study collates these approaches – and a number of identified sub-factors, into an integrated model for the implementation of social networking as a university-wide pedagogical aid.

The review then considers the context of this research project, the Kingdom of Saudi Arabia. It closely examines this country's unique socio-cultural, political and educational systems as these might affect the introduction of social networking into the nation's tertiary education providers. With this context established, the review then covers the sparse amount of research currently available on how and to what extent social networking is currently being used in Saudi Arabia, in particular in its higher education sector. The literature review of the published research on social networking in Saudi Arabia concludes that social networking is being used minimally at this stage – although the overall picture remains incomplete. This early stage of integration on the part of Saudi Arabia makes it an ideal recipient for the integrated model proposed in this research as it enables the country to take advantage of prior learning and collective wisdom regarding key factors and best practices in implementing social networking as an educational affordance.

## **3.2 History of Online Technologies**

The evolution of online technologies can be traced back to the development of electronic digital computers in the late 1930s, followed by commercial computers in the 1950s. From these beginnings, the Internet was created at the start of the 1960s to enable scientific and military knowledge to be shared between computers. In late 1962, the theory of packet switching was developed, forming the basis of Internet connections. The Internet, then known as ARPANET, connected four major computers at universities in America in 1969, and by January 1971, a large number of universities, and commercial and military research

organizations were connected via network. Internet connectivity later became wireless through on-land signal transmission and then through satellite ([Awais 2012, 129](#)).

The next significant step in the historical trajectory of online technologies was the invention of the World Wide Web (aka the web), created in 1989 by Sir Tim Berners-Lee ([Naik and Shivalingaiah 2008](#)) as an information-sharing model accessed via the medium of the Internet and built on top of the Internet ([Beal 2010](#)). It is a global information system which provides access to digital information to anyone in the world at any time. As information technology has developed, the technology of the web has changed: generally, this progress is described sequentially as Web 1.0, Web 2.0, and Web 3.0, as will be outlined later in this review. From these evolutionary paradigm shifts have emerged crucial technologies such as websites, email, and, in turn, social networking sites such as Facebook and Twitter among many others.

According to [Boyd and Ellison \(2008\)](#), the popular social networking sites of today grew out of antecedents such as dating and community sites as well as early predecessors such as SixDegrees.com (1997). From 1997 to 2001, there was a growth in social networking sites allowing users to create personal and professional profiles, culminating, from 2001 onwards, in such sites as Ryze.com, Tribe.com, LinkedIn and Friendster. Not all of these earlier sites have survived, although they have spawned the familiar social networking sites used widely today. Sites such as Myspace (2003) and Facebook have proliferated, spurred at least in part by the availability of high-speed Internet. The below timeline of social networking technologies is an extension of Boyd and Ellison's (2008) work.

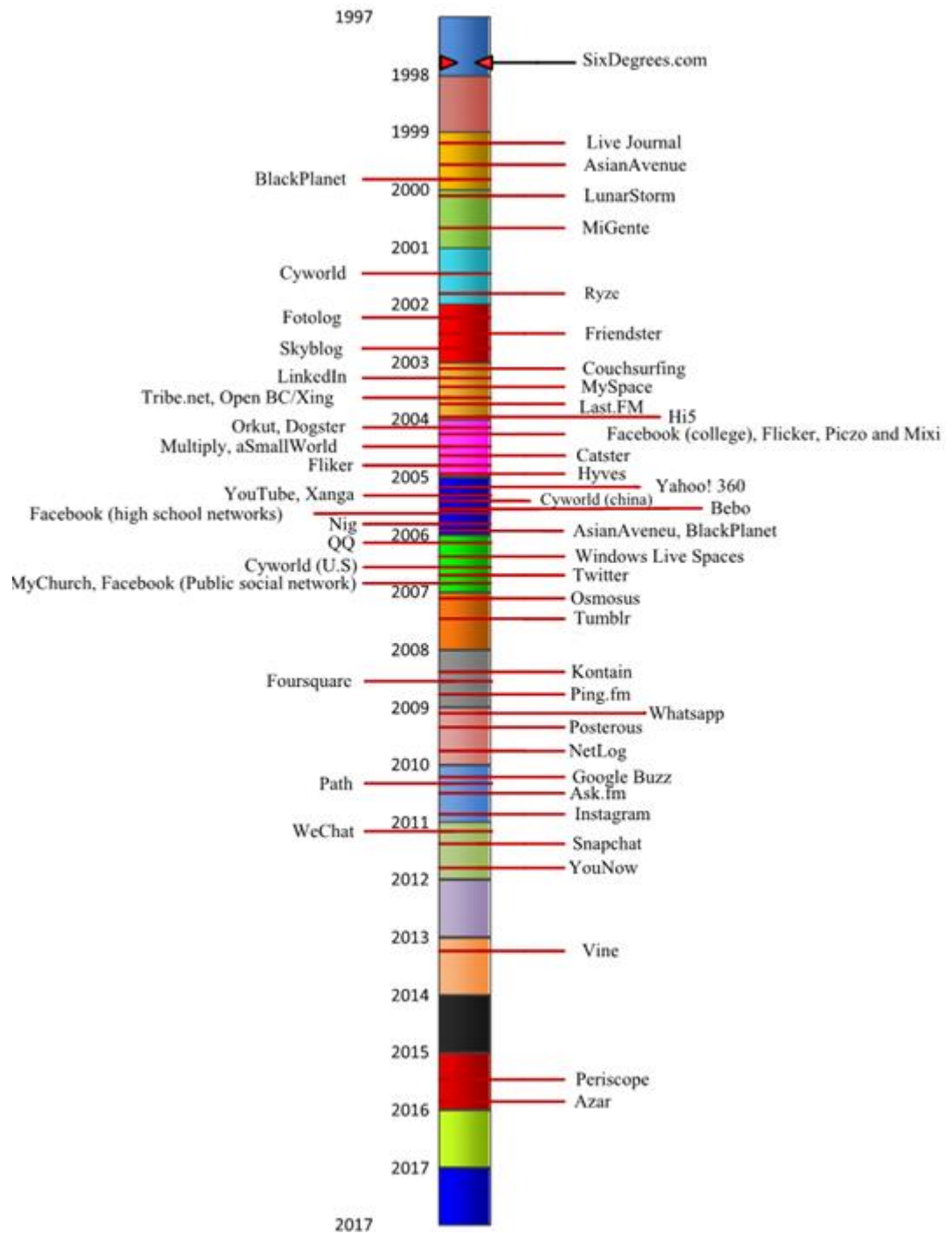


Figure 7: History of Social Networking Sites (Prepared by the author)

### 3.3 World-Wide Usage of Online Technologies

The 2018 Statistical report on uptake rates of the Internet, social networking sites and individual applications bear out the popularity of online technology in contemporary human life. Recent figures put Internet usage at 4.021 billion of the global population with active usage of social media accounts at 3.196 billion. Moreover, the usage of mobile devices is soaring with 2.95 billion users accessing such applications via mobile technology. Of individual applications, Facebook remains the most widely used at 2.167 million users with Twitter at 330 million. Newer contenders such as Instagram and Whatsapp are also attracting wide usage at 800 million and 1300 million respectively. Networking is used most vigorously by people in the 18-29 years age group (89%), followed by 78% of people in the age bracket of 30- 49. Twitter usage reportedly involves only 18% of the adult American population but it is anticipated that this will increase ([Kemp 2018b](#)).

### 3.4 Web 1.0, 2.0, 3.0 and beyond

The development of contemporary technology to date can be represented in three phases, Web 1.0, Web 2.0 and Web 3.0, although these are by no means clear-cut or discrete categories and there is considerable overlap between them. The initial stage of web technology, Web 1.0, was made up of static, hand-coded pages grouped into websites and connected by hyperlinks ([Graham 2005](#)). [Aghaei, Nematbakhsh, and Farsani \(2012\)](#) define Web 1.0 as the first generation of the web, typified by websites, webmail and other static HTML applications. It is also called the “read-only” web because it comprised content created by IT professionals and then downloaded for viewing by Internet users with little to no opportunity for interactivity and user contribution.

In contrast, Web 2.0, a term attributed to [O'Reilly \(2004\)](#), distributes the creation of content to ordinary web users who are able to participate by contributing or amending web material, effectively becoming producers and collaborators in their own right rather than mere consumers. According to [O'Reilly \(2007, 17\)](#), Web 2.0 is defined as:

“the network as platform, spanning all connected devices; Web 2.0 applications are those that make the most of the intrinsic advantages of that platform: delivering software as a continually-updated service that gets better the more people use it, consuming and remixing data from multiple sources, including individual users, while providing their own data and services in a form that allows remixing by others, creating network effects through an “architecture of participation,” and going beyond the page metaphor of Web 1.0 to deliver rich User Experiences”

Hence, Web 2.0 is more dynamic and more interactive than Web 1.0 because it is enabled by technologies such as Ajax and Adobe Flex which facilitate rich and responsive user interfaces. Unlike Web 1.0, Web 2.0 enables user content generation, moderation and sharing and has the capacity to link people with similar interests through social networks in small or large groups or communities. Besides creating and sharing web content, users can also recommend content to one another via bookmarking and tagging services.

Specific technicalities underlie Web 2.0 applications; for example, being able to run applications as platforms on web browser windows allows them to communicate with the web and remote servers, facilitating quicker connectivity and capacity to update. In addition, supporting technologies like Ajax and Adobe Flex create Rich Internet Applications (RIA) which differs from traditional web applications like webmail and mapping applications in that they display task status, task progress, feedback for users and error messages more effectively and also have faster response times. Moreover, users of traditional web applications are limited to controls such as check boxes, radio buttons and form fields, whereas RIAs use a broad range of controls, rendering the whole user experience more rewarding in terms of direct interaction devices such as drag and drop and part-page rather than whole-page updating.

In comparison with Web 2.0, a new wave of technological development, Web 3.0, is less known since there is a scarcity of published material available on the topic. Indeed, while the boundary between Web 2.0 and Web 3.0 is ill-defined, the Web 3.0 concept seems to encapsulate a more sophisticated and advanced level of technologies and usages which have developed beyond Web 2.0. Web 3.0 tools and platforms are often associated with

semantics, or meaning-making capabilities, due to their ability to return personalised data to the enquirer. One Web 3.0 area of focus is on accessing web applications using mobile devices such as smart phones and tablets. Web 3.0 is also believed to transform the features of web applications, facilitating smarter technologies run on different platforms. Intelligent search capacity too is considered to be a Web 3.0 characteristic whereby applications enable the collection of data from different sources and collate these in the form of tables and charts. Also possible are other intelligent search types such as suggestive searches which suggest options to users, such as products on Apple.com or potential friends on Facebook. An example of this in the education context is the use of “collaborative filtering” whereby the system cues suitable collaborative partners for peer-to-peer based interaction for learning purposes ([Abdul aziz et al. 2014](#)). Web 3.0 also offers localisation by means of applications such as Jaiku, Google Latitude, and Nokia Ovi Lifecast which are used for sharing mapped location information like the user’s current location or that of his or her friends. Web 3.0 characteristics include appearance-related features such as customisation. For example, iGoogle is a customisable Google search page into which users can insert their favourite portlets such as news and weather. 3D Internet is another example of this, making the web experience more intensely visual. Web 3.0 services also include clean-up programs for problems created by Web 2.0 applications, which enable for example, the erasing of users’ digital paths, and identity management ([Aghaei, Nematbakhsh and Farsani 2012](#)).

Web 4.0 is a future phase of development about which little has been written. It incorporates the notion of symbiosis between humans and machines, with machines having the capacity to recognise users and offer personalised services. Another aspect of Web 4.0 is that it takes online functionality into the world by for example, allowing people to google their home to locate items ([Patel 2013](#)).

Web 5.0 has not yet been clearly defined but it is conceptualised as the ability to project emotions into online transactions by, for instance, using avatars with changing facial expressions. Web 6.0, furthermore, refers to the notion of a more flexible architecture in

delivering information services, offering improved stability and efficiency of performance ([Khanzode and Sarode 2016](#)).

## **3.5 Types of Web 2.0 Applications**

While there are numerous applications that come under the umbrella term Web 2.0, the main types that have gained widespread usage and recognition are those summarised below.

### **3.5.1 Wikis**

Wikis are web-based group editing tools used to create, modify, and delete web content collaboratively - the best known example of this is the online encyclopaedia, Wikipedia ([Chu et al. 2017](#)).

### **3.5.2 Blogs**

Blogs are two-way, web-based communication tools which allow people to write time and date stamped thoughts and comments to be viewed by either a select group or the entire web community, acting like an online diary or journal that includes images, links and videos. Search services like Technorati assist readers to find suitable blogs to match their interests and subscriptions to blogs via RSS; feeds are available so that users are kept updated with new entries as they are created ([Murugesan 2007](#)).

### **3.5.3 Media-sharing Sites**

These services enable users to post content in the form of text, images and video, and to comment on other users' contributions and form interest groups around these subjects. Photo web-sharing services include Flickr, Picasa and Instagram, while video-sharing services' success stories are YouTube and Vimeo. These services allow users to freely access videos and to communicate with other users ([Benevenuto et al. 2008](#); [Lo 2012](#)).

There are also sites for sharing slides, games, educational and academic materials and countless other resources ([Celine 2012, 60](#)).

### **3.5.4 Tagging and Social Bookmarking**

Digital objects such as web pages, images, blogs or videos can be tagged with descriptive keywords which facilitate arranging such objects and searching for them. Social bookmarking web services enable users to tag, save, manage, and share interesting and relevant web pages, serving as a recommendation system for other users who can avail themselves of digital objects already found by others. Popular services include 63ig, delicious and reddit ([Andersen 2007](#); [Porter 2006](#)).

### **3.5.5 Social Networking**

Social networking applications allow users to create online profiled identities as a way of connecting with others in a model that enhances human connectivity and sociability as well as personal self-expression and identity management. Sites like Myspace and the overwhelmingly popular Facebook create virtual communities and social networks which make it possible for people to find others with the same kinds of interests. These sites also cement social capital and the maintenance of offline social circles ([Hart et al. 2008](#)).

### **3.5.6 Mashups**

Mashups are remixed web pages or websites that combine services and data from multiple sources on the web. These are constructed by taking already-coded application elements and inserting them inside other applications via API technology. For example, Google Maps API has been incorporated into many other applications such as Housing Maps and Earth Measurements ([Andersen 2007](#)).



### 3.5.7 Syndication

Syndication refers to the presentation, on a single page, of data from various web pages. Data syndication format RSS is used for syndicating content from blogs or other web pages such as news sites and weather pages using feed reader programs such as Google Reader ([Best 2006](#); [Murugesan 2007](#)). The main advantage of syndication is that it allows users to subscribe to different pages and obtain all of their updates on one page without having to visit several pages individually ([Andersen 2007](#)).

### 3.5.8 Twitter

Twitter is a micro-blogging technology which allows users to post content to followers in short bursts of 140 characters, or Tweets, creating a brief messaging service which instantiates frequent updates ([Tumasjan et al. 2010](#)).

### 3.5.9 Virtual Worlds

These are multi-player universes in which users create avatars representing themselves in order to connect with others in an interactive, simulated environment ([Alvarez and Olivera-Smith 2013](#)).

### 3.5.10 Social Search Engines

These aggregation services compile and collate information from multiple online and offline sources. An aggregator like Spokeo is able to assimilate data about subjects such as demographics, social profiles, property and wealth, on user request ([Sprague and Pixley 2008](#)).

### 3.5.11 Crowdsourcing

This refers to the practice of obtaining needed services, ideas or content by soliciting contributions from large groups of people who are members of an online community ([Corneli and Mikroyannidis 2012](#)).

### 3.5.12 Snapchat

Snapchat is an instant messaging service that differs from similar services in that its messaging is limited by time. Photos, videos and messages are exchanged among selected or wider groups and last for just 24 hours before disappearing ([Makki et al. 2018](#)).

### 3.5.13 WhatsApp

This is an Internet-based communication tool that allows users to send free text messages to each other using push notifications ([Dole 2013](#)). It also supports a number of message types such as text, pictures and audio files ([Riyanto 2013](#)). The application allows users to interact without incurring high messaging fees.

## 3.6 The Relationship between Web 2.0 and Social Networking

Despite a decade of research, consensus on a precise way of referring to contemporary digital technologies has not yet been reached and the terms “Web 2.0 technologies”, “social networking”, “social media”, “social software”, “social networking sites or services” (SNSs), “User Generated Content” (USG), and “Computer Mediated Communication” (CMC) are often used interchangeably in the literature.

At its most basic level, social networking has been defined as three or more entities communicating and sharing information ([Weaver and Morrison 2008](#)). However, there is little agreement regarding the applications that fall within its purview. There are two prevailing schools of thought: some commentators use “social networking” to denote a broad round-up of applications such as chat forums, wikis, blogs and websites centred around media object sharing (video clips, photographs), alongside sites such as Myspace and Facebook the purpose of which is to build social relationships ([Pour 2013](#); [Weaver and Morrison 2008](#); [Thompson 2007](#); [Magro et al. 2009](#); [Issa and Kommers 2013](#)). What unites these disparate tools under a common heading for all of the above-mentioned

researchers, then, is the way in which such applications share the hallmarks of collaborative technologies and provide user-sharing and interaction.

Others put forward a more restricted definition based on an attempted typology of applications. Perhaps the most influential effort to corral applications and terminology within more limited and exclusive parameters is that of Boyd and Ellison in a seminal 2008 article in which the term is offered to cover:

“Web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system” ([Boyd and Ellison 2008, 211](#)).

In the wake of Boyd and Ellison (2008), efforts to refine understanding and build classifications of contemporary Internet technologies have continued ([Kaplan and Haenlein 2010](#); [Medaglia et al. 2009](#); [Lenartz 2012](#)). According to these commentators, “Web 2.0” is essentially an enabling platform whereby users generate customised and shared content, and “social networking” is a specific application identified by its dominant characteristic of allowing the creation of an online personal or professional persona. By extension, “social media” have been defined as the actual tools and applications that enable the generation and swapping of user-based content ([Kaplan and Haenlein 2010](#); [Dabbagh and Reo 2010](#)).

Hence, it is clear that there is no precise way of differentiating between these terms. As [Lenartz \(2012\)](#) argues, these terms present similar concepts; however, he suggests that “social media” is more appropriately used to refer to methods of conveying an intentional message to an audience.

In summary, while both restricted and looser definitions of social networking have been proposed in the literature on this topic, this discussion, while acknowledging that social networking sites can be regarded as a category of application with its own defining characteristics, will adopt the broader meaning of social networking as the act of user interaction and sharing through online web-based sites within a wider technical paradigm

known as Web 2.0. It will also refer to “social networking sites” (SNS) and “social media” throughout the research.

### **3.7 Social Networking in Different Sectors**

Social networking has thoroughly penetrated the business and commerce sectors, resulting in cutting-edge customer-centric usages. Users can obtain real-time information, such as flight schedules, as well as book services and order products via a range of e-commerce and business models. From the net-based facility of eBay, where buyers and sellers are electronically connected by means of a virtual auctioning platform to Amazon which outsources its product reviews to customers, the Internet has enabled customer participation and feedback on a scale never before seen.

According to [Issa and Kommers \(2013\)](#), social networking has opened up new forms of communication between businesses, vendors, employees and customers based on enhanced trust and, by extension, greater satisfaction, leading to increased profitability. For example, Facebook is used as an advertising and marketing tool which directly targets customers who are able to align themselves with brand- and product-based communities and recommend these consumables to others based on the “like” function ([Langheinrich and Karjoth 2010](#)). Social networking sites such as Twitter are also the source of instant updates about products and services. What is more, social networking supports recruitment and staff screening functions and creates new conduits for intra- and inter-company communication and collaboration; for example, CEOs can avail themselves of blogging to keep employees abreast of company news ([Kaplan and Haenlein 2010](#)).

Other sectors have also benefitted from the facilities afforded by social networking: healthcare, for example, is positively influenced by new ways of sourcing health information and education through interactive websites and applications, again resulting in improved doctor- patient relationships based on mutual trust and support. Doctors have a wealth of information at their fingertips while patients are more knowledgeable than ever before in terms of their symptoms and treatments ([Issa and Kommers 2013](#)).

### 3.8 Social Networking in the Higher Education Sector

It is not surprising that higher education is also considered a natural arena for the implementation of social networking technologies for two main reasons: firstly, the vast uptake of social networking by “Digital Natives” ([Prensky 2001](#)), or a post-1980 cohort born into a networked society, and secondly, the suitability of interactive technologies to the ends of higher education where creating, sharing and disseminating ideas in academic communities is of primary importance. In the first instance, university students as a demographic tend to be technologically aware and savvy, bringing with them to university their established networking usages, habits and practices, as well as acquiring new ones. Indeed, it is claimed that social networking is as “natural to education as the commute, the computer and everything else which students bring” ([Allen 2012, 8](#)). This view is shared by [Blankenship \(2011, 39\)](#) who states that interactive communicative tools are so pervasive that it is “hard to imagine any professor or student making it through the week without them”.

Since the advent of social networking, a growing number of studies have explored the intention to use, rates and sectors of usage and the purposes for and effects of usage of such sites by college students so as to learn more about how they communicate and interact by means of modern collaborative technologies. These studies tend to examine the routine, informal, and spontaneous uptake of social networking for the users’ own chosen personal goals and as an organising principle in their daily lives.

A number of variables have been considered in usage studies: in terms of early research, [Hargittai \(2007\)’s work](#) was seminal in establishing how gender, ethnic and socio-economic differences between college users create a “digital divide” with Hispanic females and children of parents without college degrees using social networking sites less often than other demographic sectors. Age has also been explored as a user acceptance issue and an additional “digital divide” in early research with young people and students favouring the use of social networking sites more than older users, such as qualified medical professionals [Sandars and Schroter \(2007\)](#) and members of faculty ([Ajjan and](#)

[Hartshorne 2008](#); [Roblyer et al. 2010b](#)). Research by [Tiryakioglu \(2011\)](#) further subdivides usage by faculty in terms of senior and junior academic titles and ages with the latter being more receptive to social networking. [Boyd and Ellison \(2008\)](#) note cultural and regional differences in user acceptance of social networking sites; for example, Cyworld in Korea and Mixi in Japan are popular whereas the popularity of Facebook prevails in most Western countries.

For some researchers of the university student demographic, Facebook (though other sites and tools are also considered) has been found to play a predominantly psychosocial role in the lives of their respondents in terms of social connection to friends and in redefining conceptions of friendship ([Joinson 2008](#); [Lampe, Ellison and Steinfield 2006](#); [Luckin et al. 2009](#); [Raacke and Bonds-Raacke 2008](#); [Caruso and Salaway 2007](#); [West, Lewis and Currie 2009](#)). The emergence of a sense of self and the negotiation of adult identity among college students is another theme in usage studies ([Pempek, Yermolayeva and Calvert 2009](#); [Subrahmanyam et al. 2008](#)).

In examining the intended purposes of social networking usage by college students, early studies concluded that such sites (Facebook particularly) had limited educational usage, with the majority of respondents using these tools for socialising, contacting peers and “talking about” academic work rather than actually carrying out work ([Kosik 2007](#); [Madge et al. 2009](#); [Bosch 2009](#); [Hew 2011](#)). For [Selwyn \(2009\)](#), social networking is used by students as a means of discussing learning experiences, exchanging factual information with peers and seeking moral support rather than a means of “front-stage” engagement with learning. Indeed, studies published in 2009 by [Argan and Akyıldız \(2009\)](#); [Bolar \(2009\)](#) found that social and leisure usages of Facebook such as networking, spending time, revisiting memories, having fun, following friends and news, and image-are more prevalent any educational, academic or professional usages. In keeping with this theme, research by [Kabilan, Ahmad, and Abidin \(2010\)](#) found that Facebook was a source of “incidental learning” for students alongside their social tasks.

Nonetheless, despite early conclusions about the minimal usage of social networking for educational purposes compared to social and leisure purposes, most studies recommend

tapping into its potential by transitioning it from personal, casual and incidental usage to deliberate and considered importation for academic purposes ([Kabilan, Ahmad and Abidin 2010](#); [Bosch 2009](#); [Junco and Cotten 2011](#); [Osepashvili 2014](#)).

While the aforementioned studies examine informal student (and faculty) usage of social networking sites, in regard to more formal incorporation of technologies into university pedagogy, the higher education sector, in comparison with other sectors, has been less inclined to formally welcome digital technology ([Alexander 2006](#); [Alexander 2008](#); [Thompson 2007](#); [Gilliam 2010](#); [Roblyer et al. 2010a](#)). This resistance has largely been blamed on the innate conservatism of academia and its suspicion of instruments of mass communication which are perceived to threaten ownership of ideas, dethrone the notion of elite access to higher education, and encourage a departure from traditional methods of pedagogical instruction and academic research. Despite this, there has been a gradual paradigmatic shift in higher education from time- and place-bound university centres to more flexible, mobile, student-centred and ubiquitous networked communities.

Indeed, given the successful adoption of social networking by the business sector, it is unsurprising that technological advances were, at first, mainly incorporated into commercial aspects of university engagement such as marketing, communications, recruitment and student retention, invoking the very communication strategies of the “Digital Natives” to tap into the aspirations and expectations of this market. Moreover, the early inclusion of technologies in higher educational strategies mainly took the form of e-learning, distance and external study mode content delivery via the uploading of course materials to shared portals or Learner Management Systems ([Uality et al.](#)) and transmission of lectures via podcasts.

In more recent times, though, in seeking to engage with the “Net Generation” ([Tapscott 2009](#); [Lohnes and Kinzer 2007](#)) on its own terms, universities and other higher education providers – at the level of individual practitioners or faculty-wide – have more actively sought to deploy the functionalities of collaborative digital technologies in their teaching and learning methodologies. This has led to a nascent body of research into a range of issues at the intersection of social networking sites and teaching and learning practices.

This research has primarily centred on the ways in which emergent social networking technologies have the potential to reconfigure pedagogical practices, course delivery techniques and teacher-learner relationships in institutions of higher learning. However, the formal and purposeful incorporation of social networking into university teaching and learning strategies remains an under-represented area of research and employment of social networking sites in university settings remains under-developed, volitional and marginal with an absence of national or international legal standards and conventions for usage ([Boghian 2013](#)).

While commercially available or institution-specific Learner Management Systems such as Blackboard and Web CT, and audio devices such as podcasts, are of course highly significant to the higher education sector, this study will take as its focus the use of leisure, community and social interactive technologies, publicly available at little or no cost, that have been reworked and repurposed for pedagogical reasons. For this reason, the present research will also not consider email, RSS feeds and content syndication and the use of advanced social search engines since, while they are often discussed under the heading of web 2.0 instruments, these do not strictly meet the criteria for being contemporary collaborative technologies which permit interaction between profiled users in one-to-one, one-to-many and many-to-many permutations. Finally, virtual world technology is considered to be outside the scope of this research due to the fact that its usage in higher education is often bespoke, with particular platforms being custom-built by or for students within particular faculties.

The discussion that follows identifies the key themes that have emerged in the contemplation of social networking as a teaching and learning tool and samples a range of studies that have been carried out in the past decade. In the main, this research represents the enthusiastic yet sporadic efforts of lone instructors or academic teams spearheading Web 2.0 teaching and learning initiatives. Descriptions of wider implementations of Web 2.0 technologies – and the development of a comprehensive set of factors that might constitute a framework for successful implementation in higher education contexts – are scarce. Indeed, university implementation of Web 2.0 has



generally been patchy and spasmodic with individual institutions following their own agendas rather than referencing systematic best practice blueprints which have universal application.

In contrast, by collating the most significant motifs arising from the current literature, this research seeks to construct a comprehensive and robust set of factors that might be of use in the successful implementation of social networking sites in the higher education sector in Saudi Arabia.

### **3.9 Main Trends in Research into Formal Incorporation of Social Networking in Higher Education**

The extant literature on the implementation of Web 2.0 in the university teaching and learning context can be divided, for practical purposes, into three areas of endeavour: approaches based on the pedagogical values embedded in social networking technology, approaches which specify the technological and design components of actual or proposed models of implementation, and approaches which attempt to specify the contextual factors required for successful implementation. These approaches should be understood to describe general orientations towards the consideration of social networking sites as an educational tool. Indeed, while there is considerable overlap between approaches, the distinctions between them are made to serve the purpose of reviewing the literature, analysing the major trends in research and identifying the key factors that may form a framework for implementation of social networking in Saudi Arabian higher education.

#### **3.9.1 Pedagogical**

Several researchers of Web 2.0 technologies at universities consider the interplay between pedagogical theories and social networking insofar as these technologies enable a particular collaborative and interactive paradigm of education ([Grosbeck 2009](#); [Mazman and Usluel 2010](#); [Tella, Alias and Ithnin 2009](#); [King 2012](#)). Many commentators examine

the underlying pedagogical values supported by Web 2.0 tools, highlighting the affinity of these technologies with existing educational frameworks like constructivist learning theory ([Vygotsky 1978](#)), Community of Practice (COP) theory ([Siemens and Age 2004](#)) and Situated Learning theory ([Lave and Wenger 1991](#)). According to these theories, broadly speaking, learning is a collaborative and intentional process whereby knowledge is actively and socially constructed by means of engagement with individuals or groups united by a common set of objectives. Web 2.0 instrumentality, by its very nature, aids the knowledge construction process through its core capacity to create powerful interpersonal linkages which traverse the time and space boundaries of the conventional classroom. Thus, these studies focus on how academics and course designers can interweave social networking into their delivery strategies, alongside more traditional methods of delivery of course content, to promote active and participatory styles of learning, be they collaborative or self-directed ([Gilliam 2010](#); [Hung and Yuen 2010](#); [Brady, Holcomb and Smith 2010](#); [Namwar and Rastgoo 2014](#); [Bulbulia and Wassermann 2015](#)). Indeed, research suggests that social networking activities must be cemented within “properly designed learning activities” ([Jimoyiannis 2012, 3](#)) subsequent to careful planning ([Hung and Yuen 2010, 707](#); [Hamid, Chang and Kurnia 2009](#); [Bennett et al. 2012](#)).

A number of studies have examined the planned co-optation of social networking into university classrooms as a means to harnessing its unique capacities. Such pedagogical approaches to Web 2.0 in the university setting differ widely in terms of sophistication of analysis, ranging from descriptions of bottom-up, localised, classroom-based projects using (mainly) Facebook as a learning tool to more comprehensive pedagogical and best practice guidelines encompassing user roles, sets of pedagogical tasks and activities and considerations of assessment processes linked to social networking as a general phenomenon or to particular tools ([Hamid et al. 2010](#); [Rennie and Morrison 2013](#); [Blaschke and Brindley 2015](#); [Wang et al. 2014](#); [Johnson et al. 2015](#); [Blessinger and Wankel 2013](#)).

In general, though, the broad uptake of Web 2.0 in the pedagogical space has been hampered by a number of obstacles. Firstly, Web 2.0 technologies have not been optimally applied to or deployed in higher education, in part due to the lack of technical knowledge and skills of university teachers and course designers who lack the confidence – or inclination – to implement them in innovative ways ([Conole and Culver 2010](#); [Campion, Nalda and Rivilla 2014](#)). A further obstacle is that the traditional methods of teaching, learning and assessment in highly structured institutions of higher education are at odds with these new technologies, circumscribing their effective usage in the educational realm ([Conole and Culver 2010](#)). [Dabbagh and Kitsantas \(2012\)](#) refer to the traditional platforms of university teaching and learning such as formal courses and learner management systems which do not exploit the capabilities of social media. Finally, another impediment to the inclusion of social networking in the pedagogical practices of higher education can be described in terms of a lack of theoretical frameworks and a set of common understandings or functional examples to underpin and support the usage of such technologies by higher education practitioners ([Kirkwood and Price 2014](#); [Hamid et al. 2010](#)).

To redress this, some pedagogical models or sets of broad strategies for the incorporation of social networking sites have been developed ([Dabbagh and Kitsantas 2012](#); [Chantanarungpak](#)). Such frameworks generally introduce social networking in stages for the delivery of university courses, ranging from preparation through to implementation and review phases. Another approach has been to examine the complementarity of academic tasks with social networking technologies generally or with reference to specific social networking sites. [Grosseck \(2009\)](#), for example, comprehensively matches a taxonomy of Web 2.0 applications to their possible educational uses, while [Hamid, Chang, and Kurnia \(2009\)](#) classify social networking into four activity areas applicable to higher education, namely, content generation, sharing, interacting and collaboration. [Cochrane and Bateman \(2010\)](#) look at a range of Web 2.0 applications, including Flickr, Twitter and Google Maps, and link these to pedagogical functions such as real-time event, data and resource capture, asynchronous communication and collaboration, student journaling, and peer and lecturer critiques. More recently, [Boghian \(2013\)](#) identifies a number of crucial

academic functions which suit the special capabilities of Facebook, that is, the dissemination of information, knowledge creation, cooperation and sharing, instantaneous feedback and individualisation or self-expression. For [Issa, Isaias, and Kommers \(2016\)](#), social networking facilitates the development of a range of skills related to personal, professional and academic spheres. In general, then, proponents of the pedagogical approach [Tella, Alias, and Ithnin \(2009\)](#); [Jonnavithula and Tretiakov \(2012\)](#); [Conole and Seale \(2004\)](#); [Boghian \(2013\)](#) emphasise the values of collaboration, communality, engagement, motivation, participation, contribution, personalisation, and creativity through the instrumentality of social networking sites.

In support of the perceived compatibility between social networking and core academic functions, a number of small-scale pilot studies have investigated the incorporation of social networking tools into course design and delivery. These tend to be limited to self-reporting data which reflects the perceptions, experiences and attitudes of students and staff when social networking is purposefully embedded into coursework ([Tess 2013](#)) and often cite affective benefits to participants, such as sense of shared responsibility and community, rather than empirical data about course outcomes. Of these studies, the majority reference is Facebook due to its ubiquity and ready-made familiarity amongst university students ([Ractham and Firpo; Boghian 2013](#)).

Studies into the formal uses of social networking in university pedagogy commonly look at how students engage with course content, materials and assessment projects through the inclusion of social networking sites as a supplementary tool in their course instruction. While the pedagogical set-ups differ in these trials, social networking has been used in such case studies, variously, as a method of student-student interaction and collaboration, student-instructor engagement, contribution and discussion of ideas, clarification of concepts, information posting (e.g. announcing assignments or events), information and resource-sharing (articles, course notes, video clips, links to webpages or blogs, photos) and self-reflection/publication.

These pieces of research have resulted in similar conclusions about the symbiotic intertwining of social networking with student-centred and constructivist pedagogical

approaches. Research into the use of Facebook as a complementary pedagogy, for example, attests to its powerful ability to create groupings or communities of users, acting as a dedicated shared space for the interactions of targeted students, often with university instructors or tutors as participatory or mediating interlocutors. ([Schroeder and Greenbowe 2008](#); [Kayri 2010](#); [Ractham and Firpo](#); [Ryan, Magro and Sharp 2011](#); [Petrović et al. 2012](#); [Çoklar 2012](#); [Duncan and Barczyk 2013](#); [Ventura and Quero 2013](#); [Tsiakis; Judele et al. 2014](#); [Saxena and Majumdar 2015](#); [Sarapin and Morris 2015](#); [Demirbilek 2015](#); [Wang et al. 2012](#); [Gray et al. 2013](#); [Lahiri and Moseley 2015](#); [El Bialy, Jalali and Jaffar 2014](#); [Cuesta et al. 2016](#); [English and Duncan-howell 2008](#)). While not as prolific as studies on Facebook within the higher education setting, research on Twitter confirms its serviceability as a convenient and cost-effective conduit for tapping into internal and external scholarly networks, allowing for immediate information sharing and updating as well as identity and impression management ([Saeed and Sinnappan 2011b](#); [Veletsianos 2012](#); [Ferreira, Castro and Andrade 2011a](#); [Kassens-Noor 2012](#); [Clarke and Leigh Nelson 2012](#); [Junco, Elavsky and Heiberger 2012](#); [Tsiakis; Evans 2014](#); [Carpenter and Krutka 2014](#); [Suárez, Cervantes and García 2015](#); [Mankoff, Kravets and Bleviss 2008](#); [Stephens and Gunther](#); [Bulbulia and Wassermann 2015](#)). Similarly, resource-sharing sites have been heralded for their relevance to higher education tasks, especially the use of social bookmarking sites as a means of annotating, categorising, exchanging and storing online documentary resources within the context of groups united by common academic pursuits ([Liu et al. 2008](#); [Churchill 2009](#); [Greenhow, Robelia and Hughes 2009](#); [Farwell and Waters 2010a](#); [Edwards and Mosley 2011b](#); [Zorica et al.](#); [Nashrawan, Jamie and Andrew 2014](#)).

Scholarly attention has likewise been paid to content creation tools as accessories to university courses, such as blogging whereby users supply a journal like reflection on their thoughts and opinions ([Hemmi, Bayne and Land 2009](#); [Churchill 2009](#); [Bao, Zhang and Wu 2012b](#); [Jimoyiannis 2012](#); [Cano et al. 2012](#); [Lin and Shen 2013](#); [Top 2012b](#); [Powell, Jacob and Chapman 2012](#); [Chang and Yang 2013](#); [Mills and Ritchie 2014](#); [Pursel and Xie 2014](#); [Namwar and Rastgoo 2014](#); [Stewart, Reid and Stewart 2014](#)). Another popular content creation tool, the wiki, has also been absorbed into academic pedagogy and

introduced into university classrooms as a teaching and learning aid ([Hazari, North and Moreland 2009](#); [Ras and Rech 2009](#); [De Wever et al. 2015](#); [Zheng, Niiya and Warschauer 2015](#); [Kusmaul](#); [Knobel and Lankshear 2009](#); [Karasavvidis and Theodosiou 2012a](#); [Uzunboylu et al. 2013](#); [Kummer 2014](#); [Palomo-Duarte et al. 2014](#); [Ioannou, Brown and Artino 2015](#)). In particular, studies of blogging and wikis as communication tools in tertiary coursework emphasise their inherent ability to enhance critical thinking, the development of a student “voice” and their facilitation of collaborative group processes. While less popular, mash-ups have also been formally incorporated into university teaching, particularly in relation to the customisation and personalisation of learning spaces ([Lamb 2007b](#); [Skiba 2007](#); [Taraghi, Ebner and Schaffert](#); [Wheeler 2009](#); [Ibrahim 2012](#); [Bao, Zhang and Wu 2012b](#); [Kiah et al. 2014](#)).

New research is currently emerging on the next wave of collaborative technologies, particularly those related to mobile and wireless applications and devices ([Fodah and Alajlan 2015](#)).

The general findings of these implementation studies commonly frame the benefits of social networking sites as repurposed pedagogical tools given their capacity to create communities of shared and collaborative academic practice in which an empowered student ‘voice’ is expressed and given a public forum. In so doing, the privileged place of traditional academic discourse is claimed by a contemporary pedagogical model which foregrounds peripheral, transcultural and postcolonial forms of knowledge ([Eijkman 2009](#)).

### **3.9.2 Technological**

Another strand in research, while still drawing on the nexus between theories of education and social networking tools, has focused on the “back end” technical infrastructure required in educational settings in order to facilitate front-of-stage teaching and learning activities using Web 2.0 tools. This approach is based on the recognition of the need for a more integrated, university-wide implementation of social networking which goes beyond the often individualised, ad hoc efforts outlined above in the section on social networking

and its pedagogical affordances. This need is underlined by the notion that individual efforts by teachers and students, while worthwhile in themselves, will not bring about the benefits that social networking can deliver to all members of the academic community via larger scale implementation efforts which can capture its full potential.

However, the technical integration of social networking sites into university has been described as difficult due to the shared and open nature of these sites, their underlying profit-driven business models and the inability of universities to exert control over their availability and compatibility with existing university infrastructure ([Veglis 2014](#)). According to [White \(2010\)](#), two major principles of Web 2.0, namely, bottom-up governance and rich interfaces, do not translate well into the university arena, owing to issues with compatibility, accessibility and connectivity/ bandwidth. White further argues that educational systems are often feted just for using Web 2.0 technology rather than for how well this Web 2.0 technology is actually used in enabling valid teaching and learning practices. In answer to this, the technical approach has produced models which unite didactics with specified technological tools, platforms and applications. These models suggest designs for functions such as information organisation and management, including content generation, sharing, retrieval and storage. [Frey and Sutton \(2010\)](#), for example, point to key design principles for learning systems such as contiguity (proper visual layout), coherence (SNS can be used with ease, with distracting elements held at bay), redundancy (tools and features are made available to help students accomplish learning-related tasks) and personalization (general appeal of the SNS to its end users). For [Haythornthwaite and de Laat \(2012\)](#), analysis of learning interactions between users can constitute the foundation of sound design for university-wide educational technology systems, ranging from simple facilities such as submission of assignments, return of student work, posting of questions and answers and general announcements to more sophisticated designs which offer more elaborate interactions such as wikis, data sharing, live chat and profile pages.

More specifically, in terms of actual models of social networking for integration into universities, [Blees and Rittberger \(2009\)](#) propose a systems design for Web 2.0

implementation in universities predicated on four functional areas: a Learning Centre (Wiki), a Knowledge Resource Centre (tagging and bookmarking), Student Reflection Centre (blogging) and Updates (RSS feeds). According to these authors, university learning platforms should draw actively on the vast array of knowledge resources and tools readily available on the Internet rather than developing customised learning tools. Hence, their model for a Web 2.0 learning environment proposes wiki as the key structuring basis for learning activities, with bookmarking as a means of collecting and storing resources, blogging as a forum for learner self-reflection and an alerting system to flag the arrival of new information in aggregated form. For [Jucevičienė and Valinevičienė \(2010\)](#), a model for social networking at universities comprises functions, (academic service, communication, student support, knowledge construction) and tools (databases, sharing and networking tools) linked to criteria for the system such as user linkage mechanisms, the ability to integrate with university infrastructure, interface considerations and personal learning capacity. A project described by [Bermejo et al. \(2012\)](#) outlines how a network was built at a Spanish university to serve as a complementary teaching tool, specifying the operating system (servers, software) used to support this implementation. The work of [Consoli \(2013\)](#) similarly, describes a Web 2.0 implementation model comprising distinct functional spaces, namely, Student Space, Teacher Space and Administrative Space as well as a description of the technical requirements to achieve this. This model is intended to provide “spaces” for all “internal actors” - teachers, students and administrative staff - whereby they can deposit into and retrieve information from a materials/resources database. This open knowledge system would allow users to access a personal desktop equipped with tools for support (shared calendar, planner surveys and alerts), simulation (virtual world games) and communication/collaboration (instant messaging, chatrooms, email, forums, blogs, wikis, social networking), resources (search engines, RSS, podcasts, learning material and tests) and materials/documents (disk space, images, text, audio and video files). Another sub-theme within this approach is to look at individual social networking applications in terms of their technical features and functionalities. For example, [Casey and Davidson-Shivers \(2014\)](#) look at Ning as the basis for a dynamic learning system with specific design features intended to create connectivity



and personalisation such as social spaces via blogs and discussion forums, content uploading capacity and user-generated content accompanied by tagging and search functionality. In similar vein, the capacities of Facebook in terms of providing real-time communication between users are explored by [Harwood and Blackstone \(2012\)](#) and [Derawi \(2015\)](#) in a consideration of how the technical features of the platform can be utilised in support of teaching and learning. In particular, these studies explicitly reference the technical aspects of Facebook such as wall postings, posting links and “the like” function as these apply to educational activities.

A slightly different approach is taken by [Cochrane and Bateman \(2010\)](#) who provide a multi-stage Web 2.0 implementation model which specifies the learning tools required, such as netbooks, laptops, LMS and smartphones, linked to different stages of study (first year, second year etc). According to these researchers, future technological and pedagogical models will need to shift from provider owned to student owned hardware and software.

Other technologically-driven models are based on Open Resource principles whereby it is proposed that social networking is incorporated via plugins into existing university learning systems ([Uality et al.](#)) such as Blackboard or Moodle ([Labus et al. 2012](#); [Veglis 2014](#)). [Veglis \(2014\)](#) describes the possibility of a social networking site such as Facebook creating sub-networks for participating universities, thereby capturing the benefits of open source social networking in conjunction with the greater control offered by a university’s own IT system. Indeed, the incorporation of social networking sites into current LMS is often seen as an enrichment and a means of overcoming the limitations of rigid, hierarchical university systems. Such university owned and controlled systems can be remediated by the incorporation of Web 2.0 tools within the Management System platform in order to produce systems that have greater collaborative and (a)synchronous potential for users. [Mott \(2010\)](#), for example, suggests that the incorporation of Web 2.0 tools into LMS provides greater flexibility in that users can select tools of their choice or replace default tools with those more suited to their teaching and learning needs. [Muhammad and Musbah \(2013\)](#), likewise, propose the integration of Facebook into an existing LMS as a

way of making it more student-centric in its functionality. Similarly, [Isaías, Miranda, and Pífano \(2009b\)](#) propose an e-learning model which integrates an LMS, personal tools and social networking platforms in order to cater for such variables as privacy, plagiarism as well as academic and administrative procedures. Another recent approach to systems design based on a melding of conventional LMS and social networking sites is proposed by [Pektaş and Gürel \(2014\)](#) in the creation of a “blended design studio” featuring a Moodle LMS, live video-conferencing and Facebook complemented by face-to-face learning. The benefit of the model, according to the authors, is the ability of the system to adapt itself to disciplinary specific requirements as opposed to the assumption of homogeneity of fields of study.

In sum, these technical approaches look at the systems requirements for usage of social networking sites to support a number of functions including content generation, self-reflection, collaboration, sharing of ideas, opinions and resources, personalisation and customisation, dissemination, publication, storage and retrieval. Where it differs from pedagogical research is in its concern with back-end and technical processes, platforms and equipment which may be invisible – or incomprehensible – to end-users.

### **3.9.3 Contextual**

A limitation of both pedagogical and technical approaches to social networking in universities is that they tend to be decontextualized and idealised, assuming a well-resourced IT infrastructure with sophisticated and knowledgeable end users eager to adopt new technologies. By focusing on educational theories or technological concerns, these studies neglect other important factors required for successful design and planning. Indeed, it is claimed that numerous implementation projects have failed due to inadequate understanding of the more contextual factors that contribute to the effectiveness of a system ([Goyal and Purohit 2013](#)).

Conversely, some researchers have attempted to specify those contextual factors that might either foster or prevent an effective implementation of social networking in institutions of higher learning. Central to this is the premise that it is necessary to identify

the critical factors that must be addressed in a particular context in order to guarantee stakeholder acceptance and usage of a system. One such contextual approach to integration of social networking into higher education focuses on the need for an analysis of the culture of the specific organisation and its stakeholders as integral to thorough planning for larger scale implementations, including both bottom-up and top-down input from a variety of stakeholders in order to arrive at a workable consensus for a phased integration ([Vaughan 2001](#); [Noeth and Volkov 2004](#); [Baxter et al. 2011](#); [Goyal and Purohit 2013](#)). Early researchers identified a number of common items that might constitute critical success factors in e-learning systems. For example, [Oliver \(2001\)](#) addresses teacher expertise, student readiness to move online, technology infrastructure, provision of content and resources and instructional design. A similar study undertaken by [Khan \(2005\)](#) adds the areas of financial readiness, cultural readiness and content readiness, the nature of the management team, management of system delivery and maintenance, hardware and software planning as well as a thorough analysis of audience, goals, medium, design and learning strategies. Significantly, Khan (2005) also considers ethical factors as being of importance, including social and political influence, geographical diversity, learner diversity, etiquette and legal issues. Another comprehensive work by [Fresen \(2011\)](#) identifies six critical success factors for implementing a system, namely, institutional factors (technology plan, infrastructure, student consultation and system review), technology factors (reliability, availability, technical support, training and accurate records management), lecturer factors (interaction with and feedback to students, qualifications, professional development), student factors (communication with peers, time management, learner control of learning events, expectations, motivation, critical thinking and problem solving capacities), instructional design factors (group learning capacity, student engagement and active learning capacity, learning resources, capacity to motivate learners, design standards, including images, graphics, layout and presentation, purposefulness, accessibility and useability of the system, bandwidth and download) and pedagogical factors (learner-centredness, relevance and accuracy of content, currency of resources and continuous improvement capacity). However, it is important to note that

these researchers treat the theme of ICT incorporation or e-learning in general and do not specifically deal with social networking in their discussions.

The more recent studies explicitly referencing Web 2.0 tools borrow heavily from the work on critical success factors conducted on e-learning systems and on principles of social networking in organisations. For example, [Baxter et al. \(2011\)](#) draw on principles derived from implementation of Web 2.0 in businesses in order to produce a three-phased model comprising Planning, Support and Implementation stages with rigorous stakeholder consultation at each juncture. Central to Baxter's argument is the need for rigorous analysis of the prevailing norms of an individual educational institution prior to and during implementation, including assessment of the educational culture and its willingness to accommodate technological initiatives, the boundaries and contexts for usage of the technologies within the institution and the time-scale for implementation. In addition to a focus on the match between institution and the implementation of social networking, [Baxter et al. \(2011\)](#) stress the importance of student, management and academic staff support for a project, the need for education and training of end users, the considered choice of tools and systems that best complement the institution's learning and teaching goals and the phased integration of Web 2.0 applications into existing channels of teaching. In a similar vein, in their recent research, [Alhazmi and Rahman \(2014\)](#) propose a framework of success factors deemed critical for learner engagement with social networking sites, identified as the support available institutionally and from faculties, the quality of the technological infrastructure, peer involvement, content relevancy, privacy protocols and social/academic interest. A broader framework of factors for the successful introduction of social networking into higher education is provided by [Fakheh et al. \(2014\)](#) who point to Content factors (useful and relevant content, detail and thoroughness, perceived benefits), Community/Individual Factors (trust, fairness, social culture, individual attitude, enjoyment and relationships) and Technological factors (ease of use, navigation, interactivity, useful links and tools).

Moreover, recent research has suggested that there is a need to go beyond the analysis of institutional culture and IT infrastructure by attempting to identify specific cultural

factors, particular to nations or geographic regions, that underlie the interactions of humans with technology. In so doing, the analytical focus is on not only the context of the organisation delivering education through technologies but also on the surrounding social context in which the implementation takes place, including cultural rules, traditions and regulations ([Andersson and Grönlund 2009](#)). The prevailing philosophy behind this research approach is that cultural differences permeate the ways in which social networking sites are used, leading to differentiated behaviour among users. In this sense, technology is construed as both transmitting and, in turn, shaping the cultural values of a particular society. According to [Qiu, Lin, and Leung \(2013\)](#), most of the current research on social networking sites has been developed in North American or other Western contexts, thereby neglecting the variances to be found in non-Westernised and non-mainstream populations. Although academic interest in the field is now growing, nonetheless the number of studies available remains limited.

Several studies draw on the pioneering work of [Davis \(1989\)](#) which delineates a Technology Acceptance Model in order to account for factors underlying the acceptance or otherwise of technologies by individuals. This TAM has been further developed by [Venkatesh, Morris, Davis, and Davis \(2003\)](#) who identify a range of factors, namely: expectancy, effort, social influence, facilitating conditions and behavioural intentions, which are shown to influence individuals to take up or reject technologies. In this model, users accept or reject technologies based on their perceived helpfulness and benefits, the influence of significant others and the ease of use and enjoyment engendered by the system. Another theoretical framework often engaged in this branch of research is User and Gratifications theory (U&G) which posits that social and psychological needs underlie user selection and motivations for using particular channels of communication in particular ways. Drawing on this notion of user agency and choice, derived from both TAM and U&G, some researchers have looked at technology selection, acceptance and usage through the lens of the prevailing national and cultural norms of a society, mobilising these as indicators of intention, purposes and strategies for usage of online technologies. For example, [Pearce and Vitak \(2015\)](#), while not writing about the educational usage of social networking, examine how the “honour culture” of the

conservative Muslim nation of Azerbaijan inhibits the use of social networking due to the threat of surveillance by government, relatives and friends. This research also specifies how users develop strategies to overcome the restrictions of the socio-cultural milieu, such as privacy settings and multiple accounts.

Several researchers examine differential cross-cultural social networking usage practices in terms of Hofstede's typology of cultural dimensions, though few specifically focus on formal educational usages of social networking sites. For example, comparisons of usage of Facebook in Australia, Austria, Japan, Taiwan and the USA found that users from individualistic cultures (Australia, Austria, the USA) primarily seek information from social networking sites, while those from collectivist cultures (Japan, Taiwan) engage with social networking for reasons of socialisation and self-presentation ([Hsu et al. 2015](#)). It is also reported that those from individualistic cultures have larger social networks and greater trust and sharing behaviours than those from collectivist backgrounds ([Rosen, Stefanone and Lackaff 2010](#); [Na, Kosinski and Stillwell 2015](#)). Similar studies that draw on Hofstede's cultural polarities have compared various combinations of cultures: American and Korean students ([Choi et al. 2011](#); [Kim, Sohn and Choi 2011](#)), American, Korean and Chinese students ([Ji et al. 2010](#); [Chu and Choi 2010](#); [Qiu, Lin and Leung 2013](#)), American and German Facebook users ([Krasnova, Veltri and Günther 2012](#)), American and European students ([Karpinski et al. 2013](#)), American, European and Turkish students ([Ozer 2014](#)), Indian and American students ([Marshall et al. 2008](#)), American, Chinese and Indian students ([Wang, Norice and Cranor 2011](#)) and Palestinian students ([Abbas and Mesch 2015](#)). Academic staff uptake has also been researched through the prism of culture. For example, [Barton \(2013\)](#) examines lecturer willingness to embrace new technologies, finding that trust, reciprocity and face-saving behaviours are of relevance in Singapore, Malaysia, Indonesia and Turkey, while being markedly less so in the more individualistic and multicultural case of Australia. In sum, while there is much common ground across nationalities in terms of social networking technology uptake and usage, these studies all report on differentiated purposes for usage, intentions to continue usage, cognitive patterns of usage, preferences for certain functionalities and trust, sharing and privacy concerns in accordance with cultural specificities. However, it

is also important to resist the temptation to use fixed cultural stereotypes in these sorts of analyses. Indeed, it is more useful to extrapolate general tendencies, rather than making any essentialist claims about geographical and cultural behaviours ([Barton 2013](#)).

Moreover, despite the insights yielded by this research into the role of culture in shaping encounters between people and educational technology, these studies do not provide an explanation of why full-scale, university-wide implementation projects in particular countries might succeed or fail. Of the sparse studies that do exist, [Munguatosha, Muyinda, and Lubega \(2011\)](#) amplify the work of [Venkatesh, Morris, Davis, and Davis \(2003\)](#) by looking at a set of variables applied to the learning contexts of non-mainstream educational environments in developing countries. In this context, it is suggested that such factors as low ICT literacy, limited bandwidth, cultural constraints, poverty, low literacy levels and government censorship might have an adverse impact on the success of social networking adoption by universities. This draws on the view that while challenges in implementation are shared between developed and developing countries, there is a need to understand the additional challenges experienced by developing countries taking on the technologies of developed countries. For example, one major challenge is the lack of basic learning components such as hardware, software, electricity and expertise ([Andersson and Grönlund 2009](#)). There is also an absence of participatory and collaborative educational paradigms in more didactic, traditionalist non-mainstream societies. In regard to the emerging African nation of Tanzania, [Munguatosha, Muyinda, and Lubega \(2011\)](#) go on to explain the drivers and inhibitors of implementation within a particular socio-cultural and economic milieu and specify the particular features that may be required to effect a successful implementation in this developing country. In particular, these authors point to the need to take into consideration the level of technological development and the ICT knowledge, experience and expertise available both at a national, organisational and individual level as these affect the viability of any implementation project. Important critical success factors identified are the flexibility of the organisational culture and its outlook on change, the attitude to ethics, privacy and security within this culture, the budget of the organisation and allocation of funds to ICT projects, and the accountability of university management, in addition to the sufficiency of the infrastructure and the levels

of technical and administrative support available. Similar work has been carried out by [Arthur, Adu-Manu, and Yeboah \(2013b\)](#) in Ghana, looking at the inter-relationships between political, cultural and organisational drivers as these affect the factors needed to cement social networking effectively within the university sector in this country. To the list created by [Munguatosha, Muyinda, and Lubega \(2011\)](#), [Arthur, Adu-manu, and Yeboah \(2013a\)](#) can be added government policies which impact on social networking usage in the form of censorship or blockage of access to sites, as well as institutional policies which encourage or inhibit the adoption of new technologies via technology strategic plans, administrative support, professional development and incentivisation for using new systems. Also pertinent is organisational culture, its structure (hierarchical or flat) and its demographic influences, including generational differences (given that most university leaders are older), as this affects openness to the adoption of new technologies. Finally, IT infrastructure is considered to be a crucial success factor in terms of its availability, accessibility and performance, as related to security issues, hardware and software sufficiency and network/Internet availability. [Arthur, Adu-manu, and Yeboah \(2013a\)](#) itemise the tools, services and resources that may be external to an organisation but are of critical importance in driving a successful implementation as well as adequate network components including cabling, operating software, computers and other storage devices/hardware, with a particular emphasis on high Internet speed. Also focused on Africa (Kenya), [Ooko and Oduor \(2013b\)](#) list the following factors, derived from enterprise systems modelling, as critical to the implementation of a successful (in this case distance e-learning) model: Organisational Context, Technological Context, Environmental Context and Student Factors. Of these factors, cost to the user is also seen as a vital variant in developing countries where the need for affordable ICT options is paramount ([Andersson and Grönlund 2009](#)). The clear implication common to these studies, then, is that the implementation of social networking in higher education may be imperilled from the outset in these nations due to the deficit of key critical success factors.

Other studies investigate how cultural specificity can be successfully incorporated into the instructional design of technology-based learning systems. For example, the distinct multicultural, multilingual and multi-religious culture of Singapore informs the design of



a system that captures the strengths and mitigates the culturally derived risk factors in an early account of three implementation projects ([Chen et al. 1999](#)). According to this study, considerations for instructional design using modern technologies in Singapore included analysis of cultural understanding of what constitutes learning, knowledge, understanding and problem-solving. In the unique Singaporean context examined in this study, Asian belief systems are invoked as risk factors that need to be addressed if “a well-planned and well-understood social and cultural on-line environment” ([Chen et al. 1999, 228](#)) is to be created. Such beliefs centre around a mechanistic view of the world reflected in a curriculum based on rote learning and an over-emphasis on academic achievement at the expense of thoughtfulness and depth of learning. In this sense, the introduction of new technologies which carry mostly Westernised, constructivist understandings of knowledge and learning needs to be carefully managed as described in three implementations in Singaporean educational providers. Indeed, it is posited that adaptation of educational technology – its design, its aesthetics, language and values – to suit local culture, religion and language is of primary importance in the success of implementation projects in non-mainstream societies where conformity to Westernised norms about technology, pedagogy and knowledge management cannot be taken for granted ([Andersson and Grönlund 2009](#)).

### **3.10 Research Gap**

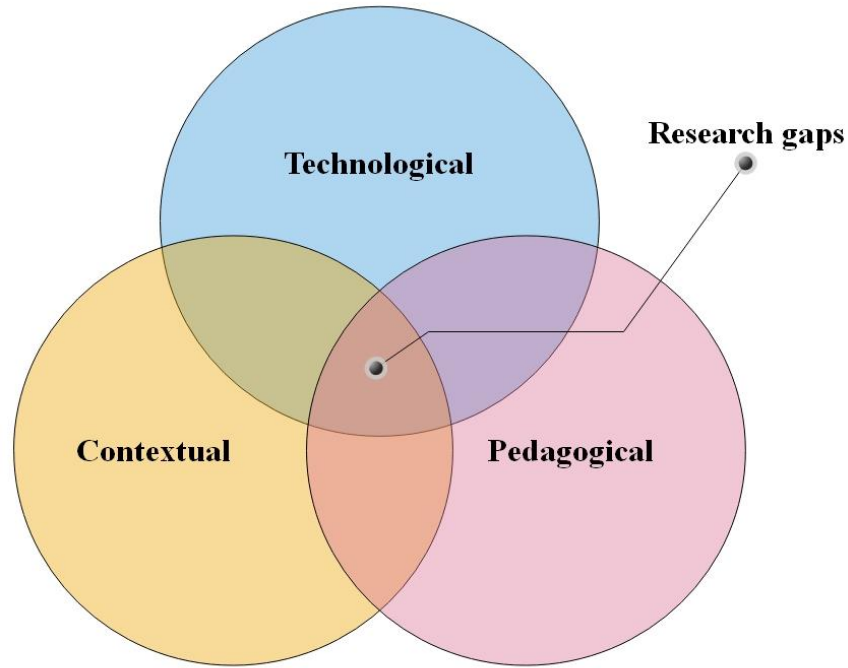
The literature demonstrates ample research that has been conducted to investigate the role of social networking technology in promoting purposeful learning (Tess 2013). It also highlights other studies that have focused on the positive impacts of social networking tools on the teaching and learning practices (Lim and Richardson 2016; Cao, Ajjan and Hong 2013). Furthermore, previous studies have pointed out the major challenges associated with the adoption of social networking in higher education such as cultural determinants and institutional policies and practical impediments (Arthur, Adu-Manu and Yeboah 2013; Manca and Ranieri 2016). However, little research has been carried out to delineate the integration of social networking technology into educational practices. Several calls in the literature have urged the need for further research to identify factors

and develop a framework which might underpin an integrated and well-considered incorporation of social networking in higher education (Mohammad and Tamimi 2017; Issa, Isaias and Kommers 2016; Alvarez and Olivera-Smith 2013).

Thus, from the foregoing discussion in sections 3.9.1, 3.9.2 and 3.9.3, it is proposed that there are three loose global approaches to social networking implementation within the university context: pedagogical, technical and context-driven. However, none provides full explanatory power owing to the limitations of each approach. Firstly, pedagogical approaches tend to be theoretical and abstract with very little attention to technical issues pertaining to the implementation of social networking. In this sense, they provide guidance for usage that is separate from technological specifications such as required hardware, software, installation guidelines and consideration of the technical expertise that might be required to underpin a successful implementation project. Furthermore, pedagogical approaches are usually characterised by a utopian belief in Western models of didacticism. This educational discourse is built on assumptions about how knowledge is defined and how teaching and learning are conducted which may not hold for non-mainstream societies where ideas about knowledge and how to transmit it differ considerably. In sum, the key shortcoming of pedagogical approaches is that they assume an idealised, homogeneous infrastructure, environment and end user.

Technical or systems design approaches overcome the limitations of the pedagogical approach by specifying the technological and design components required in implementing certain social networking frameworks in higher education. Again, however, the particular models proposed and described may be suited only to particular environments, usually to First World, well-resourced and well-networked infrastructures where access to highly skilled support personnel by sophisticated end users is a given. By attending to context, approaches based on identifying factors for successful implementation manage to redress some of the gaps in pedagogical and technical models. However, it is their very specificity, ironically, which constitutes a limitation for these studies and it may be difficult to extrapolate general principles for the adoption of social networking in other geographic regions and cultural contexts. This is the case for the

studies based on African nations which propose sets of factors strongly tied to Third World economic and social realities.



*Figure 8: Research gap*

This research aims to apply to Saudi Arabia the best practice acquired from current literature world-wide to identify a set of factors that might best suit its unique cultural, social and technological needs. As outlined earlier, Saudi Arabia is in its infancy in terms of incorporation of web-based learning and teaching methodologies. In order to investigate what might serve to successfully embed social networking in university pedagogy in Saudi Arabia, the framework proposed for this study is designed to incorporate a range of factors drawn from all three approaches described earlier in order to provide a robust, encompassing set of factors for social networking within this particular context (see Appendix 6 for the research gap analysis table). The current initial framework, drawn from the existing literature, is divided into two sets of factors: those core factors which address the concrete ‘must haves’ of successful usage and those

influential factors which must be considered when addressing social networking within the learning system. Table 3 below shows the factors divided into categories:

Table 3: Factors derived from the literature

Factors	Source	Sub-Factors
A Clear overview	(Murphy and Keck 2014; Baxter et al. 2011)	Guidelines for implementation
		Steps in implementation
		Visual representation
Functionality	(Pektaş and Gürel 2014)	Collaboration
		Content Retrieval and Storage
		Organise and manage information
User Experience	(Kayri 2010; Isaías, Miranda and Pífano 2009a)	Tools
		Ease of use
		Application Platforms
		Enjoyment of use
Technology Infrastructure	(Hamid et al. 2011; Munguatosha, Muyinda and Lubega 2011; Goyal, Purohit and Bhagat 2013)	Navigability
		Continuity and Reliability
		Internet Connectivity
		Sufficient Hardware
Pedagogy	(Dabbagh and Kitsantas 2012; Chantanarungpak 2013; Haythornthwaite and de Laat 2012)	Sufficient Software
		Technology expertise and support
		Theory of Teaching
Stakeholders	(Arthur, Adu-manu and Yeboah 2013a)	Learning Strategies
		Learning Activities
		Students
		Academic Staff
Socio – Cultural	(Al-Saggaf 2016; Askool 2013a)	Management
		Technical support
		Cultural Roles
		User acceptance of technology
		Religion
National context	(Khan 2005)	Ethical Concerns
		Gender
		Government type
		Development plans
		Government Educational Polices
Organisational Culture	(Ooko and Oduor 2013b)	Budget
		Government Expenditure on Education
		Flexibility i.e. openness to change
		Budget

It is hypothesised that Saudi Arabia can benefit greatly from a coordinated and well-considered approach which maximises the advantages of social networking while mitigating the risks inherent in using open source technologies within the university environment. The study argues that Saudi Arabia has much to gain from a social networking system within its higher education sector, particularly in terms of its ability to act as a portal bringing world knowledge and research to its students, minimising the gender divide, as well as harnessing such academic fundamentals as collaboration, critical thinking and innovative knowledge construction.

However, it is believed that Saudi Arabia occupies an anomalous position from a cultural and technological perspective whereby high user acceptance, a well-developed infrastructure and strong stakeholder support from students, the government and university administration coincide with low levels of knowledge and expertise as well as possible risk areas related to government censorship, security of information, trust and identity issues and information sharing derived from the particular socio-cultural biases of this Islamic nation. Factor analysis is intended to identify those usage factors which will deliver benefits and minimise risks.

### **3.11 The Proposed Framework**

The proposed framework which is developed for this research and then subjected to further examination and assessment through stakeholder feedback, comprises a set of core factors which are believed to be crucial to the success of social networking as a pedagogical tool in Saudi Arabia. Firstly, it is suggested that the framework must contain a set of practical guidelines and suggestions, including visual representations. Secondly, a robust framework must include core functionalities which enable collaborative and interactive transactions between users within a design specification which caters for navigability, ease of use and optimal linkage mechanisms between “functional” spaces such as learner and teacher “spaces”. Another core factor is a technological infrastructure that guarantees continuity and reliability of usage as well as high levels of support for end users. Finally, integral to the framework is the notion of a sound pedagogical framework

in which user roles, teaching and learning paradigms and teaching and learning activities are well framed and understood.

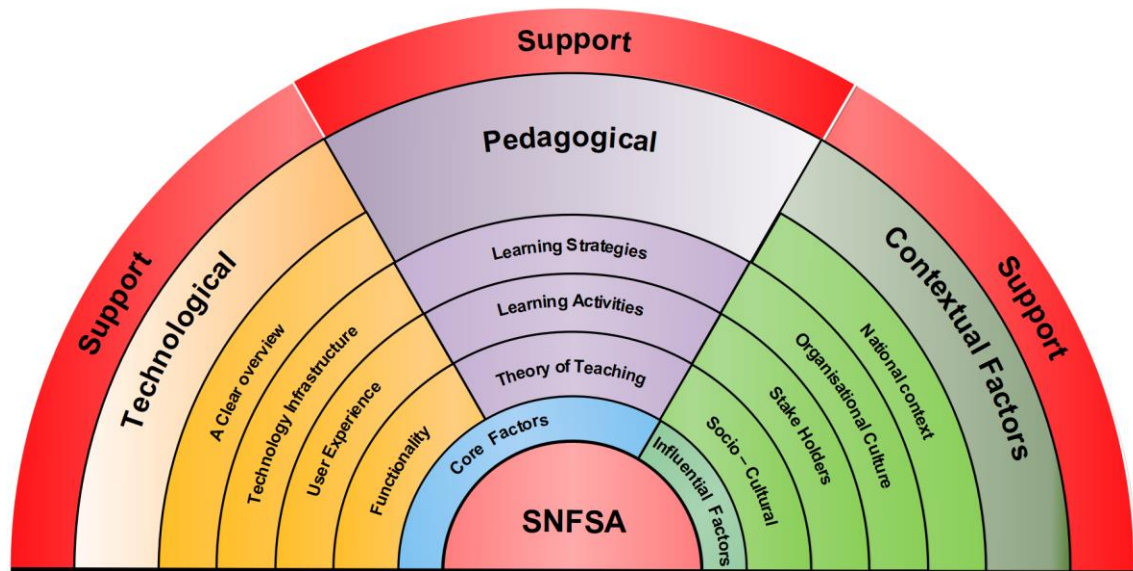


Figure 9: Initial Social Networking Framework for Universities in Saudi Arabia

Surrounding these core factors, it is proposed that the framework needs to be adjusted to account for variables such as the socio-cultural context and how this defines social and gendered identity, teacher-learner roles as well as understandings about learning and knowledge construction. Allied to this, the framework needs to control for national factors such as investment in education as well as governmental stance on open source, web-based technologies, and organisational factors which may include the organisational culture of individual universities, flexibility of senior management and the way in which social networking may align with organisational objectives. In sum, the perspectives of all stakeholders need to inform the design and development of the framework which is the purpose of this research.

## 4.1 An Introduction to The Kingdom of Saudi Arabia

The Kingdom of Saudi Arabia, a large, resource-rich country located in the Middle East, practices an extreme form of Islam which shapes everyday life, gender roles and cultural

understandings. The country is holy to Muslims world-wide because of its historical and cultural significance as the birthplace of the Prophet Mohammad and as the location of two sacred mosques in Makkah and Medina which make it a global pilgrimage destination. In terms of size, Saudi Arabia is second only to Algeria as the largest Islamic state in the territory. It covers a total of 2.149 million square kilometres and is bordered by Iraq, Jordan, Kuwait, Oman, UAE and Yemen.

The modern state of Saudi Arabia was established in 1932 after a political unification project headed by Abd Al-Aziz bin Al-Rahman (CIA, The World Factbook). This initial period of modernisation was followed, in the mid-2000s, by a second political drive focused on infrastructure improvements and other initiatives to improve the overall welfare of the country and its citizens (The World Factbook Middle East). This modernisation urge has been, in part, a response to the Kingdom's participation in the international economy through OPEC and the production of oil for various industries and markets, both domestic and international. Indeed, the Kingdom is one of the main cogs driving market values, currency and commodity prices across the world as international economies are affected by fluctuations in oil price. However, despite its international engagement and the diffusion of Western technologies and cultural influences into Saudi Arabia, especially via its youthful population, Saudi Arabia has remained largely impervious to Western ideas and follows a set of Islamic dictates which govern all aspects of daily life. The complete segregation of genders is a feature of life which permeates personal, working, socio-cultural and educational practices in Saudi Arabia.

### **3.12 The Context for Social Networking in Saudi Arabia.**

This section develops a picture of the key defining characteristics of Saudi Arabia as a geo-cultural region with particular systems and practices in order to determine the local and national conditions that might either facilitate or impede the implementation of social networking in higher education institutions.

### **3.12.1 Economy**

Saudi Arabia enjoys a buoyant economy with an annual growth of 6.0 percent and a GDP of USD 740 billion ([Sallam and Hunter 2013](#)). Its dollar reserves stand at a vast \$570 billion. The petroleum industry accounts for 80 percent of government revenue with an estimated 80 percent of the labour force comprised of international and expatriate workers. For decades, Saudi Arabia has enjoyed undisturbed economic robustness and a stable economic infrastructure, attributable largely to the full nationalisation of the oil industry in 1988. However, the exceptional dependence of Saudi Arabia on its oil revenues has led to some recent problems, with the current dip in oil prices causing damage to the Saudi economy, prompting cuts in subsidies and other government expenditure. Compared to the record high of \$23 000 per capita a year income in the 'eighties, the average per capita income today stands at a mere \$4, 500 (Library of Congress). While reliance on government redistribution of oil revenue has sustained the Kingdom for a long time, it is inevitable that the market landscape will have to change. It is also ironic that, despite the general prosperity of the Kingdom, 2 to 4 million people, of a population of 27 million, live in poverty.

Against this backdrop, there has been a considerable recent effort to diversify and increase the local economy in non-oil sectors such as manufacturing, and to “saudize” the workforce through training and education initiatives in order to combat the high youth unemployment rate ([Sallam and Hunter 2013](#)).

King Salman’s two-phased Vision 2030 has recently been rolled out in order to cushion the domestic economy within the context of a broader reform plan known as the National Transformation Plan (NTP). This comprises a series of comprehensive reforms to regulations, budget and policy to be implemented over the next 15 years in order to transition to a post-oil economy. Some of the planned initiatives include a shift from a public sector to a private sector based entrepreneurial model, in particular the partial privatisation of the state-owned oil company, Saudi Aramco ([Khan 2016](#)). The stated aim is to boost the private sector from 40 percent to 65 percent of gross domestic product as



well as to strengthen the role of small and medium sized enterprises with a focus on new non-oil export products ([Khan 2016](#)). In terms of labour market reforms, the goal is to end the Kingdom's reliance on low-paid foreign labour by increasing private sector jobs for young Saudis and increasing female participation in the workforce.

### **3.12.2 Society, Political System and Culture**

As an absolute monarchy, Saudi Arabia has a strong tribal affiliation which infuses its political system. It is governed largely by the king, Salman bin Abdulaziz Al Saud, princes and sub-sets of the extensive royal family. Simultaneously, the socio-cultural milieu is regulated by Islam as the cornerstone of governance and as a foundational principle enshrined by law since 1992 ([Sallam and Hunter 2013](#)). Islamic precepts dictate all aspects of personal and public life in Saudi Arabia, creating a society that is patriarchal, patrilineal and highly hierarchical in its outlook. Women require male guardians and are prohibited from going out by themselves or sharing public spaces with men. Television, radio and even Internet news are state-run.

Saudi Arabia is also a particularly young society with an estimated 37% of the population aged below 14 ([Sallam and Hunter 2013](#)). This combination of youthfulness and a relatively rigid and religiously oriented society has led to the identification of boredom as an issue of national concern due to restricted leisure and entertainment options and a lack of freedom of movement. Nonetheless, Saudi youth express great respect for their king and a love for their country which is at odds with the perceived repressiveness of life in the Kingdom ([Sallam and Hunter 2013](#)). Activism in Saudi tends to be covert with organised protest days often attracting little response. Ironically, gender-divisive customs are generally accepted by females with 80% of participants in a recent survey stating that women should not work in mixed-gender workplaces ([Sallam and Hunter 2013](#)).

Drawing on Hofstede's cultural dimensions, Saudi Arabia is a collectivist society with a strong importance placed on the family ([Long and Maisel 2010](#); [Cassell and Blake 2012](#)). Saudi Arabia is also an arena for high power distance whereby relationships of hierarchy and authority are upheld, resulting in great social divides in terms of wealth and equality.

Other traits include a feminine orientation in business relationships in which personal affiliations over-ride employee performance and company decisions, as well as a high degree of uncertainty avoidance and intolerance of ambiguity expressed in strict adherence to societal rules and religious principles.

Against this background, Saudi Arabia's Vision 2030 seeks to transform the Kingdom into a new country, not only in economic terms, but also within social, humanitarian, cultural and governance spheres ([Khan 2016](#)). The proposed initiatives include changes to laws around female participation in the economy as well as guardianship laws. These measures will no doubt drastically change social and national values, local culture and religious norms as Saudi Arabia strives for twenty first century relevance.

### **3.12.3 Education system in Saudi Arabia**

Religion pervades the educational system of Saudi Arabia, manifested in a curriculum founded on Islamic principles of the Quran (Holy Book), Tawhid (the concept of monotheism to Allah), Tajwid (the rules in reading Quran), Tafsir (the interpretation of the Quran), Hadith (prophet Mohammad's words) and Fiqh (principles and laws of Islam) ([Prokop 2003](#); [Jamjoom 2010](#)). Saudi students, from primary school age upwards, study the Quran to memory and apply its teachings across the curriculum, infusing secular disciplines with an Islamic flavour.

There are three main organisations or ministries that govern education in Saudi Arabia. The Ministry of Education oversees both public and private institutions from primary to secondary levels. The Ministry of Education is also responsible for designing, planning and implementing education for girls and women in the Kingdom. In the technical sector, the General Organisation for Technical and Vocational Training (GOTEVT) is responsible for overseeing training centres. Finally, the Ministry of Higher Education is accountable for university-level education in Saudi Arabia.

The call of modernisation has been heard in the education sector too, impelled by the need for a competent and skilled workforce. Therefore, Saudi Arabia has embarked on a series

of reforms in its education sector, such as the Irtiqaa initiative which is designed to boost parents' involvement in their children's education ([Mosaad 2016](#)). Such reforms are intended to address those factors which have hampered Saudi education, namely, outdated curricula, antiquated methods of teaching and poor academic standards, with an emphasis on the development of the skills and capabilities of individuals in line with global competencies.

### **3.12.4 Higher Education in Saudi Arabia**

From the establishment of the Kingdom in 1932, the Saudi government have been heavily invested in education provision for its citizens. The Ministry of Higher Education was established in 1975 to provide centralised control and to oversee development of the university sector. It is joined by the Institute of Public Administration ([Participants](#)) and the Higher Education Council ([Garcia and Pacheco](#)) which contribute to policy-making and other organisational functions.

Considerable investment characterises the education sector in Saudi Arabia. In 2011, the government allocated a budget of USD154.7 billion for education ([Al-Hujran, Al-Lozi and Al-Debei 2014](#)) with a strong focus on IT expenditure and e-learning. Currently, 25% of the national budget is dedicated to education with 12% earmarked for higher education ([Pavan 2013](#)). King Saud university alone received funding of USD 2.6 billion in 2013.

The university sector in Saudi Arabia has undergone dramatic growth in the past decade: from just 7 universities in 1998, there are currently 25 public and 9 private universities. The first co-educational university, the King Abdullah University of Science and Technology (KAUST) was established in 2009 ([Sallam and Hunter 2013](#)). Apart from the King Abdullah Scholarship Program (KASP) which has sent thousands of Saudi Arabians abroad for a tertiary education, there has been a succession of education plans and projects designed to boost national education. In 2007, a five year project with an expenditure of USD 3.1 billion was launched to review the education system, followed, in 2009, by a 25 year plan, AAFAQ, designed to promulgate the Saudi Arabian vision for a world-class and globally competitive educational offering ([Pavan 2013](#)). Eleven new research centres

attached to universities were established in 2013 ([Pavan 2013](#)). In line with these developments, the outside world has started to take notice of Saudi educational initiatives with the first book-length English language study on the higher education sector in Saudi Arabia published by Springer in 2013.

There has been some awareness of and interest in Western styles of education, arising out of the oil economy of the 1950s, there is little evidence of teaching and learning styles that encourage diversity of opinion, critical thinking, problem-solving and creativity ([Elyas and Picard 2013](#)). The competing discourses of moral tradition and Western-global ideas about education have constructed Saudi Arabian education as a contested space in which projects like “Tatweer”, a program aimed at equipping students with global competencies post 9/11, are doomed to fail ([Elyas and Picard 2013](#)).

There is also some evidence that the Saudi higher education system is under some strain, despite the vast amounts invested. This is attributed, mainly, to the growing population and the unavailability of sufficient university places to cater for these students ([Asiri et al. 2012](#)) as well as the need for duplication of infrastructure and resources due to gender segregated campuses ([Asiri et al. 2012](#)).

Under the banner of Vision 2030, there are ambitious plans to reconfigure Saudi higher education as a world class system. In particular, there is the drive to obtain international rankings in the top 200 for at least 5 Saudi universities as well as to pursue innovative public-private partnerships, thereby breaking the stranglehold of state-run ministries ([Alduais 2018](#)). One particular public-private partnership recently announced from Washington is between Babson College, Lockheed Martin and the Saudi authorities, designed to establish the Prince Mohammed bin Salman College for Administration and Entrepreneurship (CAE). Partnerships of this nature in higher education are highly conducive to the ends of a globalized economy.

### 3.12.5 Technology Usage

Saudi Arabia constitutes the biggest ICT market in the Middle East with a market share of 51-55% ([Altameem 2013](#)). In 2016 alone, SAR15.1 billion was spent on computer hardware sales while software sales reached a high of SAR 7.9 billion, with an expected increase to SAR 9.4 billion in 2020 (BMI research). Global Media Insight reports that there are 20.29 million people connected to the Internet with 11 million owning social media accounts. The Kingdom is the largest consumer of social media in the region with 7.96 million people using Facebook and 6.37 million using Twitter and ([Allam and Elyas 2016](#)). Indeed, Saudi Arabia boasts the most Twitter and YouTube users per capita in the world ([Perlov and Guzansky 2014](#)). Messaging applications are also popular with WhatsApp, Skype and Snapchat attracting vast numbers of Saudi users. Despite this, paradoxically, Saudi Arabia is still lagging behind developed nations in terms of its application of ICT and social networking to different sectors. This may, in part, be attributed to the nation's late connection to the Internet ([Almobarraz 2007](#)). Technology acceptance by ordinary workers in the Arabian region is described as slow ([Hu, Al-Gahtani and Hu 2013](#)). Indeed, it is theorized that, instead of being driven by personal motivations and perceptions as users are in more mainstream contexts, Arabian users are influenced to take up technologies by important others such as family members, or to comply with collectivist norms and values ([Hu, Al-Gahtani and Hu 2013](#)). Indeed, Arabian users are not technologically proficient in the main and accept technologies based on contextual factors, such as societal norms, rather than well-developed personal and professional knowledge of ICT ([Hu, Al-Gahtani and Hu 2013](#)). Thus, socio-cultural traditions may constrain technology acceptance, diffusion and penetration ([Hu, Al-Gahtani and Hu 2013](#)).

Generally speaking, despite the broad uptake of social networking in Saudi Arabia, a clear picture of how it is used socially, professionally and educationally has not fully emerged ([Askool 2013b](#)) and there are few studies in this area of enquiry. Work by [Aldraheim et al. \(2013\)](#), drawing on perceptions of respondents from the public and private sectors, concludes that Saudi culture, with its strong emphasis on kinship ties and tribally aligned

social relationships, fears the lack of human contact seen to be inherent in social networking which negatively affects the intention to use electronic technology. However, this barrier to uptake may be confined to older generations rather than Saudi Arabian youth who appear statistically to be more than willing to adopt social networking in their everyday lives and practices. This view is supported by recent research into social media usage in Saudi Arabia which suggests that citizens make “heavy use” of networking platforms which are widely accepted, with females slightly outnumbering males in their usage ([Dimitrios and Alali 2014, 93](#); [Askool 2013b](#)). For [Al-Jabri, Sohail, and Ndubisi \(2015\)](#), the social fabric of Saudi Arabia comprises traditional Islamic values which nevertheless coincide with a wide diffusion of Western technologies, making it an ideal environment for the proliferation of social networking platforms. Indeed, Vision 2030 seeks to usher in a new era of digitalised infrastructure ([Khan 2016](#)).

In regard to the extent to which social networking has penetrated Saudi Arabia in various sectors such as business, government, banking and healthcare, as opposed to personal usages, the consensus is that business, commercial and governmental implementation has been slow to develop. While the willingness to adopt technology is increasing, there are a number of obstacles to the widespread adoption of social media platforms in Saudi business practices identified as an overall national lack of e-readiness ([Dwivedi, Abed and Williams 2015](#)). A study carried out by [Al-Khalifa et al. \(2012\)](#) into the incorporation of social networking within e-government websites found that 37% of the one hundred and ninety four of the examined sites employ Facebook, while 35% and 25% use Twitter and YouTube respectively in an attempt to create effective two-way engagement with citizens in the form of announcements, news updates and directions. There was also evidence of usage of Flickr, LinkedIn, discussion forums and Google + by e-government ([Al-Khalifa et al. 2012, 245](#)). Despite this, the article suggests that the interactivity of these sites is limited and that social media policies in the country are lacking. In regard to other areas of uptake of social networking in KSA, there is evidence that the banking sector has started mobilising different platforms to serve as a communication channel whereby clients can offer their feedback, suggestions and complaints as well as be updated with the latest products and services ([NourElDineDaaboul 2013](#)). A report in The Saudi Gazette

indicates that the business sector too is using social networking to field customer complaints, inquiries and even spread news and updates on brands and organizations ([Muhammad 2013](#)). In the area of healthcare, while initiatives are few, there are studies on using social networking for health education purposes and for conveying updates to consumers; for example, an experiment has been conducted on using the web to educate patients about breast cancer ([Al-Abad et al. 2009](#)).

A further paradox that marks the arena of technology usage in Saudi Arabia is that, despite the active usage of Twitter and other applications, there are severe political and religious restrictions in place on various forms of media, including electronic media ([Allam and Elyas 2016](#)). Saudi Arabia is home to one of the most stringent Internet monitoring and censorship systems in the world in the name of protecting society and preserving Islamic mores ([Black 2009](#)). Accordingly, free traffic on the Internet is restricted with a number of sites being blocked, especially those deemed pornographic or containing immoral content which threatens Islamic precepts ([Black 2009](#)). All desired websites must be filtered through an Internet Services Unit (ISU) proxy which prohibits users from accessing certain websites. Such websites include pages referring to sex, drugs, bombs, alcohol and gambling, in addition to those deemed insulting to the Islamic religion and the laws and regulations of the Kingdom (ISU, n.d.). This overarching supervisory function has, since 2004, been passed to the Saudi Telecommunication company and is based on a compilation of sites, or a black list, that is updated regularly ([Almobarraz 2007](#)).

Indeed, some social networking sites are correlated with “intellectual deviation” ([Al-Smadi 2016](#)) whereby Islamic concepts and beliefs are thought to be abandoned in favour of deviant practices such as e-terrorism, drug-dealing, gambling and theft, leading to an inability to distinguish between right from wrong. In this way, technology is value-laden with meanings related to personal and social morality, national stability and cultural integrity, being seen as a potential force for dissemination of corruptive foreign influences as well as a means of containing threats to intellectual – and by extension, national – security ([Al-Smadi 2016](#)). In fact, evidence from a poll conducted in 2013 which

established that the predominant users of social networking in Saudi Arabia are conservative clerics with most people consuming religious content ([Perlov and Guzansky 2014](#)). Indeed, three leading Islamic preachers, Sheikh Salman Al Ouda, Sheik Mohammed Al Arifi and Ahmed Al Shugairi, have between 5-7 million social media followers, particularly on Twitter. Thus, it appears that social networking in Saudi Arabia is aligned with its social and religious persuasions.

### **3.13 Social Networking in the Higher Education Sector in Saudi Arabia**

While there is evidence that Saudi Arabian universities are making some use of social networking platforms, their usage appears somewhat restricted to communicative functions rather than academic engagement. University websites incorporate Facebook, Twitter and other Web 2.0 tools but as a means of recruiting, informing and updating students and their parents ([Ahmad et al. 2013](#); [Al-Khalifa and Garcia 2013b](#)). In fact, little published research is available to support enquiry into how Saudi college students perceive and make use of social networking or to what extent faculties incorporate social networking applications into their course delivery and pedagogical practices ([Chaurasia, Asma and Ahmed 2011, 312](#)).

A survey carried out by the Communication and Information Technology Commission (CITC) established that the main reason for using the Internet in Saudi Arabia was for communicative purposes with educational purposes achieving only fifth place. Indeed, while it may be that Saudi Arabia invests heavily in IT infrastructure in the university sector, there is mixed evidence of whether this is either sufficient or efficiently used ([Allam and Elyas 2016](#)). Some commentators believe that there are adequate facilities available, but these are under-utilised or poorly utilized, despite the enthusiasm of students and faculty ([Colbran and Al-Ghreimil 2013](#); [Alabdulkareem 2015](#)). Other researchers suggest that IT infrastructure is still lacking in most Saudi Arabian universities and that few universities would be able to develop and implement successful systems ([Altameem 2013](#)). There appears to still be a need for increased broadband width to allow for high



speed volume of information as well as for the services of more highly skilled support personnel via helpdesks and IT Support departments ([Altameem 2013](#)) which are currently lacking in Saudi Arabia. Thus, while infrastructure and IT facilities do exist at least to some extent, including the availability of Blackboard and other learner management systems such as the homegrown Jusur ([Asiri et al. 2012](#)), there is indication that these are not optimally employed within the higher education sector. An important study of the perceptions of Saudi academics conducted by [Colbran and Al-Ghreimil \(2013\)](#) concludes that academic staff require hands on training and access to support, suggesting too that educational communities are not involved in consultations about what IT facilities are purchased, how these are to be utilized or in evaluations of the effectiveness of these technologies. Turning specifically to social networking technologies, the study reveals that only 14% of the Saudi academics interviewed used social networking compared to 79% using email and 74% using Internet respectively. Indeed, anecdotal evidence from Saudi university faculties suggests that the most significant barrier to the uptake of social networking sites is raised by technological deficits. Other reasons cited by academics are the fear of misuse or student distractibility, a curriculum that does not accommodate social media usage, due no doubt to its religious orientation, and a short time period for each semester which precludes creativity and experimentation with new technologies ([Allam and Elyas 2016](#)).

Of the handful of studies that do investigate technology usage in higher education, many focus on “e-learning” or distance learning technologies and classic LMS tools as opposed to more contemporary collaborative Web 2.0 instruments ([Al Saif 2005](#); [Alenezi, Abdulkarim and Veloo 2010](#); [Al-Otaibi 2011](#); [Al-Saggaf 2004](#); [Almalki 2011](#); [Al-Khalifa and Garcia 2013b](#)). [Alkhalaf, Drew, and Alhussain \(2012, 100\)](#), for example, investigate e-learning and “emergent technologies” at two Saudi Arabian universities in terms of depth of learning, customisation, pace and productivity, but do not mention the specific applications that were considered. This vagueness and lack of specificity pervades current research: [Alenezi, Karim, and Veloo \(2010\)](#) claim that e-learning is available at universities in Saudi Arabia but do not provide details about the type and nature of e-learning or its instruments. A recent study at the University of Dammam is likewise

indirect, finding that respondents use the Internet accompanied by Facebook, Twitter and YouTube to support their studies without differentiating between students' self-directed and informal usage and more formal university-driven incorporation of social networking sites in higher education ([Al-Hariri and Al-Hattami 2015](#)). Moreover, while a study by [Alwagait, Shahzad, and Alim \(2015\)](#) explicitly references Twitter and Facebook usage by Saudi Arabian university students and suggests that using these sites does not adversely impact GPA, it also does not clearly specify what these networking sites were being used for or whether indeed they were used for academic purposes at all. Generally, then, current research tells us little about whether and how social networking is actually used in university settings in KSA. Moreover, while a detailed picture is lacking, it may be hypothesized that the usage of technology for instructional purposes is currently minimal ([Al-Asmari 2005](#); [Al-Kahtani 2006](#); [Asiri et al. 2012](#)) in Saudi Arabian universities.

In addition to the above, a limited amount of usage type research is available which mainly examines the barriers to the uptake of social networking in higher education in Saudi Arabia; in fact, given the context of the Kingdom with its stringent censorship laws, reliance on traditional learning forms such as memorisation, and the presumed lack of familiarity of university staff with digital technologies, it would be logical to conclude that barriers to uptake are greater and more challenging than those that exist in other countries where social networking is used. For [Aljasir, Woodcock, and Harrison \(2012b\)](#), the barriers to student uptake of social networking (in this case, Facebook) are, in descending order, lack of interest, lack of time and computer access issues. Gender was not a variable in this study and the only factor which could be construed as particularly pertinent to Saudi Arabia might be the lack of online access for some students. Conversely, a study by [Binsahl and Chang \(2012\)](#) shows that Saudi females studying abroad are enthusiastic users of social networking and finds that technical rather than cultural factors are reasons for non-use, concluding that these students use the technology more than do their counterparts in Saudi Arabia. Another recent study by [Al Ghamdi, Samarji, and Watt \(2014\)](#) examines the theme of teacher immediacy and availability to students in distance education at an unnamed university as a determinant of student satisfaction with the virtual learning environment finding, importantly, that while male participants showed a greater

inclination to participate than females, the female respondents displayed higher levels of satisfaction with the communication established by the system. Thus, while some studies imply that gender is a cultural barrier to the uptake of technologies in Saudi Arabia, other studies ([Chaurasia, Asma and Ahmed 2011](#)) do not support this finding, perhaps because of the widespread availability of mobile devices in the country, meaning that women have equal access to social networking opportunities. Indeed, studies reveal that women have a greater social and personal need to appropriate modern technologies in Saudi Arabia ([Al-Jabri, Sohail and Ndubisi 2015](#)). Other commentators look at the vast potential of educational technologies in servicing a growing population that is outpacing the development of schools, providing valued connectivity for students located in remote areas ([Al-Asmari and Khan 2014](#)).

In terms of barriers to uptake, [Almalki \(2011, 84\)](#) names the main impediments to the penetration of social networking in universities as the poor quality of Internet connections in the country and trust issues related to intellectual property and privacy. A recent study at the University of Dammam found that a lack of wireless Internet, poor maintenance of technology hardware and inadequate user training are the main barriers ([Al-Hariri and Al-Hattami 2015](#)). Other obstacles cited by researchers are the lack of Arabic interfaces in social networking platforms, lack of Arabic user support documents and lack of online Arab content, as well resistance to uptake due to traditional face-to-face, storytelling-focused and rote-based learning styles which are prized in this society ([Sultan et al. 2012](#); [Chaurasia, Asma and Ahmed 2011](#); [Al-Khalifa and Garcia 2013a](#)). [Sultan et al. \(2012\)](#) comprehensively analyses a number of key cultural issues in using contemporary technologies in teaching and learning in Saudi Arabia: one important question is how the deeply entrenched practice of *wasta*, or personal influence through social connections, might fare when using democratising digital forms of learning. Another consideration is how well digital learning mechanisms support hallmark Arab characteristics and conventions such as extreme politeness and the avoidance of making critical comments to and about others. [Sultan et al. \(2012\)](#) also raise the question of how to equip Arab learners with global digital competencies such as the ability to filter content and make judgements about quality and trustworthiness of information within an education system that favours

memorisation and traditional examination success as measures of successful pedagogy. This is compounded by the dearth of Arabic open-access content and the limited English possessed by Saudi citizens, making participation in an information culture extremely challenging. Moreover, it is claimed that university computers seldom provide open-access resources for students ([Sultan et al. 2012](#)).

In terms of implementation studies, only a few considerations of particular technologies exist: Twitter is dealt with by [Al-Khalifa and Garcia \(2013a\)](#) while the use of wiki technology in university courses in KSA is investigated by [Alzahrani et al. \(2012\)](#) who postulate that, while students express enthusiasm about using wikis, they are not familiar with the concept behind this technology. The effectiveness of YouTube as a supplementary means of instructing and learning is examined by [Unis, Khubrani, and Howatee \(2014\)](#) who look at the adoption of electronic forms of learning in the medical faculty at the University of Tabuk. A consideration of the practices of English language teachers at an institution in KSA uses the umbrella term ICT, although some of the practices referred to, such as online group discussion, use of YouTube clips and blogging clearly fall into the realm of social networking ([Hammond and Gamlo 2015](#)). An overview of social networking in higher education in Saudi Arabia is provided by [Al-Khalifa and Garcia \(2013a\)](#) who state that “universities in the country have started utilizing social media for teaching and learning purposes” (66) and provide a table of social networking penetration in the top ranked universities in the country:

*Table 4: Saudi Arabian universities’ statistics of social media usage (Adapted from: [Al-Khalifa and Garcia \(2013b\)](#))*

University	Rank	Facebook (Likes)	Twitter (Followers)	YouTube (Views)	LinkedIn (Followers)
Umm Al-Qura University (UQU)	501-550	-	7,263	142,139	701
KSU	197	9,988	26,351		4,458
King Abdulaziz University (KAU)	334	24,102	13,180	101,466	2,605
King Fahd University of Petroleum & Minerals (KFUPM)	208	7,018	4,565	75,426	2,333
King Faisal University (KFU)	551-600	6,148	7,239	20,799	718
Al-Imam Mohammad Ibn Saud Islamic University (IMAMU)	401-450	-	7,189	24,041	305
King Khalid University (KKU)	501-550	-	-	8,043	-
King Abdullah University of Science and Technology (KAUST)	290	23,825	6,993	232,291	3,328

In sum, the sparse research on social networking usage in higher education in Saudi Arabia provides only a vague and fragmented picture which raises doubts about whether social networking in Saudi Arabian universities has yet reached the level of sophistication of use seen in other countries in terms of a wide variety of instrument types and educational applications and about whether there is indeed substantial engagement with social networking in the Saudi Arabian higher education sector at all.

### **3.14 Conclusion**

This chapter provides a comprehensive review of the existing literature on social networking in the higher education context. After outlining the history of the Internet and web-based developments, it defines crucial terminology and presents the key features of a number of popular social networking instrument types. The review then examines the current global research into the positive and negatives effects of social networking on higher education, identifying the major research trends that have emerged from the past decade. The chapter also identifies a gap in the current literature, namely, that research tends to derive from and reflect the orientations of mainstream, often First World and Westernised countries. After suggesting that there is a need to expand the picture of social networking in more marginalised societies and cultures, it turns to Saudi Arabia in order to review the extent to which social networking has penetrated this society with a view to examining social networking take-up in higher education in this culturally differentiated Islamic kingdom. These findings from the literature review will be tested using empirical data and refinement of the framework will be conducted in the chapter that follows.

## **Chapter 4**

# **Focus Group Results and Analysis**

## **4.1 Introduction**

The previous chapter presented a thorough review of the literature pertaining to the field of social networking and its applicability to the academic tasks of higher education. It argued that whilst global research into the benefits and detriments of social networking in universities is increasing, little is currently known about the nature and extent of social networking usage in higher education institutions in Saudi Arabia, which is culturally differentiated from those Western nations where the uptake of social networking has been prolific. This opens a research gap into what might constitute success factors for incorporating social networking into this socio-culturally specific country.

The researcher undertook research into the acceptance of social networking sites for academic purposes and sought participant responses to the initial framework based on data gathered in Saudi Arabia. In order to obtain the desired results, themes were identified from the literature review and targeted questions were posed to participants from four universities during group discussions about the role and significance of social networking sites in academia. This involved discussion of current issues, trends and personal experiences, linking to the factors that might be included in developing a social networking framework for higher education in Saudi Arabia.

The chapter is focused on three main aspects: Pedagogical Factors, Contextual Factors, and Technological Factors, with sections dedicated respectively to each factor. The methodology used included data collection, data analysis, data reporting, and word frequency counts, which are described in the subsequent parts of the thesis.

## 4.2 Methodology

### 4.2.1 Data Collection

As discussed in section 2.8.5, staff and lecturers of the chosen universities were contacted to help with finding participants who were interested in participating voluntarily in the focus group sessions. Participants were randomly chosen from both undergraduate and postgraduate levels so that the data could reflect various viewpoints. The participants received a consent form at the beginning of the discussion by means of an information sheet (see Appendix 1: Focus Groups Consent Form) describing the objectives of the research, assuring the confidentiality of the participants' information and informing them of their right to withdraw from the focus group discussion.

The focus group questions covered a number of aspects, including participants' usage of social networking sites, their views on the incorporation of such sites into the Saudi Arabian higher education sector and the drivers of and barriers to social networking adoption specific to the Saudi Arabian context. These questions were peer reviewed and modifications were made prior to their usage with the focus groups. Participants were then presented with and invited to respond to the initial framework of factors, derived from the literature review, for the successful integration of social networking into Saudi Arabian universities (see Appendix 2: Focus Group Questions).

*Table 5: Focus groups information*

Focus Group ID	Duration	University	Male	Female	Total
Student-FG1	40 min	University A	8	-	8
Student-FG2	38 min	University B	5	3	8
Student-FG3	30 min	University C	5	4	9
Student-FG4	30 min	University D	6	4	10
	Percentage		69%	31%	



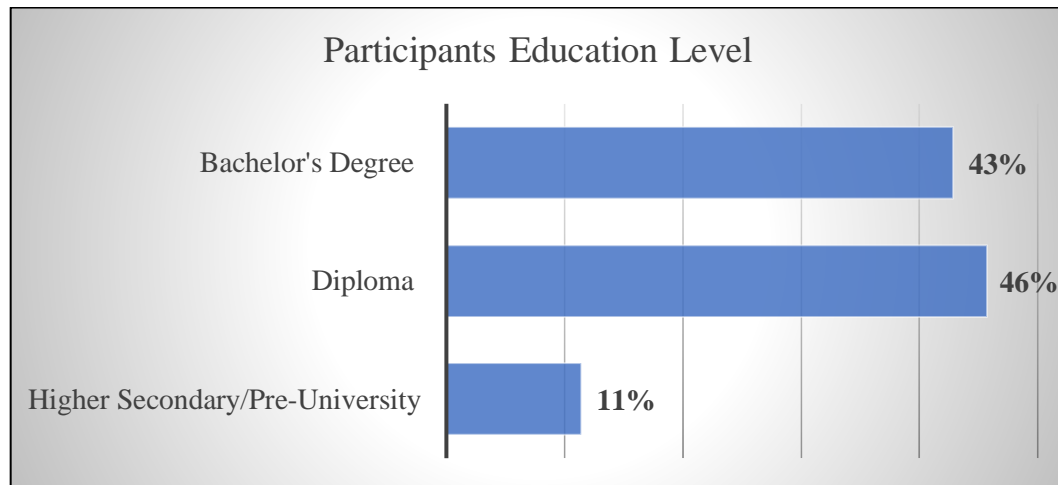


Figure 10: Participants' demographical information

At four different universities in Saudi Arabia, students, both undergraduate and postgraduate, participated in focus groups facilitated by the researcher. In terms of gender, University A had 8 male participants while University B had 5 male participants and 3 female participants. University C had 5 male participants and 4 female participants, whereas University D had 6 male participants as opposed to 4 females. Overall, male participants constituted 69% of the total number who took part, while females constituted 31%. The top majors for the participants were Information Systems (8 participants), Business Law (6 participants), Information Technology (4 participants) with 3 participants each for Health Science and Accounting. In relation to level of study, the participants were roughly balanced between undergraduate and postgraduate studies, with 46% holding a Diploma, 43% holding a Bachelor degree and 11% being high school graduates.

### 4.2.2 Focus Group Session

The focus groups were conducted at one of the universities which was able to offer a room set up to meet the social and religious requirements of the participants. This is due to the importance of finding a venue which will allow the participants to be as comfortable as possible so as to engender productive discussion (O.Nyumba et al. 2018). In this case, the room allowed for gender segregation without compromising free and open interaction and communication. Male and female participants were located in separate sections of the room with a wall partition in the middle, dividing the two genders. The female section had

a one-way glass screen whereby the female participants were able to see the male participants and the researcher but were not able to be seen in turn. The wall partition was below ceiling height and there were vents along the bottom half of the partition, allowing voices to be clearly heard and documents to be exchanged with female participants. Audio recordings of the focus group discussions were made. It must be noted that despite the choice of venue and the role of the researcher in trying to make participants feel relaxed and comfortable, the female participants were, on the whole, reticent and shy and did not make as many contributions to the discussion as the male participants. This can be attributed to the socio-cultural context of Saudi Arabia in which females do not generally participate in open and public discourse. Each focus group ranged between thirty and forty minutes in duration only, despite the researcher's efforts to evoke more detailed answers from the participants. The researcher used a projector to present the questions as well as the framework. This was done to ensure that participants had time to read the questions and provide coherent answers to the given questions.

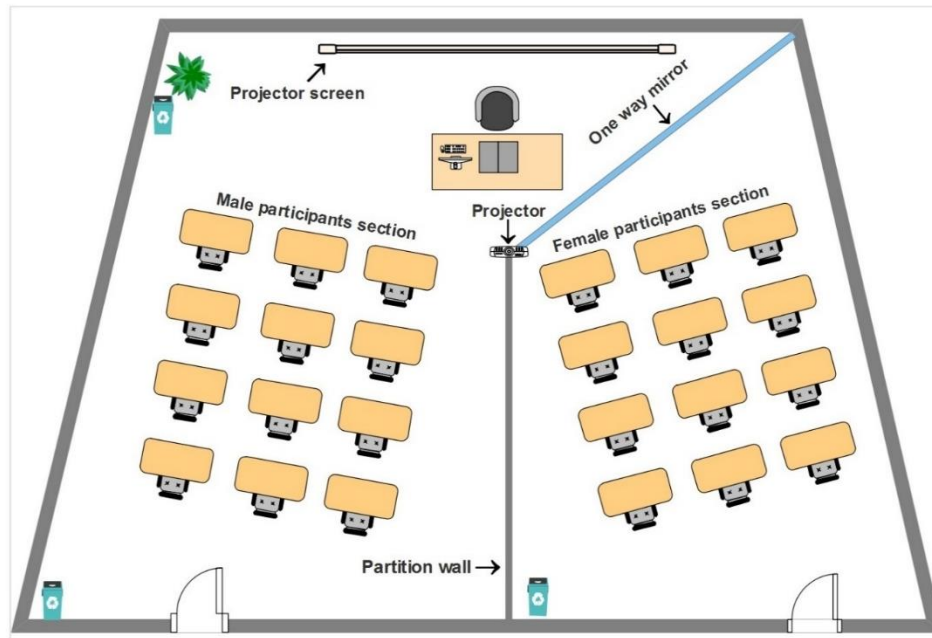
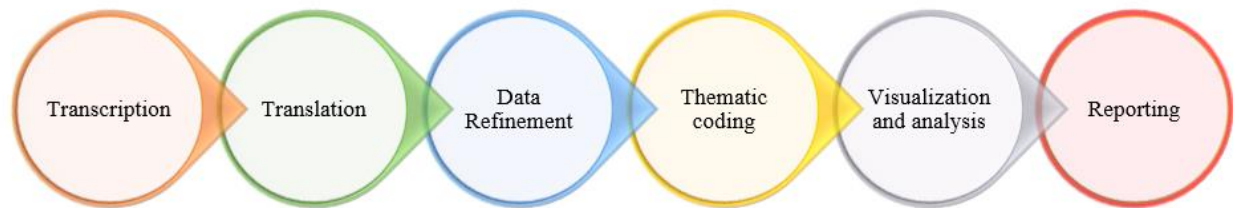


Figure 11: Focus group floor plan (prepared by author)

### 4.2.3 Data Analysis

The questions were developed in English and then translated into Arabic by a member of the National Accreditation Authority for Translators and Interpreters. The aforementioned audio recordings from the focus groups were transcribed into Arabic and then translated into English for further analysis using the NVivo 10 database. The translation was carried out in Saudi Arabia through a certified and professional translation organisation rated as being of top quality in Saudi Arabia. The overall transcript reached around forty-seven (47) pages and around 11,715 words. NVivo is software which encodes and organizes textual data according to its themes for qualitative analysis ([Bazeley and Jackson 2013](#)). Identity patterns, similarities, and differences in content are compared and categorised into various themes.



*Figure 12: Steps of Focus group analysis (prepared by author)*

The study produced 3 main themes and 37 sub-themes, gathering 40 themes in total. As part of the coding process, data was then refined and arranged in a thematic hierarchy. The data was analysed and coded using a thematic deductive approach. Main themes revolved around pedagogical, contextual, and technological aspects, including issues such as learning strategies, political and governmental factors, and Internet quality. Moreover, government educational policies, gender segregation issues, and factors supporting acceptance of technology were explored in the sub-themes of the research.

### 4.2.4 Data Reporting

NVivo software offers an analytical tool which facilitates the examination of similar and different patterns of data. Furthermore, various text analyses and queries such as

frequencies, matrix queries, and cluster analyses, can be encoded into charts, tables, and graphs using the tools found in NVivo to demonstrate the results of the data analysis ([Bazeley and Jackson 2013](#)).

### **4.2.5 Frequency Counts**

It is important to keep in mind that the findings depicted in the charts and graphs are meant to illustrate patterns in the textual data and cannot be interpreted in the same way as numerical data and quantitative analyses. For example, several analyses use the “number of coded references” to represent frequency and this term appears in many charts. This number indicates the frequency with which a given theme occurs in the coded responses—a helpful piece of information when considering the implications of the content. However, these counts must be carefully interpreted to avoid making statistical assumptions ([Bazeley and Jackson 2013](#)).

The salient points arising from the focus group data are now examined. The following section examines particular social networking sites mentioned in the groups and discusses their various uses as reported by participants.

## **4.3 How Participants Experience Social Network Sites**

The participants in the focus groups shared their insights regarding social networking sites generally and for educational purposes. Similar concepts from different personal experiences surfaced according to the coded data. Figure 13 depicts the relative prominence of each concept shared by the individuals from the different universities, with the larger words representing the frequency of the concepts tackled in the focus group discussions. The illustration also shows smaller words such as “people”, “acceptability”, “time”, and “communication”. It is significant that the words “questions”, “problem”, and “answer” appeared frequently as well, indicating that the relationship between social networking sites and these concepts was explored.



These patterns of usage of specific technologies tie in with a recent poll to determine the most popular applications by Saudis which found that WhatsApp, Facebook and Twitter were the most popular media ([Social Media Saudi Arabia – Statistics and Trends 2016](#)). It also accords with recent research that suggests that the use of Facebook and Twitter by Saudis is prolific ([Perlov and Guzansky 2014](#); [Allam and Elyas 2016](#); [Kemp 2018a](#)). In addition, participants talked about various ways in which they used social networking sites in all areas of their lives. They most frequently mentioned using social networking sites for work, such as:

*“We viewed the feedback that we received from the people for the service we organized...and try to improve our service based on the feedback...” [Uni C – Student3]*

*“Student: We have used it for work.*

*Moderator: What was the actual use; work, like what?*

*Student: For making advertisements and marketing.” [Uni D – Student4]*

[Argan and Akyıldız \(2009\)](#) and [Bolar \(2009\)](#) mention social and leisure uses of social networking as the primary determinants of usage. The focus groups established that these participants also used social networking sites for entertainment and leisure purposes, such as:

*“We have used Twitter and Instagram the use objective varies from one person to another sometimes for leisure and some time to learn new things, depends on the individual’s interests.” [Uni C – Student4]*

*“I mostly use it as a form of entertainment mainly, but it always has been a beneficial experience for me.” [Uni C – Student3]*

*“Many people see it as form of entertainment rather than using it formally.” [Uni B – Student2]*

In addition, there is some indication that social networking sites were also used to interact with others for the purposes of academic activities ([Selwyn 2009](#)):

*“WhatsApp is, of course, for work and communication with friends if there was a lesson that I missed due to my absence.” [Uni A – Student7]*

*“I normally find the answer in the program, mainly in Twitter for solving the problems or obtaining any other information.” [Uni B – Student1]*

*“If I have any question, I write it on Facebook; next morning I find the answer ... another student gives the answer. It was very beneficial.” [Uni D – Student2]*

Moreover, to help with their coursework and class activities, students used various social networking sites for personal academic activities ([Kosik 2007](#); [Madge et al. 2009](#); [Bosch 2009](#); [Hew 2011](#)):

*“If there are lectures posted in the social networking sites, any specialization, here we may use the social networking sites.” [Uni D – Student5]*

*“Moderator: If we wish to introduce it for education, what are the factors you think should be taken into consideration?”*

*Student: Using it for research and educational readings...or making discussion groups.” [Uni D – Student5]*

In the main, these usages for academic purposes seem to be student-initiated and there was no clear indication that social networking sites were formally incorporated into university pedagogy.

Where lecturer usage and direction were mentioned, it appears that social networking sites helped both lecturer and student if either was absent from class. Social networking sites enabled communication between students in order to catch up on missed material, and were also seen as useful if lecturers needed to notify students ahead of time in the event of their absence from class. Aside from that, lecturers informed students about support

materials such as audio file lectures via social networking. This is in line with the findings of [Boghian \(2013\)](#) who suggests that Facebook serves as a vehicle for the dissemination of information and for exchange between students and lecturers . Figure 15 depicts the uses and roles of social networking sites as disclosed by each focus group participant:

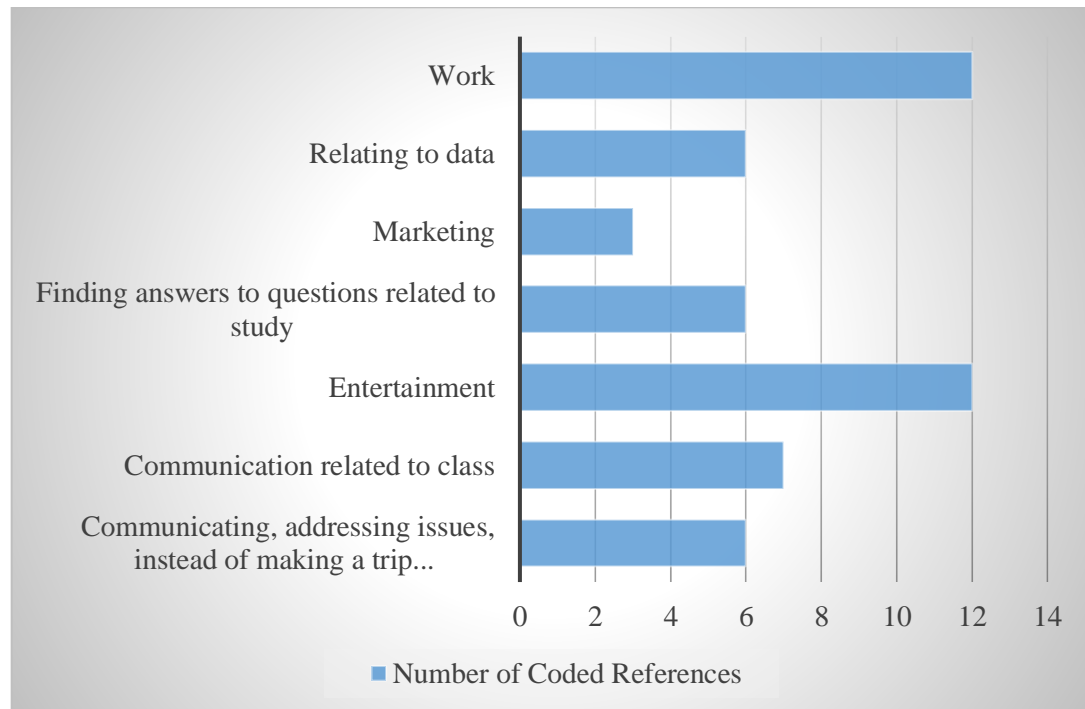


Figure 15: Participant Comments about How SNS are Used in Saudi Arabia (prepared by author)

## 4.5 Pedagogical Factors

Two sub-themes were created from the comments made by participants about the pedagogical factor of social networking as demonstrated in Figure 16 below:



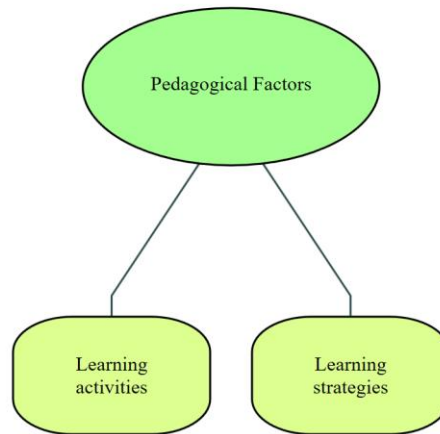


Figure 16: Themes found in content related to the Pedagogical factors (prepared by author)

Participants shared their opinions regarding some of the issues that relate to the pedagogical factor and they made some suggestion about the integration of social networking tools in Saudi Arabia at an early stage of education. Figure 17 shows the number of comments made by participants in relation to the pedagogical factors.

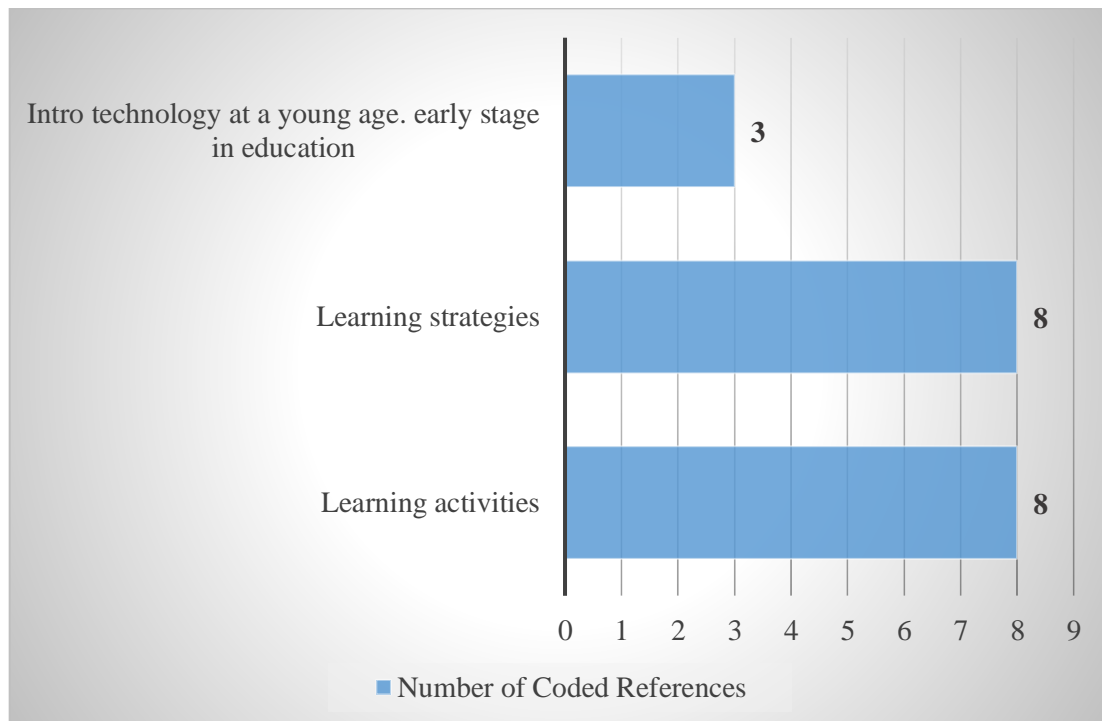


Figure 17: Number of comments in related to the Pedagogical factors(prepared by author)

### 4.5.1 Learning Strategies

Issues related to the practice and application of educational strategies that influence the use and acceptance of social networking sites were key topics discussed by the focus group. Some of these strategies comprised ideas for helping students and the public to become comfortable with social networking sites as a part of the educational process. This ties in with existing literature on how social networking sites can be strategically incorporated into higher education ([Dabbagh and Kitsantas 2012](#)). In order to generate different strategies, the participants brainstormed and mentioned some of their proposed ideas as follows:

*“In some difficult lectures, the lecture time is not enough to deliver full information. Anyone who was not been able to comprehend the information could complete comprehension at home by repeated play of a certain part of the lecture several times till understanding of the required information is achieved.” [Uni A – Student1]*

*“Video images of 10 seconds which contain a scientific message sent through WhatsApp and Snapchat deliver information in a subtle manner.” [Uni B – Student2]*

There was some discussion about the lack of integration of social networking sites into teaching techniques. These ideas included:

*“The university should provide incentives (do you mean incentives to the students or the lecturers?) I mean incentives to the lecturers ... some of them are of old age.” [Uni A – Student5]*

*“The best thing is to provide courses to the lecturers to become familiar with using these sites for better communication with their students to keep abreast with advanced societies.” [Uni A – Student4]*

These suggestions accord with research that indicates that lack of theoretical models, common understandings and functional examples of how to integrate social networking sites significantly hampers their usage by university academic staff ([Kirkwood and Price 2014](#); [Hamid et al. 2010](#)) and, in turn, by students.

Some participants enumerated the significance of the benefits of social networking sites, such as:

*“We must see, for example, new things if we want to integrate social networking sites such as use of videos and images in education. They make concepts more understandable. If the number of words is too much, someone may get bored.”* [Uni B – Student2]

*“I think one of the benefits for using the social networking sites is that information is concise. That is, you find summaries of the subject matter unlike in books. And this is a benefit.”* [Uni B – Student6]

This again aligns with the argument proposed by [Boghian \(2013\)](#) whereby social networking as an educational tool is seen to be a student-centred educational strategy linked to constructivist theories of learning.

## **4.5.2 Exposing Students to Academic Use of Social Network Sites Early in their Education**

Aside from the aforementioned statements, there were several opinions regarding the effectiveness of exposure to social networking sites when strategically embedded into the early years of education to enhance and improve their usage and acceptance in the education process:

*“How to integrate the social networking sites in the Saudi education system? I think they should be integrated at the early stages of education for the student to be familiar with them.”* [Uni A – Student4]

*“Why don't we prepare secondary stage students to avoid problems at university?” [Uni B – Student6]*

*“Some students ignore this matter. If they were accustomed to it at a previous stage, it would be a positive development. It must be introduced in the previous stages.” [Uni A – Student2]*

### **4.5.3 Multiplicity of Resources**

Some thoughts concerning various limitations identified by participants may deserve further consideration within the context of educational strategy. For example, one student spoke about the practice of presenting only one perspective on course topics, and how this limited students' understanding of the content being studied. S/he saw the potential of social networking sites to counteract this effect, since they provide multiple information sources and, thus, multiple perspectives on a given topic:

*“Sometimes there are obstacles concerning the lecturer... I mean exclusivity ... without other competing sites. You see, poor information delivery... as an example, each section you receive or an imaged section is of short time without another lecturer to serve or diversify the information. Instead of this exclusivity, we need more and competing sites. I believe it [using SNS to access information] would be better.” [Uni A – Student1]*

This view accords with the notion that twenty-first century learning proceeds from a multiplicity of sources rather than one perspective alone ([Hricko 2011](#)).

### **4.5.4 Impediments to Free flow of Information**

However, the implications of such an approach also require deliberation. One issue concerns potential problems involved in free access to the myriad of informational sources available through social networking sites:

*“If you look at the statistics that provided by google trend you would notice that Saudi is one of the most active nations on the SNS...Some of them provide some educational materials on it...but the government has put some restriction on how to communicate in the social network on its departments...They suggested to use it as way to deliver the department information but not take any discussions or reply to questions on SNS. This because the government want to have certain ways and formal kind of communication.” [Uni D – Student4]*

This view is borne out by evidence that Saudi Arabia imposes stringent Internet monitoring and censorship, denying free traffic and information flow ([Allam and Elyas 2016](#)). In this sense, it was understood that social networking sites were regarded as information portals rather than channels for discussion, exchange of opinion and debate.

#### **4.5.5 Accuracy of Information**

A different concern that was addressed was the accuracy of information made available through social networking sites. This concern is echoed in the research conducted by [Al-Smadi \(2016\)](#) which asserts that such information is often perceived as immoral and corrupt:

*“In my own opinion, among the factors which might impede social networking sites, is that a small percentage of the Saudi young people have no tendency to use social networking sites due to reputation or information that could be right or wrong .... The case is that many social networking sites transmit wrong information. Any person can receive wrong and useless information.” [Uni A – Student4]*

Here, it is apparent that the actual as well as the perceived validity of the information provided through social networking sites is an issue of concern. Strategies for identifying credible information sources, and training students to discern the difference between trustworthy and non-trustworthy sources would seem to be a crucial factor.

## 4.6 Contextual Factors

For the focus groups, certain questions were formulated aimed at evoking insights into and impressions of the acceptance and use of social networking sites in Saudi Arabia in relation to localized cultural and social factors. This broad category is grouped into the following individual sub-themes. The individual sub-themes are depicted in Figure 18 below:

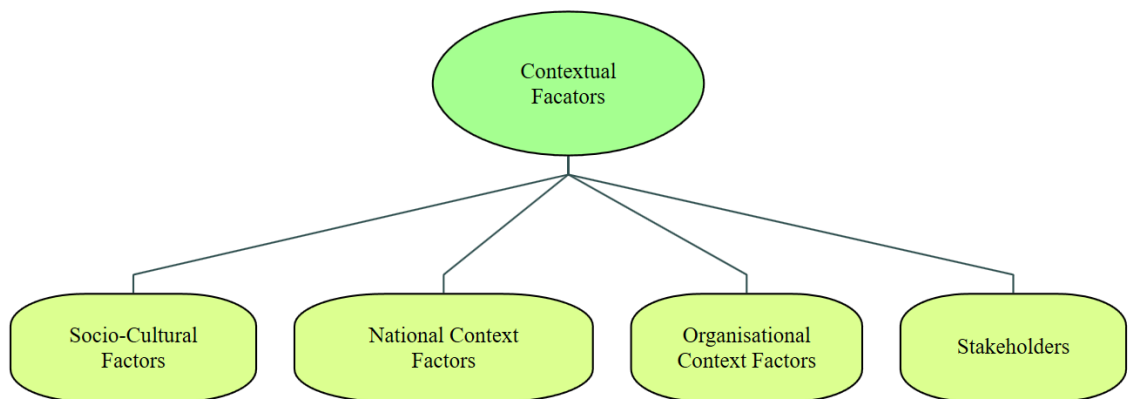


Figure 18: Sub-themes found in content related to the Contextual factors (prepared by author)

### 4.6.1 Socio-Cultural Factors

Socio-cultural factors involve aspects such as national technology accessibility and national demographics. Equal opportunity for all students regarding access to social networking sites as an academic tool was one of the significant issues pointed out by the participants in the focus groups:

*“The most important factor, these things (equipment and social programs), should be available to all students.” [Uni A – Student1]*

*“Taking into consideration all categories of the society, educated and uneducated, the two genders and rich and poor.” [Uni B – Student1]*

*“I think social strata are the profound factor.” [Uni B – Student2]*

Furthermore, the fact that Saudi Arabia comprises a youthful population is seen to encourage more widely accepted social networking sites usage in the country ([Sallam and Hunter 2013](#)):

*“Most people in Saudi Arabia are young men and women. The young people in the age group 18-40 years comprise 80%. So it is easier for you to teach them how they can use the social networking sites, unlike other developing countries in which you find big age differences in the society strata” [Uni A – Student6]*

#### **4.6.2 Ethical Concerns**

Another important factor discussed in the focus groups was ethical concerns given the Saudi Arabian culture and identity. The researcher considered the concerns regarding privacy and the risk of being hacked which would jeopardise sensitive personal information and security. These concerns have also been raised by [Mourtada et al. \(2011\)](#), particularly in relation to female users of social networking sites. The risks were deliberated and the participants reiterated the importance of providing improved protection for users of social networking sites:

*“The point of concern is the privacy...some people abandon social networking because of privacy concerns as they cannot protect their information...the hackers can access their information...some people prevent their children from using social networking because they are open and limitless, etc.” [Uni A – Student5]*

*“We faced this problem in Twitter and other sites. Support is very poor and does not protect privacy of the user against hackers. There are cases of hacking accounts of celebrities. Sometime ago the university site was hacked.” [Uni B – Student3]*

*“Protection of privacy is very important and influential in Saudi Arabia.” [Uni A – Student3]*

Participants also commented on how students and universities currently use social networking sites that touched on ethical issues. For example, one participant mentioned that universities use social networking sites to advertise and market their schools rather than provide legitimate educational resources, and how this might appear to conflict with the use of social networking sites as a learning tool in universities. It could be confusing, misleading, or uncomfortable for students to receive advertising mixed in with their class assignments and lecturer notes on social networking sites. Another participant wondered what the effect might be of introducing educational purposes into a technology that is currently primarily used for entertainment:

*“Now most of our time is spent on entertainment. If education is introduced, a problem may appear, because the learning replaces entertainment at the same time and one may become distant from the education milieu.” [Uni B – Student1]*

Another socio-cultural factor involved gender issues, and the interaction between social networking technology and Saudi social norms in regard to gender segregation ([Adham and Lundqvist 2015](#)). Most participants felt this to be a ‘non-problem’ in that the technology would actually enable appropriate information sharing between genders that is sometimes difficult without technology ([Mourtada et al. 2011](#)). As a result, social networking sites were seen as a positive and helpful tool for navigating communication for educational purposes. For instance:

*“In terms of the customs and tradition, I think the sites shall assist as the communication will be student to student irrespective of gender variations. I think this is a positive factor.” [Uni B – Student1]*



*“Through electronic communication, the sex of the user is not necessary, whether male or female. Most important for the user is to get the information from the concerned entities.” [Uni B – Student1]*

However, one participant disagreed with the statements mentioned above, proposing the following:

*“These branches you spoke about, gender permanent separation in the Kingdom. This is a problem because separation of both genders is a problem in the social networking sites.” [Uni C – Student2]*

There is still a need for more extensive and precise questioning in order to be able to clarify both sides of the debate and reach a consensus regarding the approaches that would be best in respecting gender segregation norms while still encouraging the use of social networking sites. It is clear from the participants’ responses that social networking could bridge the gender divide but, at the same time, might be seen to perpetuate gender divisions rather than challenge societal norms.

Similarly, the ‘religious factor’ was raised a few times during focus group discussions in regard to ethical concerns and contextual issues ([Adham and Lundqvist 2015](#)). However, there was no detailed discussion regarding specific issues and it appeared the overall general feeling was that “There are no religious obstacles”. This probably reflects the youthful enthusiasm of the participants and somewhat contradicts previously mentioned comments about privacy and identity management concerns and the possibility of receiving information that is not morally differentiated which clearly derive from the religious permeation of Saudi society.

### **4.6.3 Flexibility and Openness to Change**

Finally, another collective characteristic that is part of the overall context is Saudi Arabia’s flexibility and openness to change ([Sallam and Hunter 2013](#)). A wide variety of opinions were expressed on this topic. Some felt Saudi society was too closed to be accepting of social networking technology:

*“In my opinion, it is not going to succeed because the nature of society here keeps a separate time for the study...Social networking sites are for entertainment. We consider education and entertainment in their nature are separate.” [Uni B – Student4]*

*“Let’s look at the schools for example, they use the traditional methods and they won’t like to change and there probably are other reasons, but this in the hands of the people whom they make the law here and that’s their opinion.” [Uni C – Student2]*

However, some respondents stated that the general interest in technology in Saudi Arabia is a promising sign of acceptance of social networking sites and their purposes:

*“If it’s a new thing they will use it ... As like with projectors and screens in the classes. Many Saudis have started using them. I think the acceptance will be high.” [Uni D – Student2]*

*“Most children today have equipment. They possess Ipads. This is a positive point.” [Uni B – Student3]*

Several statements illustrated Saudi Arabia’s current progress towards greater adaptability. Some participants expressed their insights into how citizens are now more open to newly introduced innovative technologies and their benefits ([Perlov and Guzansky 2014](#)):

*“The obstacles, in general, any matter coming to us shall encounter public opinion, would that (new matter) harm us or would be beneficial for the people? In the past, people showed concern regarding any new matter incoming, whether technology or social networking sites. But now people, in general, have started to understand the benefits as they think deliberately about it ... is it good or not. Now people look at social networking sites as interesting, and they accept them more rapidly without that much concern as was the case several years ago.” [Uni A – Student3]*

*“We should also think about the coming generation whether at our age in King Abdulaziz University or the coming generation as a whole, this generation is familiar and accustomed to this equipment through the various kinds of entertainment. So, it can be reached by this way, that is through the same equipment that it used before for entertainment. [Uni A – Student1]”*

*Facilitator: You mean easy acceptability?*

*Student: Yes, acceptability is faster than the backward mentality that we used before.” [Uni A – Student1]*

#### **4.6.4 Organisational Context Factor**

As acceptance of social network sites grows, affordability was seen as key to the receptiveness to social networking sites in schools. The concept of making communications technology accessible through affordability is paramount. This view is shared by ([Munguatosha, Muyinda and Lubega 2011](#)) whose study of social networking in Tanzania asserts the necessity of free or affordable and adequate technological as a key factor for adoption of social networking sites by higher education:

*“The most facilitating factor would be availability of Internet communication in the universities free of charge. If the Internet charges are less expensive, the people will develop greater interest.” [Uni B – Student1]*

*“The university should support computer hardware and software and support the students. They must sell equipment at low prices.” [Uni C – Student2]*

*“Facilitator: Are there any obstacles you think are the reasons for not using social networking sites?”*

*Participant: Just the short time and inadequate equipment. The equipment needs upgrading as it is very old. If they upgrade the equipment, it would be better.” [Uni A – Student1]*

This was seen as a key point, and therefore relevant to the development of financial strategy for both governmental and university spending regarding the adoption of social networking sites for academic use.

#### 4.6.5 National Context Factors

In a similar vein, political and governmental policies contribute to the context surrounding social networking adoption and its acceptance as a learning tool. The need for governmental policy in supporting social networking sites was reiterated in the focus group. Some concepts mentioned included inclusivity, accessibility, safety from privacy breaches, and financial support for equipment and infrastructure which are modern and efficient ([Ooko and Oduor 2013a](#)). The importance of raising awareness of social networking sites in the early stages of school years was also emphasized:

*“That means, why don't we prepare secondary stage students to avoid problems at university. Probably, most of them have little knowledge about what to study and what specialization they should choose.” [Uni B – Student6]*

*“Create a program to encompass all education stages such as a search engine to cover all education stages...If you look for any stage you find in this site which should be governmental, for providing information to all students in all stages.” [Uni A – Student1]*

Thus, governmental strategy should include educational policies that support such approaches ([Munguatosha, Muyinda and Lubega 2011](#)). Indeed, there was some talk of successful projects involving the use of social networking sites that were already under way:

*“There is a project for the Saudi electronic university...we should pursue this way.” [Uni B – Student2]*

The importance of keeping down the cost of using social networking applications was also mentioned, as was the need for the government to permit more open and free communication. As one male student put it:

*“Some companies put some restriction on some of the applications that offer some kind of communication services that are free in the rest of the world” [Uni C – Student5]*

*“the government has put some restriction on how to communicate in the social networks on its department. They suggested to use it as a way to deliver the department’s information but not take a discussion or reply to questions on social media sites. This is because the government wants to have certain ways and formal kinds of communication” [Uni C – Student3]*

*“Some people started to share their problems with ministers on the SNS, and I think the government doesn’t want informal ways of communication.” [Uni C – Student3]*

Although the student did not state this explicitly, the implication of mentioning these controls by businesses seeking to make money and the government seeking to control the flow of information is that these could be construed as a barrier to students freely using a social networking system.

Other projects were reported to have failed due to lack of financial support, in spite of the strong benefits they produced. The importance of government support to update, improve, and support technology infrastructure was mentioned throughout the focus groups. Some participants pointed out the benefits of a pro-social networking position in advancing Saudi Arabia and elevating it to international standards. In line with this, upon graduation, a student stated how he and his classmates lagged behind in technology skills:

*“See, we faced a problem here in the university...the problem was not from the university but from us as students. We graduated from Saudi universities five years ago. There was no social networking and LMS. I had a problem that I could not operate PowerPoint slides and it was so difficult for me to operate them.” [Uni B – Student3]*

The acceptance of social networking technology was encouraged by some students, one of whom stated:

*“Sure, we should go along with other communities in the education. Naturally, if you abstain from using such sites you will definitely take the education process backward, and our community will lag behind advanced societies.” [Uni A – Student2]*

Some students discussed governmental policy mandating the use of social networking sites at universities, and providing training for lecturers that would help them comply:

*“If you compel them to participate, it will be more effective, like the "Absher" service.” [Uni B – Student1]*

*“The best thing is to provide courses to the lecturers to become familiar with using these sites for better communication with their students to keep abreast with advanced societies.” [Uni A – Student4]*

In addition to the concepts presented above, the participants were able to appreciate the impact of the government and governmental policy on the use of social networking sites and how this can help societal progress.

## 4.6.6 Stakeholders

### 4.6.6.1 Staff

Current research stipulates the necessity for the participation of all stakeholders in technology adoption projects ([Baxter et al. 2011](#); [Vaughan 2001](#); [Goyal and Purohit 2013](#)).

As revealed in the focus groups, there are still conflicting opinions regarding the readiness of lecturers and practitioners to incorporate social networking sites into their teaching style (Colbran and AlGreimal, 2013, Alabdulkareem, 2014). Stated below are the respondents' positive opinions about the readiness of university staff:

*“The acceptability level is very high...a very high percentage of the students and lecturers accept social networking sites.” [Uni A – Student3]*

*“Facilitator: Do you think there are problems with some lecturers in using social networking site?”*

*Student: No, no, most of them would accept.” [Uni D – Student7]*

*“Facilitator: If your lecturer uses Facebook, does he accept, and the students accept, utilizing social networking sites in the education?”*

*Student: Yes, for sure... for sure they will have high acceptance.” [Uni D – Student7]*

Furthermore, participants provided examples of how social networking sites are currently being used by a high number of stakeholders in ways which are similar to global student usage of social networking sites ([Kosik 2007](#); [Madge et al. 2009](#); [Bosch 2009](#); [Hew 2011](#)):

*“Always the students and doctors were communicating with each other whether for homework or any other thing related to the subject. This is available.” [Uni D – Student2]*

*“A teacher may send exercises in his forum and may send explanations via YouTube. Currently, King Saud University uses distance learning. Many people are benefiting from this system and are studying in their homes and coming to the University to sit for the exams.” [Uni A – Student5]*

*“Take Twitter, if the lecturer would like to emphasize a certain point or request consulting references for a particular subject. He would say, for example, review that subject; it would be discussed further.” [Uni A – Student4]*

*“At this time, in Saudi Arabia, lecturers themselves are starting to apply this system. Lecturers have commenced writing questions in a log, thus, you can download them from the site and do the homework, then you dispatch it again*

*electronically to the lecturers who give you a certain time limit to answer.” [Uni A – Student2]*

However, some expressed their doubts about whether social networking sites are willingly and readily being adopted by university staff.

*“Some lecturers when you speak about Facebook ... they say: what is Facebook? They recognize neither Facebook nor WhatsApp and they do not know how to use these sites.” [Uni A – Student4]*

*“As for the lecturer, I think the majority would be old and their acceptability would be low and might face some difficulties in using it and the lack of experience in using it.” [Uni C – Student8]*

Moreover, some thought that age was a key critical factor in the acceptance of social network sites. This accords with research into faculty usage of social networking sites which is often seen as differentiated by age ([Sandars and Schroter 2007](#); [Tiryakioglu 2011](#)):

*“There is the problem that some administration employees are of old age. Although I respect their experience and age but it is difficult for them to accept some of these media. In the universities, the situation varies from one university to the other.” [Uni B – Student2]*

*“With respect to the acceptability ... students naturally accept using social networking sites. But some lecturers have no tendency due to age.” [Uni A – Student4]*

In contrast, another participant stated that:

*“The acceptability level is very high...a very high percentage of the students and lecturers accept social networking sites. First of all, the majority of lecturers and students are of young age. Since the early days of childhood, they recognize the Internet.” [Uni A – Student3]*



These comments cement the idea that age is a significant determinant for acceptance of social networking technology, with students and younger faculty members being construed as eager potential users.

Aside from age being a factor in the acceptance of social networking sites, the issues of training and convenience for lecturers and practitioners were also debated during the discussion (Colbran and AlGreimal, 2013):

*“Because they always aspire to enhance education. I think more than a half of the lecturers have the interest and with a little training they will master using the social networking sites.” [Uni B – Student7]*

*“Technologically, if the lecturer believes that the social networking sites are easier compared to the previous inconveniences, he will naturally use such sites.” [Uni A – Student2]*

An issue regarding certain sources mostly being available in hard copy format in Saudi Arabia was also one of the concerns raised:

*“The first thing to do is transfer the educational subjects into electronic and then we introduce the social networking sites. It is not easy to introduce social networking sites when the learning is still paper-based.” [Uni B – Student1]*

Participants also expressed their thoughts on other university staff departments, such as admissions and student record teams:

*“As a good example in the university, when you ask them a question through the social networking sites, they answer. I contact admission and registration... What I need is information and in a short time through them.” [Uni B – Student1]*

Participants felt that if these university staff and departments were not engaged with social networking , then acceptance and use of social networking sites more generally might not be successful ([Hricko 2011](#)).

#### 4.6.6.2 Students

Students are crucial stakeholders in accepting social networking sites as an academic resource ([Vaughan 2001](#); [Noeth and Volkov 2004](#); [Baxter et al. 2011](#); [Goyal and Purohit 2013](#)). They are viewed as being more open to and familiar with social networking sites due to being exposed to them continuously from an early age. Factors such as attitude, experience and openness were emphasized in this analysis:

*“In my opinion, I think the students will have higher acceptability as they will be young and more knowledgeable about SNS.” [Uni C – Student8]*

*“The students are familiar with and use the Internet in their daily life in the study and in everything since the early time of childhood.” [Uni A – Student3]*

However, some questioned the extent to which students are prepared to use social networking sites as a tool in their university courses:

*“That means, why don't we prepare secondary stage students to avoid problems at university. Probably, most of them have little knowledge about what to study and what specialization they should choose.” [Uni B – Student6]*

In the focus groups, students explained their personal experiences with social networking technology integrated into education:

*“Or the lecturer creates a special page in which he downloads all subjects or the books that he will explain and teach. The students access the site to obtain the books.” [Uni A – Student2]*

*“We were a group. We agreed to prepare the graduation dissertation. All of our communications were maintained using Facebook.” [Uni B – Student8]*

*I used it in making questionnaires and obtaining answers. I followed Twitter summaries and cues.” [Uni B – Student3]*

*“I am in a field where we must see, for example, new things if we want to integrate social networking sites such as use of videos and images in education. They make concepts more understandable. If the number of words is too much, someone may get bored.” [Uni B – Student2]*

*“The young men have formed a group and forums for intercommunication. They explain to one another and send messages through the sites.” [Uni C – Student2]*

*“Using it for research and educational readings...or making discussion groups.” [Uni D – Student5]*

Based on the statements made above by participants, the recurring uses of social network sites for students comprised of working in groups, collaboration, contribution, and information sharing.

## **4.7 Technological Factors**

Technology was one of the recurring themes examined in the focus group conversations. The subsequent sub-sections explore insights from respondents on how the success of social networking site adoption is dependent on the quality and performance of various technologies they have experienced, and how this affects their personal experiences as social networking site users.

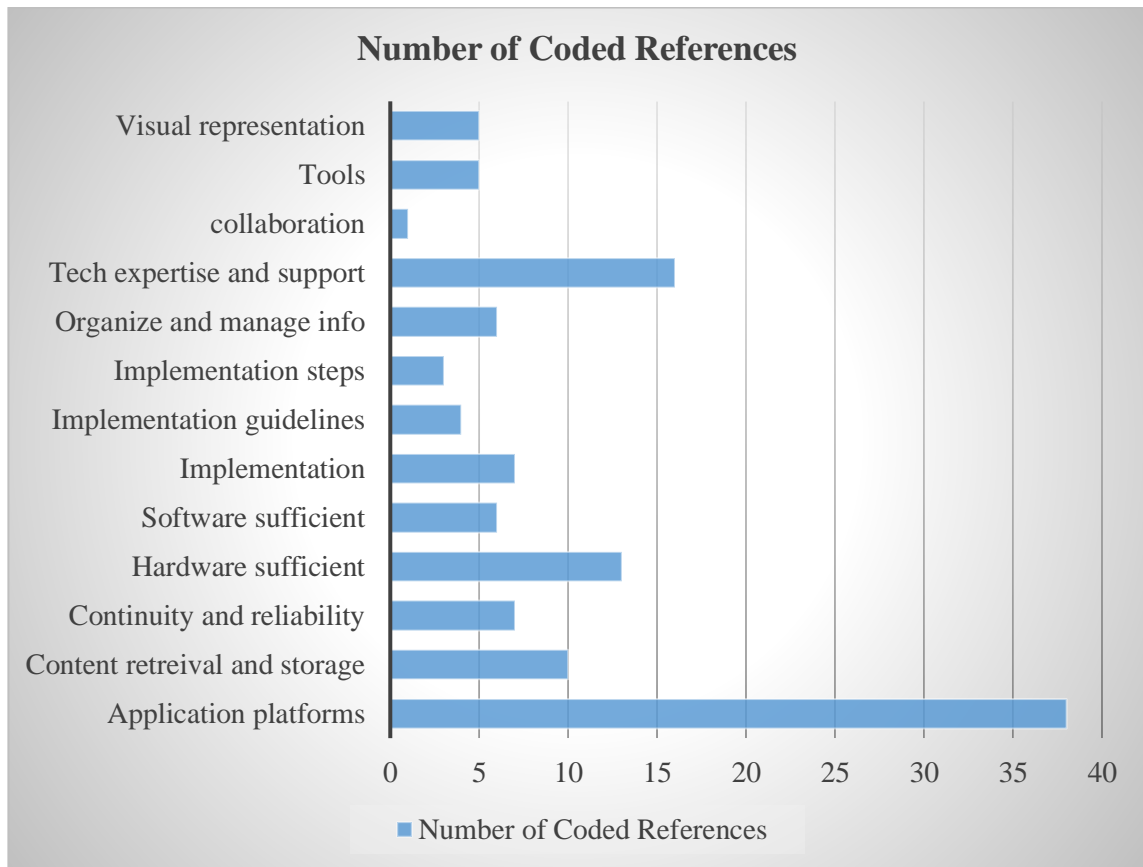


Figure 19: Number of coded references in content related to the Technological factors (prepared by author)

Two sub-themes were identified in relation to technological factors. These factors were “Technology Infrastructure” and “User Experience”

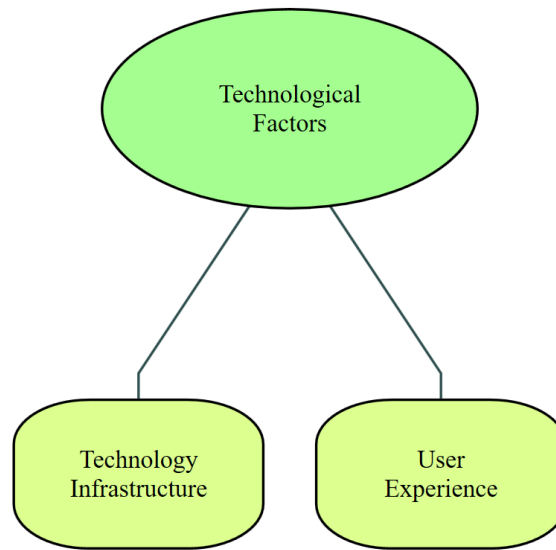


Figure 20: Sub-themes found in content related to the Technological factors (prepared by author)

### 4.7.1 Technological Infrastructure

The participants addressed questions from the moderator regarding the quality and performance of the technological infrastructure as well as access to equipment and software in the country. Key concerns were emphasized, such as specific technological factors. They reiterated the fact that in order to optimize the benefits of social network sites, improved and modernized technology should be accessible throughout Saudi Arabia. This echoes research carried out by ([Munguatosha, Muyinda and Lubega 2011](#)) which examines the technological infrastructure of a country as an important variable in the success of adoption :

*“Most important is to maintain easy and fast access to accept the process.” [Uni B – Student1]*

*“Technological and network infrastructure, like the internet, should be fast.” [Uni A – Student7]*

*“I cannot wait. I need readily available information and fast access.” [Uni B – Student6]*

At this stage of the focus group conversation, the Internet was the focal point of the discussion which is in line with a study conducted by ([Almalki 2011](#)):

*“In terms of communication...The internet is the most important point.” [Uni A – Student1]*

*“...covering the remotest areas and public areas such as commercial centers, etc., with internet communication [will facilitate acceptance].” [Uni B – Student4]*

The use of reputable technology was mentioned by one of the participants:

*“The most important method for integrating the social networking sites is that the program itself should be a famous program, used by a number of students and capable of delivering the information as efficiently as if the lecturer is present or in the classroom milieu.” [Uni A – Student1]*

Strong	Inadequate
One of the advantages commonly used in the Kingdom is good Internet coverage... mobile network coverage. This advantage is available almost in all cities.”	“The technological infrastructure here in Saudi is less than average. For example, we have just got fiber optic cables.”

The importance of availability of support was also raised by participants as a key element of integrating social networking technology ([Munguatosha, Muyinda and Lubega 2011](#)):

*“The university should support computer hardware and software and support the students.” [Uni C – Student2]*

*“For the elements such as software and hardware: they must be pursued continually to ensure the required upgrades.” [Uni A – Student4]*

*“For example in the preparatory year in Princess Norah University, like the case of my sister, they give students equipment (Ipad and laptop) at the beginning of the year and collect it at the end of the year...What shall the student do in the rest of the study period?” [Uni B – Student1]*

### 4.7.2 Internet Connectivity

Stated in the tables below, are opposing ideas from participants about the adequacy of infrastructure and equipment and the quality of performance of technology in Saudi Arabia. Besides this, Internet quality was also highlighted by the comments below:

#### Speed

Fast	Slow
“The Internet we do have here is fast, you should make use of this advantage. It is a bounty and we should exploit it, to avoid many problems.”	“There is a problem was in accessing the website sometimes the server or the connection was really slow so I would say it might be weakness in the technological infrastructure.”
“Thank God, Internet speed is efficient in Saudi Arabia...this is good.”	“Sorry my brother, I do not agree with you that current Internet is so fast.”

## Access

Widely available	Not widely available
<p>“For the Internet ... it is available in many places, including public areas, public facilities such as parks. Now you can find Internet with high speed in the streets, even beyond a city border.”</p>	<p>“The weakness of the network infrastructure and the internet in places that are far from the main cities like some of the villages due to the geographical terrain of Saudi. Especially in the north and south of Saudi...”</p>

Drawing conclusions from the comments, it is evident that there are inconsistencies in the current system, with some experiencing reliable and fast Internet speed, and others experiencing inferior quality of Internet speed. This inadequacy may be an effect of using outdated technology or living in far-flung areas which make the Internet more difficult to access. There may be other factors contributing to these variations in perspective, however and it would be useful to pursue this further with alternate sources of data and information in order to clarify the issues. It is clear that, whatever its level of performance, the speed and reliability of the Internet was seen by focus group participants as a crucial element in the success of social networking introduction into education.

Based on comments from participants, further analysis of the data regarding the quality of Internet speed in Saudi Arabia illustrated sub-themes in the word cloud presented in Figure 21. The illustration below contains 200 frequently-stated words concerning Internet quality. It is interesting to note the presence of comments about physical (i.e., city, village) and geographical (i.e., terrain, south) factors, among others.





*“The reasons for not using social networking sites – just the short time and inadequate equipment. The equipment needs upgrading as it is very old. If they upgrade the equipment, it would be better.” [Uni A – Student1]*

According to one participant, after graduating, he realised that he as well as many of his classmates were struggling due to having used outdated equipment which did not meet the needs of the students at the university:

*“After graduation, we face the problem of modern equipment and their use. The problem was that the support used to be very poor and the equipment was very old.” [Uni B – Student3]*

### **4.7.3 User Experience**

In discussions reflecting their experiences using technology, participants identified several important main factors. The ease with which a site could be navigated, and how fast or slowly it responded were seen as critical to a positive user experience. Thus, sites that were easy to log onto and that allowed for rapid navigation and communication would contribute to social networking success [Fakeh et al. \(2014\)](#). The chart below Figure 22 depicts themes found in the content related to user experience.

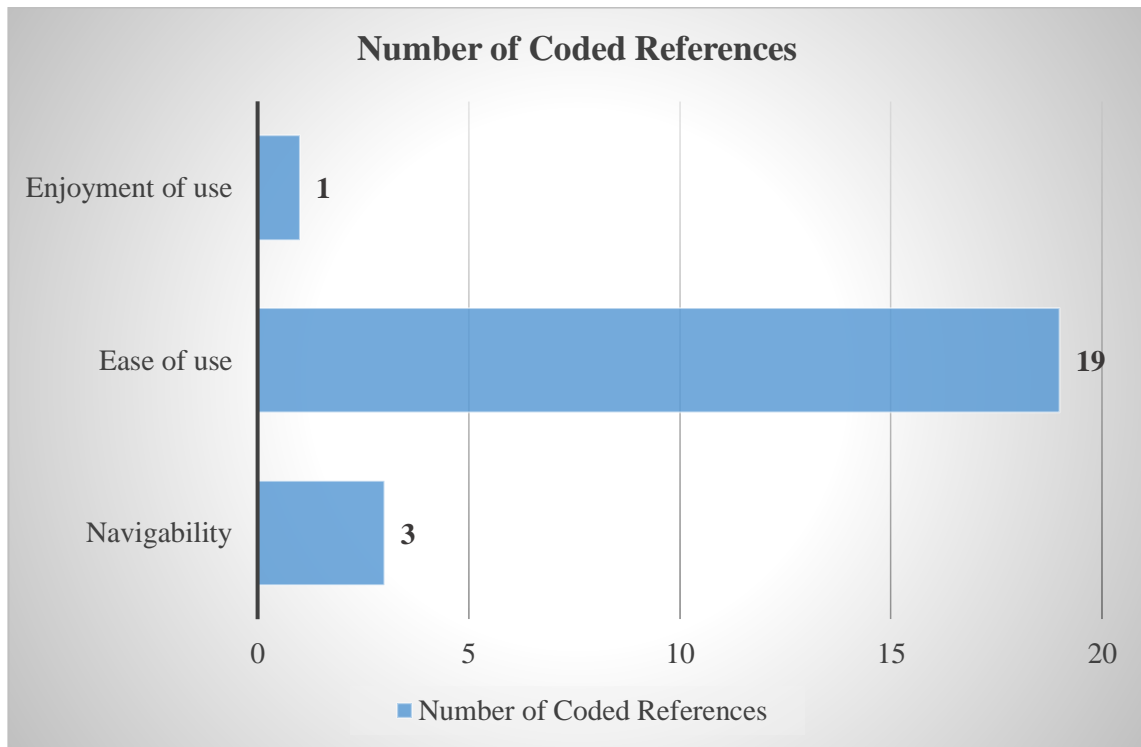


Figure 22: Themes contained within the content related to user experience (prepared by author)

One of the most frequently mentioned benefits was the convenience and efficiency of the social networking sites being used given the level of difficulty of the technology:

*“The use of apps such as WhatsApp many people use it because of how easy it is...it doesn’t require login or anything and it’s with you all the time on the individual’s mobile.” [Uni C – Student6]*

*“It is very easy at this time to communicate and get in contact...” [Uni A – Student3]*

*“In accessing the university site, I found extreme difficulties in entering and in using the system in terms of understanding some points. It is difficult to use some educational aids. The site should be more evident with better arrangement.” [Uni B – Student6]*

*“The most important thing is whether the site is easy or difficult...it is natural. Younger people have inquisitiveness to learn some information...If the site is simple and easy to use by any person...” [Uni A – Student4]*

Coupled with the level of difficulty, speed is considered to be one of the elements of an efficient technology according to the statements below:

*“You save time.” [Uni A – Student3]*

*“The most convenient use and easiest method for obtaining information and news is to access Twitter. It is very fast.” [Uni B – Student2]*

*“Now I complete all these transactions fast and in a short time.” [Uni A – Student6]*

*“While staying at home, you can achieve such business in a short time instead of the long time you used to spend at the same location.” [Uni A – Student3]*

*“We can do things easily and faster anywhere.” [Uni D – Student3]*

Because they allow some tasks to be handled from home without having to travel to a specific location, social networking sites were seen as especially helpful tools in improving the ease and speed with which otherwise time-consuming issues could be resolved.

Some participants thought incentives would be a necessary and beneficial means of ensuring student motivation. Incentives also became a part of the discussion as a source of **motivation** for both lecturers and students in using social networking sites:

*“The lack of motivation for me as a student .... Like what will make me go on the social networking sites to have a discussion with my lecturer or classmates ... I don't see the motivation to do that.” [Uni D – Student10]*

*“Student: If I interact with the professor using Twitter, does he provide incentives? As a human resources student, I interact with the professor. The incentives include*

*giving marks for the interaction through the social networking sites. [Uni B – Student4]*

*Moderator: Do you think if they allocate marks, is this a considerable incentive for success?*

*Student: Sure! Sure, this drives me to enter and interact, if marks are allocated.”*  
*[Uni B – Student4]*

This indicator was not factored into the original research framework and was not highlighted in the literature review. It will therefore be added to the framework in its successive iteration. Subsequent research revealed that some authors have suggested motivation and incentivisation as important factors when implementing a social networking initiative ([Foroughi 2011](#)).

#### Participants' comments about Motivation

“At the beginning of a project like this you would need to give a lot of motivation in order to have it integrated successfully.”

“With respect to acceptability by the user... the university should provide incentives...incentives to the lecturers...I mean financial incentives.”

“Just if I interact with the professor using Twitter, does he provide incentives? As a human resources student, I interact with the professor. The incentives include giving marks for the interaction through the social networking sites. (Moderator: Do you think if they allocate marks, is this a considerable incentive for success?) Sure! Sure, this drives me to enter and interact if marks are allocated.”

“Now it is obligatory that the lecturer in university or the teacher, they must agree to these sites. They would facilitate this process of information delivery to the students.”

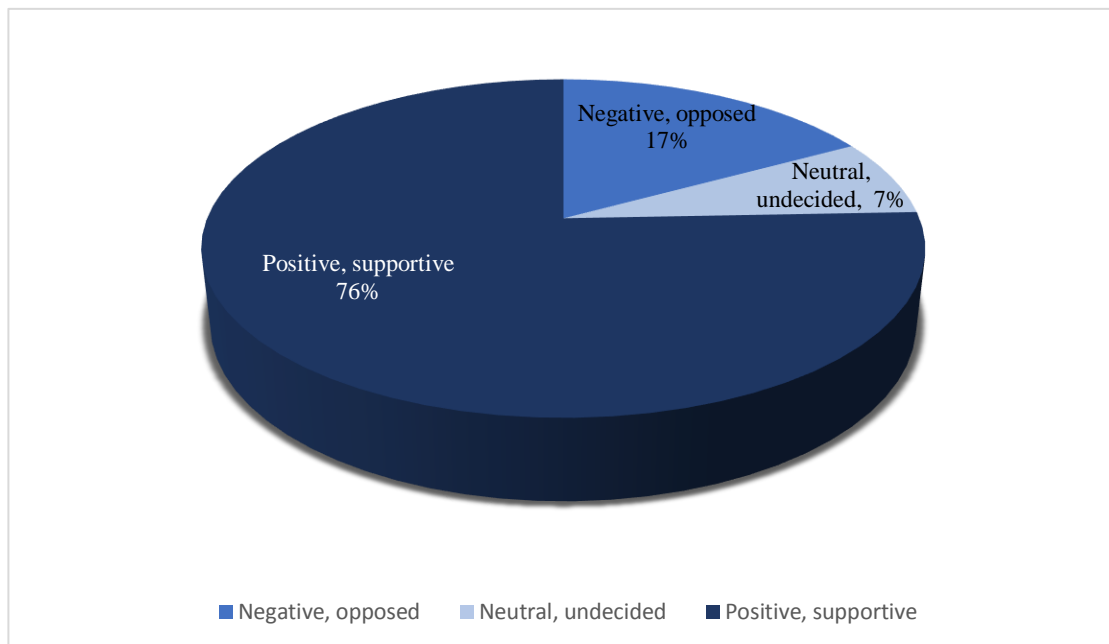
“The availability of devices ... either at home or at universities encourages the use of social networking sites”

## 4.8 Current and Predicted Acceptance of Social Network Sites in education

The participants in the focus group discussed the relative merits of adopting social networking sites as a learning tool and made predictions concerning the success or failure of the implementation. In this section, sub-themes and patterns in the presented data are identified whilst analysing the input data supplied by the participants.

### 4.8.1 Participant Attitudes Toward Social Network Sites in Education

As illustrated in Figure 23 below, the percentage of positive comments outnumbered the percentage of the negative comments regarding participants' support of social networking sites as a learning tool. These comments were classified based on subjective judgement by the researcher. The students identified the benefits of social networking sites, as discussed in the focus group.



*Figure 23: Frequency of comments expression support, opposition, or neutrality about the use of SNS in education in Saudi Arabia (prepared by author)*

Some positive statements from the participants included:

*“I think one of the benefits for using the social networking sites is that information is concise. That is, you find summaries of the subject matter unlike in books. And this is a benefit.” [Uni B – Student6]*

*“In terms of the learning it is beneficial.” [Uni D – Student6]*

*“Sure, it is very useful to integrate social networking sites in t-education. Why? Because it saves time and effort.” [Uni A – Student3]*

However, there were some less favourable comments, including:

*“Now most of our time is spent on entertainment. If education is introduced, a problem may appear, because the learning replaces entertainment at the same time and one may become distant from the education milieu.” [Uni B – Student1]*

*“Personally, I might face distraction. While learning, entertainment material appears on the screen, thus it diverts from an educational track.” [Uni B – Student8]*

Some participants were undecided about their opinions, so they took a neutral stance:

*“I have used social networking sites. Some of them are quite useful, while others are not.” [Uni A – Student2]*

*“Yes, like if there are no bookshops and they change to electronic bookshops, that will have some economic advantages and disadvantages.” [Uni D – Student9]*

Factors concerning the acceptance or rejection of social networking sites were debated, as well as their causes and effects. Illustrated in Figure 24 and Figure 25 is the frequency of comments regarding the aforementioned factors.

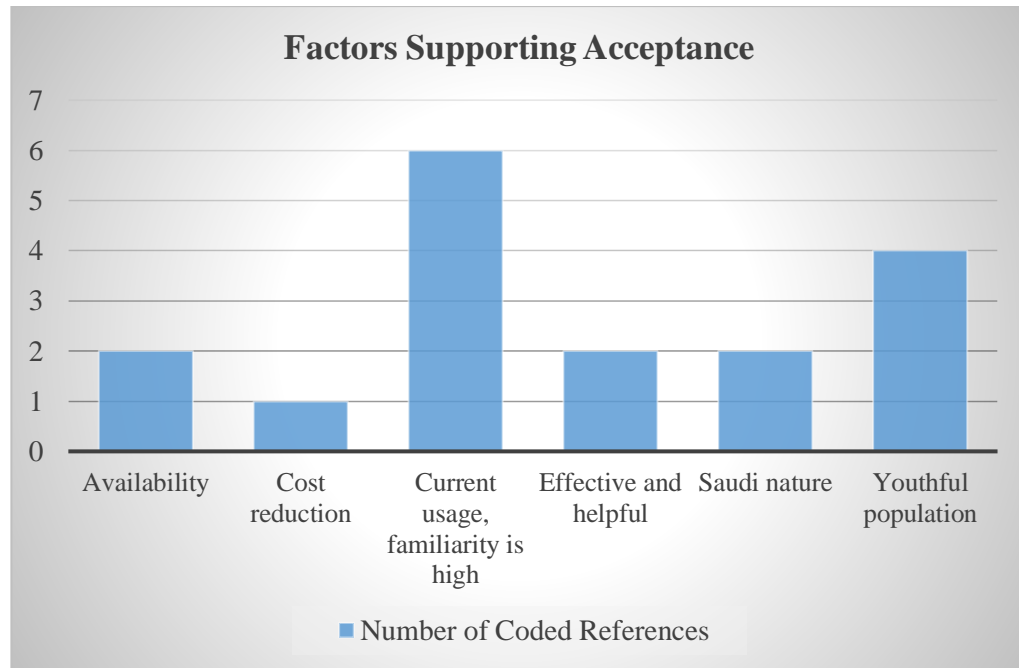


Figure 24: Factors supporting acceptance of SNS in education in Saudi Arabia (prepared by author)



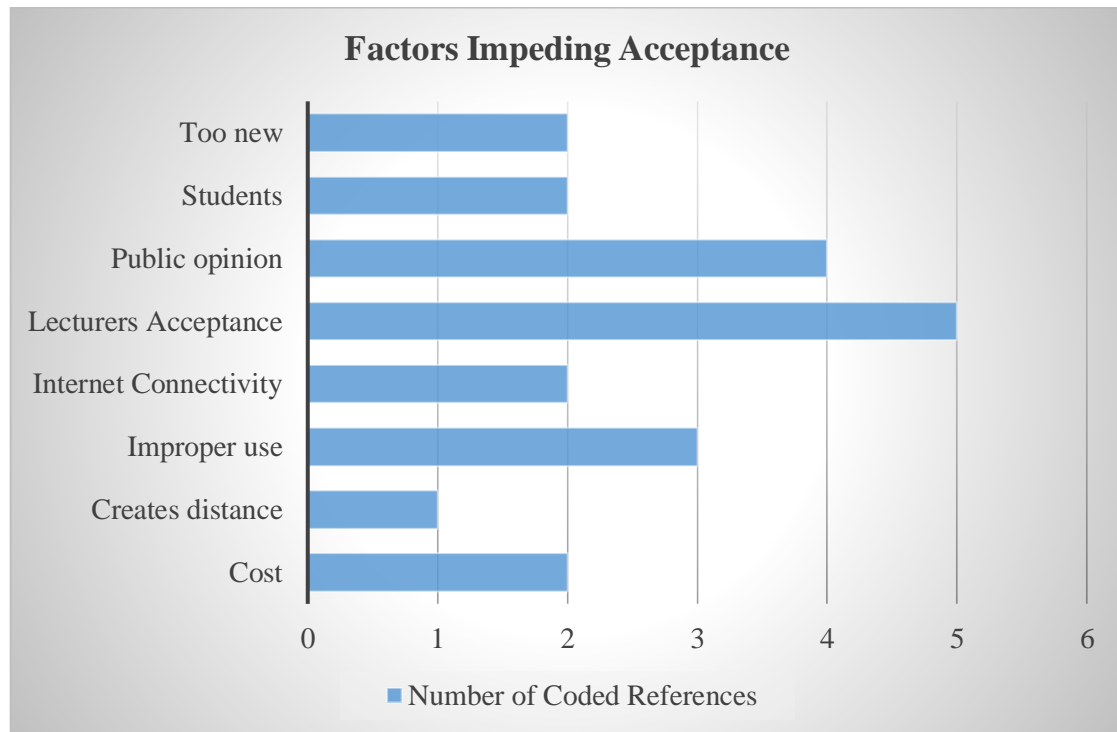


Figure 25: Factors impeding acceptance of SNS in education in Saudi Arabia (prepared by author)

There were also factors that did not appear to be as influential on the acceptance or rejection of social network sites, according to participants. The chart below Figure 26 tracks the coding similarities between various themes in the transcripts which were generated with NVivo 11 software. While numerous lines connect many of these themes with positive/supportive and negative/opposed comments, religious issues and cultural roles were not connected; nor were neutral/undecided comments.

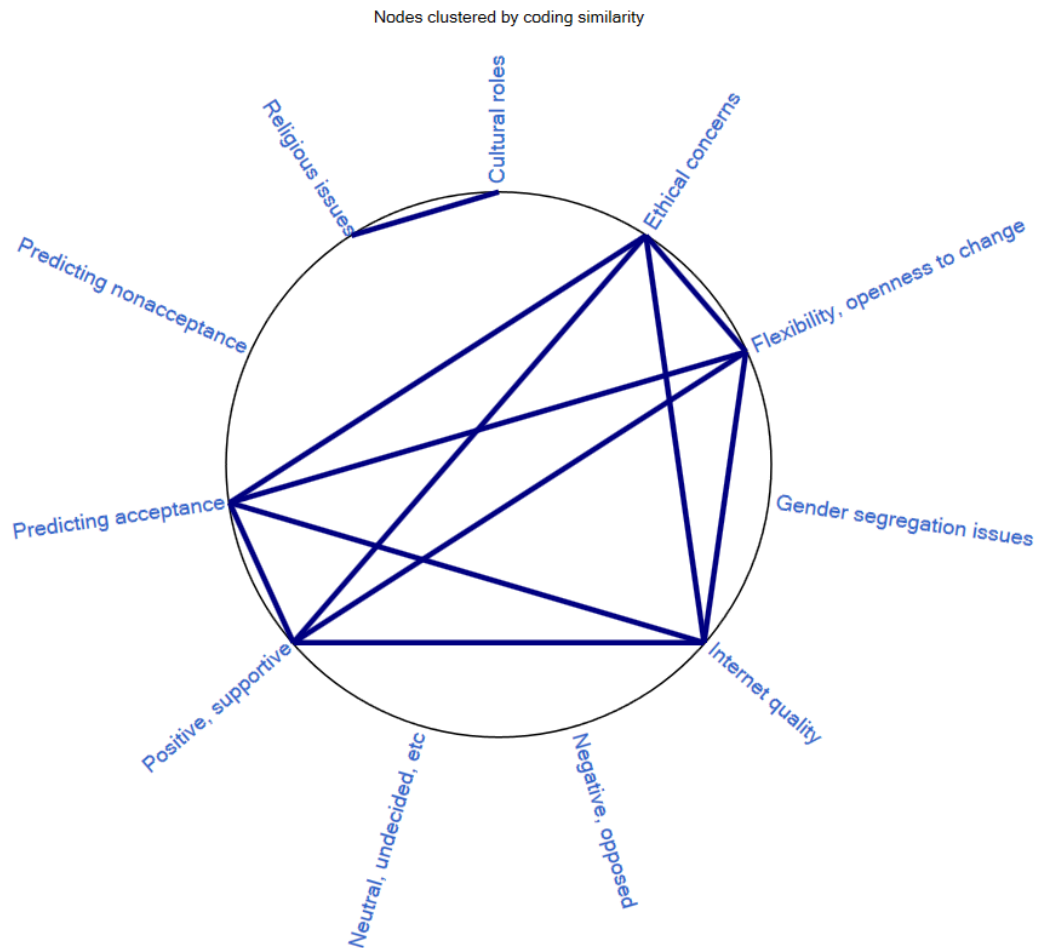


Figure 26: Coding similarities among themes relevant to SNS as an educational tool in Saudi Arabia (prepared by author)

62% of the comments identified impediments to the acceptance of social networking sites in education and 38% expressed supportive factors as illustrated in Figure 27 below. In conclusion, there were more comments made regarding impediments than comments supporting the acceptance of social network sites.

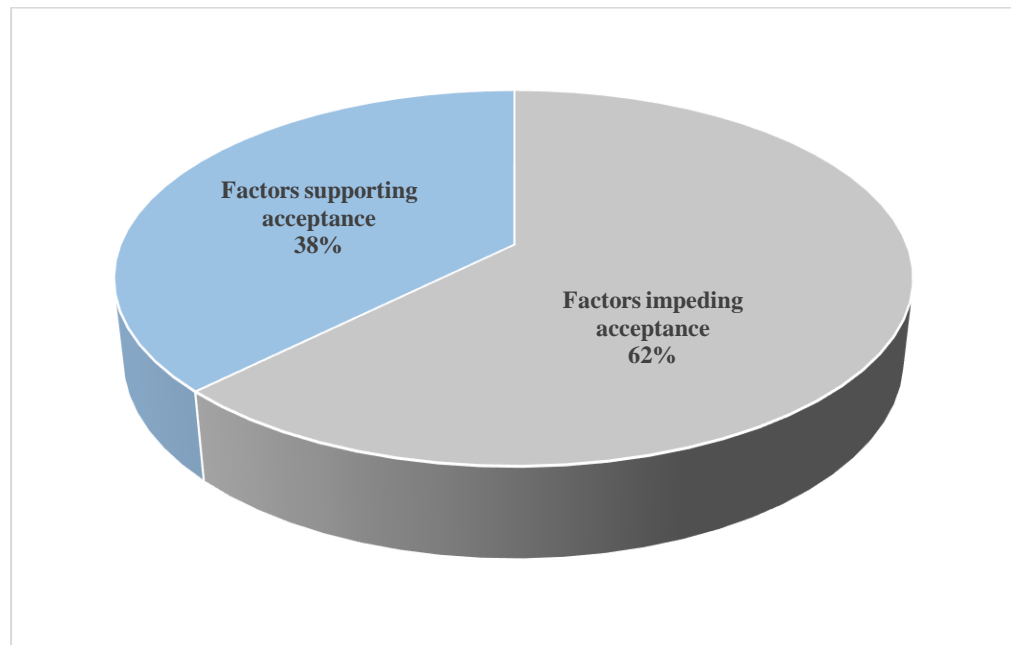
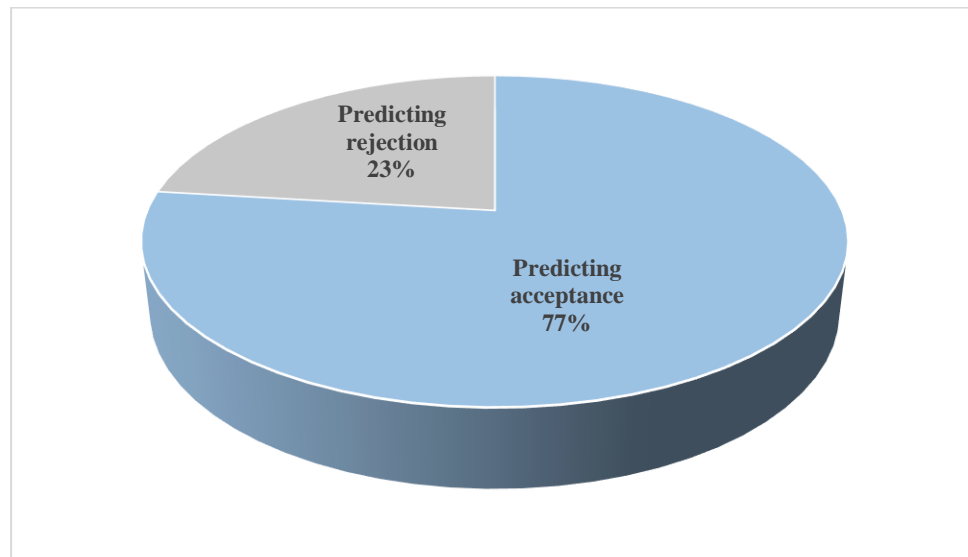


Figure 27: The frequency of comments identifying the impact of supporting and impeding factors on SNS acceptance (prepared by author)

## 4.8.2 Predicting Acceptance of Social Network Sites in Education

Participants suggested ways of maximizing the chance of a successful implementation of social networking sites into the field of education. Predictions from students included the acceptance and rejection of social networking sites, as well as supportive and obstructive factors illustrated in Figure 28. However, the percentage of predictions in favour of the acceptance of social networking sites was higher than the predictions of the rejection of social networking sites.



*Figure 28: Frequency of comments predicting success or rejection of SNS use in education in Saudi Arabia (prepared by author)*

Thus, when comparing the predictions with the factor identification discussed in the previous section, a contrast emerges: more impeding factors were mentioned, yet more participants still predicted success.

One potential reason for the difference could be that, while participants verbalized many ideas about how things could go wrong or create a challenge for the social networking project, they did not feel these obstacles would prevent social networking sites from being accepted in the end. If this is indeed the case, it would then be helpful to address the impediments that were mentioned and ensure the public (or alternatively, the stakeholders such as lecturers, students, and university staff) were aware of the efforts made to mitigate potential problems. This not only optimizes the chances of successful implementation, but also builds public confidence and leverages the majority opinion that social networking sites could successfully be used as an educational tool.

### 4.8.3 General Participant Suggestions

As demonstrated above, a positive outcome was expected by most focus group participants who felt that, overall, the Saudi population would ultimately come to accept the use of social networking sites in education. Throughout the discussions, participants commented on how to optimize the implementation of social networking sites. The following tables reflect the main sub-themes that emerged from their suggestions on how to implement social networking sites as an educational tool and maximize its chances of success in Saudi Arabia.

<b>Suggestions for Preparing to Implementation SNS in Saudi Education</b>
“Students should acquire backgrounds on the programs they use and the new equipment to maximize use of hardware and software.”
“Create a program to encompass all education stages such as a search engine to cover all education stages ... If you look for any stage you find in this site which should be governmental, for providing information to all students in all stages.”
“The best thing is to provide courses to the lecturers to become familiar with using these sites for better communication with their students to keep abreast with advanced societies.”
“I agree with my brother who said there should be interaction in order to integrate the social networking sites.”
“In terms of hardware support, they should be introduced in the elementary, intermediate and secondary stages, like the case of Korea using the iPad, to help those operating other specializations which have nothing to do with computers. Some students ignore this matter. If they were accustomed to it at a previous stage, it would be a positive development. It must be introduced in the previous stages.”
“How to integrate the social networking sites in the Saudi education system? I think they should be integrated at the early stages of education for the student to be familiar with them.”
“The first thing to do is transfer the educational subjects into electronic and then we introduce the social networking sites. It is not easy to introduce social networking sites when the learning is still paper-based.”
“I feel the most important thing is reinforcing the society and culture of use.”

<b>Internet Quality</b>
“The most facilitating factor would be availability of Internet communication in the universities free of charge. If the Internet charges are less expensive, the people will develop greater interest.”
“Second, covering the remotest areas and public areas such as commercial centres etc., with Internet communication.
“Most important is to maintain easy and fast access to accept the process.”
Effectiveness of the SNS
“What I need is information and in a short time through them. If there is no productivity, it will not be successful.”
Cost
First, cost must be low as my colleague has said.”
Support
“Most of the professors are busy with other things. If they designate a student or an employee to be in charge of the social networking sites, this could be better.”

## 4.9 Findings

In sum, focus groups were conducted with participants from four universities in Saudi Arabia during which respondents outlined what usage they make of social networking tools and how they perceived these as an educational affordance. Much of the discussion was around the likely acceptance of social networking for academic purposes at universities in Saudi Arabia. While more impediments than benefits to the introduction of social networking were mentioned, nonetheless there was widespread enthusiasm for and optimism about the predicted success of integration of social networking in the higher education sector.

In regard to the usage of social networking sites, most participants indicated work-related and leisure usages. In the academic realm, it is clear that there is an embryonic usage of social networking sites for exchange of information between students themselves and for communication with lecturers. This was mainly seen as a matter of convenience such as, for example, when classes were missed. However, there was definite evidence of the

sharing of resources and the creation of study groups, and collaborative problem-solving, in keeping with world-wide trends. It would appear, though, that such uses are informal and of participants' own volition rather than embedded in the university curriculum and broader academic practices. Furthermore, participants did not display a nuanced understanding of the types of social networking tools available and how these could potentially be used. Nonetheless, participants displayed a keen awareness of the potential benefits of social networking in academia, particularly its ability to enliven education, to provide concise information and to make available multiple sources and perspectives. Students made some practical suggestions such as incorporating social media usage into early educational experiences as well as increasing user motivation through incentivisation. Participants also showed insight into potential barriers to adoption of social networking into universities in the Saudi context, namely governmental control of information flow. Hence, social networking as a source of discussion and debate may be frowned upon as is the possibility that unsuitable content may be delivered to a relatively unsophisticated audience not yet adept at critical reading practices. The need to transition from paper-based modes of education to electronic means was also commented on.

In terms of the Saudi Arabian context, the participants showed insight into a range of issues. One of them was the social striation of Saudi Arabia both economically and in terms of gender, suggesting that equal access to ICT resources was of paramount importance. The participants also acknowledged the youthfulness of the Saudi demographic which is a strong predictor of the success of social networking implementation in universities, particularly as young people are exposed to innovative technologies through being educated abroad in Western countries. Moreover, respondents were keenly aware of some of the impediments posed by the socio-cultural characteristics of Saudi Arabia. Specifically, the threat of hacking and the heightened concern about privacy issues can be attributed to the nature of Saudi society which, although evolving to modernity, still adheres to religious dictates which control how people present themselves socially and how they manage their identities. This is particularly so in the case of females who cannot participate openly in public life and who have to uphold concepts of modesty and family honour in their everyday conduct. Ironically, however, respondents did not

regard gender or religion as obstacles to the successful implementation of social networking in higher education. Social networking was seen as a way of enabling females to participate in education without compromising their identities, with only one participant questioning whether social networking might actually exacerbate the gender divide rather than challenge it. In terms of religion, whilst participants suggested this was a non-issue, it is evident, as previously mentioned, that there are ethical concerns regarding privacy issues and access to suitable content which can be aligned to the impact of Islamic doctrine on the understandings of the participants. Finally, participants were divided about whether Saudi Arabia was ready to adopt open source social media into education – and society more broadly – with some suggesting that the country is not yet ready to accept social networking and others indicating their belief that the kingdom is ripe for the adoption of social networking, at least in part due to people possessing electronic devices from an early age. This incongruity regarding the openness and flexibility of Saudi society clearly demonstrates a country in the throes of change with citizens who are at different stages of understanding and acceptance of socio-cultural developments.

In terms of the organisational context for social networking, participants stressed the need for universities to provide a free, accessible and up-to-date technological infrastructure whilst, from a national point of view, the emphasis was on governmental support for the integration of social networking, particularly financially. Looking at specific stakeholders, students were seen as a group that would willingly welcome social networking as a component of their learning whilst for academic staff, age was mentioned as a prohibitive issue. Opinion was divided in regard to whether an entire faculty would accept social networking, with older staff in particular being seen as traditionalist and resistant to change. This is in line with worldwide research which postulates older age as a negative determinant of usage ([Sandars and Schroter 2007](#)). Participants also stressed the need for training and incentivisation of university staff to encourage widespread usage of social networking.

Turning to technological issues, respondents were adamant about the importance of sufficient Internet connectivity, speed and reliable equipment. Opinion was divided as to



whether Saudi Arabian universities offer an up-to-date, reliable and speedy technological infrastructure. This could indicate personal experience in different university settings but it is also indicative of a society undergoing change, where different institutions are at different stages of progress in terms of technological development. Participants also mentioned ease of user experience, including navigability, as an important predictor of usage and success.

In general, although participants acknowledged the academic potential of social networking, there was still a mindset that such platforms are best suited to entertainment and leisure pursuits, and that blending social networking into education might be a distraction. Whilst this is in line with global sentiment, it might also be seen as a residual conservatism in the way in which Saudi citizens view technologies. In this sense, it is important to stress that while social networking might be seen as benign, its introduction into higher education could have transformative consequences for normative patterns and behaviours and that, therefore, any implementation must carefully mitigate risk intrinsic to the nature of Saudi Arabian society as detailed in section The Context for Social Networking in Saudi Arabia.3.12.

### **4.9.1 SNFSA Framework**

During the focus groups, students were asked specific prompt questions which encouraged them to identify factors that could aid or should be avoided in the adaptation of social networking in the higher education process. Their answers included most of the factors listed in the initial framework derived from the literature review falling under the main headings of educational, technological and contextual factors. The participants strongly emphasised socio-cultural factors and technological factors as well as issues related to the acceptance of social networking by students and lecturers. These factors were outlined by participants prior to their seeing the model.

Once discussion had taken place, students were then presented with the framework and asked if it encompassed the factors they considered important and if there were any omissions that needed to be included. All participants confirmed that the framework was

comprehensive and that it covered the aspects they believed important for the successful adoption of social networking in Saudi Arabia.

As a result of this phase of the research, only a slight change was made to the model which is indicated by the broken lines in red below. Initially, the model contained a factor called “Design Component” which was changed to “User Experience” because, based on analysis of the results, the researcher believed that this name was a more apt description of the sub-factors under this heading.

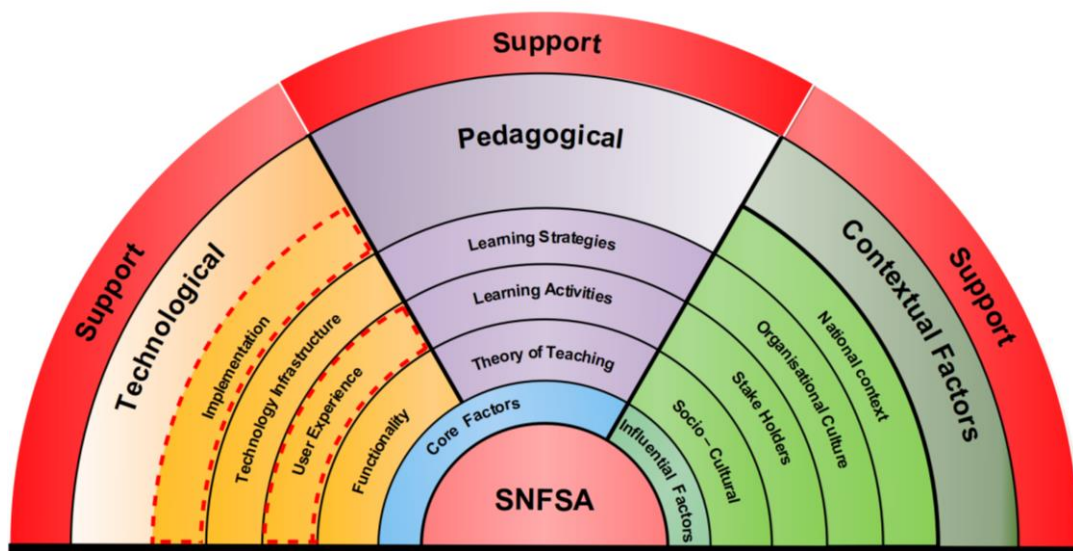


Figure 29: Social Networking Framework for Universities in Saudi Arabia Version 1

As discussed, the majority of these factors were identified by the focus group participants prior to the framework being presented to them. While educational/pedagogical factors were mentioned, the participants were concerned mainly with factors relating to the socio-cultural milieu of Saudi Arabia and the technological infrastructure as these may affect the implementation of social networking as an academic means in higher education. The framework was then finalised into the format above. All of this information was then consolidated for use in the survey phase of the research in order to further test the identified factors from a quantitative perspective.

## **4.10 Conclusion**

This chapter has examined the perception of and potential for social networking sites as an educational tool in Saudi Arabia. Focus group data that was carefully coded and qualitatively analysed revealed a number of interesting themes that were organized into three main categories: pedagogical, contextual, and technological. These aspects included factors that were seen to influence participants' impressions of social networking sites in education, as well as their predictions for its successful acceptance on the part of the Saudi public.

The pedagogical aspect encompassed how participants make use of social networking for managing their learning. In addition, the research also uncovered some measures educational institutions might implement in order to be able to optimize benefits, such as early preparation for students, training for lecturers, and improving motivation and incentives for both students and lecturers.

The impact of socio-cultural factors was discussed in the contextual section, particularly in terms of how it would influence the public's acceptance of social networking sites. Some factors included population, gender, and religious concerns, although the latter issues were not thought to be a possible hindrance to the widespread acceptance of social networking sites. However, ethical issues concerning protection of privacy were reiterated by several participants. Aside from that, participants mentioned the importance of support from the government.

Another success factor was modern technology and properly functioning equipment and infrastructure. Indeed, based on some participants' negative personal experiences in relation to unreliable Internet speed and outdated equipment, they all agreed that focusing on technological aspects would be crucial to the success or otherwise of social networking sites as an educational tool.

Finally, patterns in the comments regarding participants' attitudes toward the concept of social networking sites as an educational tool were discussed and illustrated. Predictions

regarding the success or failure of implementation were also tracked and compared. It appeared that, while many more supportive comments were made than opposing comments, participants also expressed numerous concerns about possible obstacles to the acceptance and use of social networking sites for educational purposes. Overall, however, more people felt social networking sites would likely be accepted in education, rather than rejected. This qualitative finding will be further investigated through a quantitative method in the next chapter.

## **Chapter 5**

# **Online Survey Results and Analysis**

## **5.1 Introduction**

The previous chapter examined the findings from the focus groups discussions and their reaction to the initial framework derived from the literature review. It provided an explanation of how the data was coded and the analysis conducted. The result of the investigation was to confirm the initial framework. The framework was further examined by means of a survey, the findings of which are presented in this chapter.

This chapter commences by describing the design of the survey in section 5.2, its target population in section 5.3 and the method of data collection in section 5.4. It then describes the data cleaning procedures in section 5.5 and descriptive statistics. The data was analysed using Microsoft Excel, SPSS version 22 and AMOS software. Exploratory and confirmatory factor analyses (EFA and CFA) were conducted to examine all the factors drawn from both the literature review and the focus group. EFA in section 5.7 produced a set of factors which were labelled according to the variables grouped under each factor. The chapter then reports the findings of the CFA in section 5.8 and presents the final fit indices for each factor (component) each component was examined and named accordingly. This is followed by some useful comments made by the survey participants. Finally, the chapter offers a view of the framework proposed at this stage of the research. In this regard, the chapter explains how certain factors were retained or dropped based on the analysis process.

## **5.2 Survey Design**

The survey instrument used in this research comprised two sections (see Appendix 3: Online Survey Questions):

The first section was made up of closed-ended questions designed to elicit demographic information about the participants. The second section consisted of scaled-response questions on the factors that will be considered when adopting social networking tools in the Saudi Arabian higher education, allowing for agreement, disagreement and neutral responses from the participants. These questions were predicated on the response range of the Likert scale represented below. Respondents were also given the opportunity to

express their views and opinions in an open-ended section where they could write their comments and perspectives more anecdotally. A five-point Likert scale was used to ensure accuracy as any number below five and over seven has been found to decrease the reliability of response ([Johns 2010](#)).

<i>Strongly disagree</i> 1	<i>Disagree</i> 2	<i>Neutral</i> 3	<i>Agree</i> 4	<i>Strongly Agree</i> 5
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### 5.3 Target Population and Sample

The key characteristics of the target population for the online survey include students, academic staff and IT staff within universities in Saudi Arabia. The survey was aimed to be distributed for both males and females, aging from 18 and above, targeting various majors and level of education. The sample from which responses were obtained corresponded with the key characteristics of the target population. Five hundred and forty-nine responses were collected in order to establish the interrelationship between demographic characteristics and the factors for that needs to be considered to incorporate social networking in higher education in Saudi Arabia. According to Comrey and Lee (2013); MacCallum et al. (1999)  $N=500$  is a good sample size to analyse the data. The participants were 18-23 years old (35.2%) students (57.7%). Of the older age groups, 22.4% of participants were 24-28, 15.3% of participants were 29-33, 11.6% of participants were 34-38, 7.7% were 39-44, 5.4% were 45-50, and 2.4% were aged 50 and above.

### 5.4 Data Collection

As described, the data was collected via an online survey instrument which was designed using Qualtrics, a website that offers the facility of survey design. After the survey design phase, it was distributed by means of Email and Social media tools (Facebook, Twitter and Whatsapp) to the potential respondents, all of whom were located in Saudi Arabia. The survey was run over the duration of two semesters, commencing in August 2016 and concluding in September 2017.

## 5.5 Data Cleaning

A total of 1,219 participants responded. The dataset was visually examined for missing cases, which were subsequently removed. This resulted in a final set of 594 participants. Several factors may have contributed to the missing cases. The length of the survey may cause this as it examines many factors. Technical issues are another potential cause of the missing cases. As repeated testing of a single dataset using both EFA and CFA can result in erroneous inferences, ([Kline 2015](#)). [Conway and Huffcutt \(2003\)](#) and [Hurley et al. \(1997\)](#) indicate that EFAs and CFAs should be performed on separate samples. In their EFA and CFA analyses, [Wiebe, Espy, and Charak \(2008\)](#) used the same data for both analyses while noting that it reduced the validity inferences made in their study. Although separately sampled participants were not available, this dataset was split using a random selection of participants to create two samples: one sample of 297 was used for the EFA and one sample of 297 was used for the CFA ([Osborne and Fitzpatrick 2012](#)).

## 5.6 Descriptive Statistics

The total sample ( $n = 594$ ) consisted almost evenly of male (49.7%) and female (50.3%) participants (see Figure 30). Most participants were 18-23 years old (35.2%) students (57.7%). Of the older age groups, 22.4% of participants were 24-28, 15.3% of participants were 29-33, 11.6% of participants were 34-38, 7.7% were 39-44, 5.4% were 45-50, and 2.4% were aged 50 and above. Figure 30 presents the age breakdown. Of the non-students, 8.1% of the sample were tutors, 15.3% were lecturers, 4.7% were IT Department staff, and 14.1% were other (see Figure 32). The data was analysed as a whole because of the different percentages of the stakeholders that participated in the survey, with the student group being the highest group. To avoid any bias, the survey was consequently analysed as a whole.



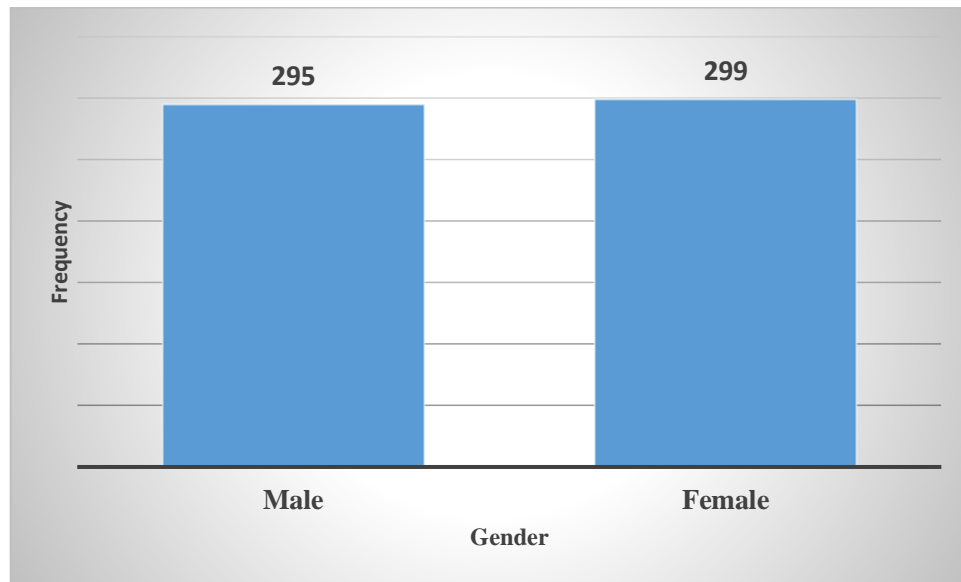


Figure 30: Gender breakdown of full sample

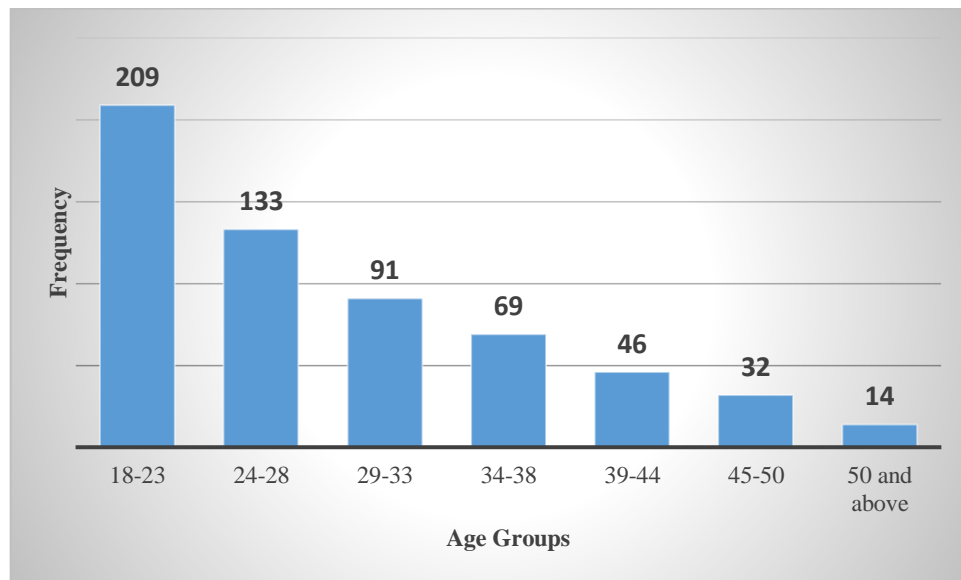


Figure 31: Age breakdown of full sample

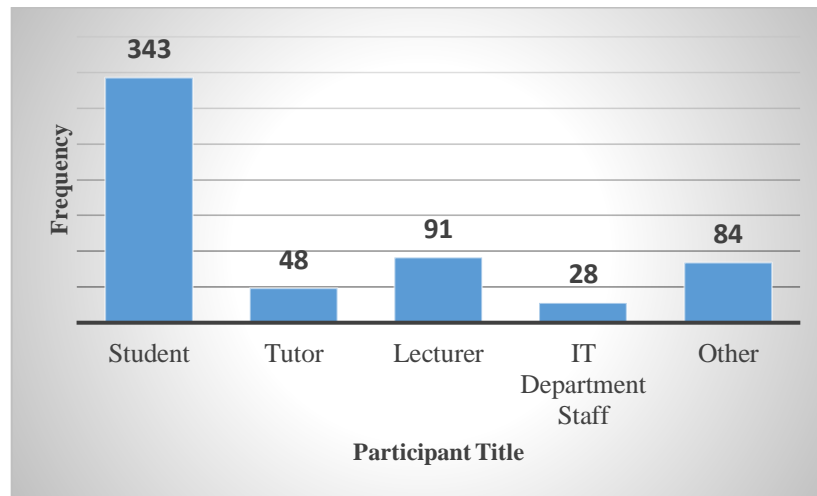


Figure 32: Title breakdown of full sample

The largest proportion of participants were in Management work or studies (14.1%) and the Humanities (14.0%). Almost equal numbers were in Accounting (6.4%), Business Law (6.6%), Economics and Finance (6.2%), Information Systems (6.1%), and Science and Engineering (6.4%). Of the remainder of the sample, almost equal numbers were in Information Technology (4.9%), Computer Science (4.9%), Art and Design (4.4%), and Marketing (3.9%), while 12.1% were in another field (see Figure 33).

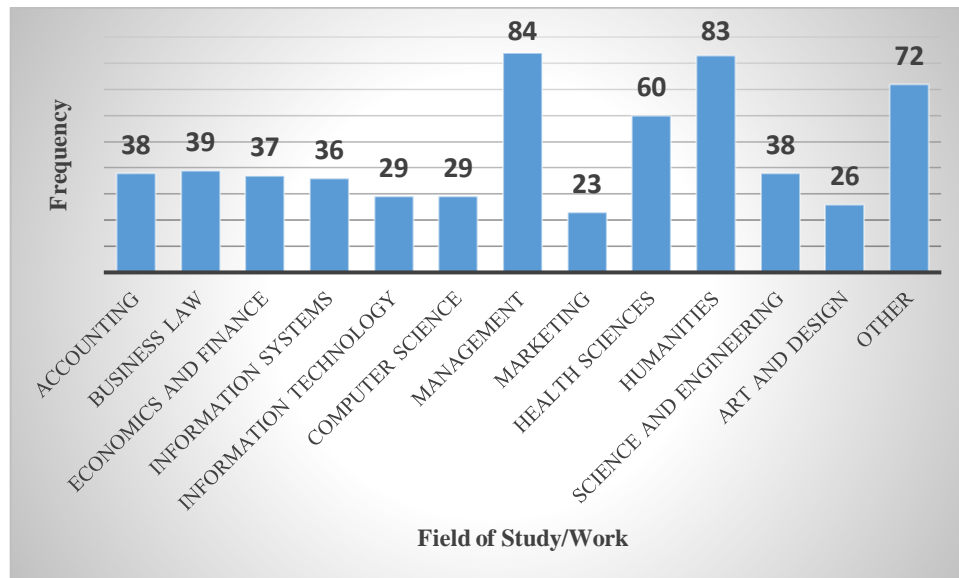


Figure 33: Main Field of Work/Study breakdown of full sample

The largest proportion of students were in their third year of study (29.2%) at a Government university (57.7%). Approximately equal numbers were in their first year (2.4%), second year (25.9%), and fourth or more year (22.4%). A smaller number of students attended a Private University (30.5%), while even fewer attended another type of university (11.8%). Figure 34 presents the breakdown of students' year of study, and Figure 34 presents the university type.

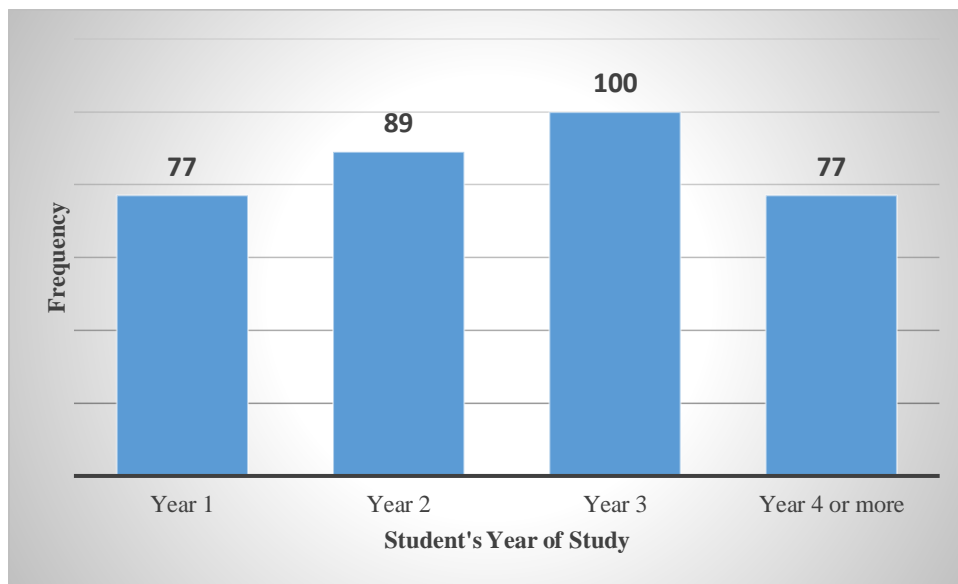


Figure 34: Breakdown of student's year of study for full sample

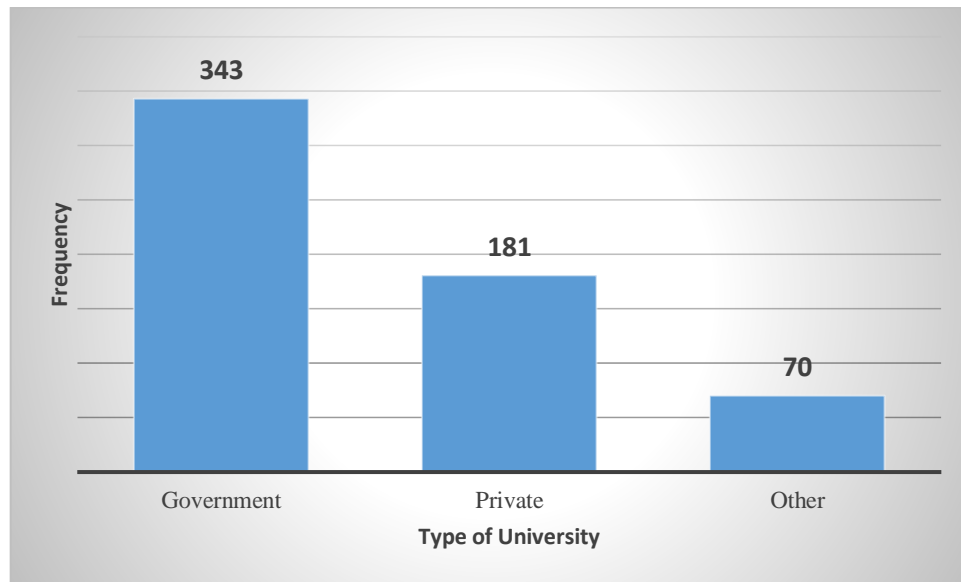


Figure 35: University Type for full sample

Most participants had a level of education at the higher-secondary/pre-university level (39.6%). The remainder consisted of 1.2% primary education, 1.3% professional certificate, 6.4% diploma, 1.7% advanced/higher/graduate diploma, 22.4% bachelor's degree, 1.7% post-graduate diploma, 16.0% master's degree, and 9.8% doctorate degree. Figure 36 presents the breakdown of educational levels.

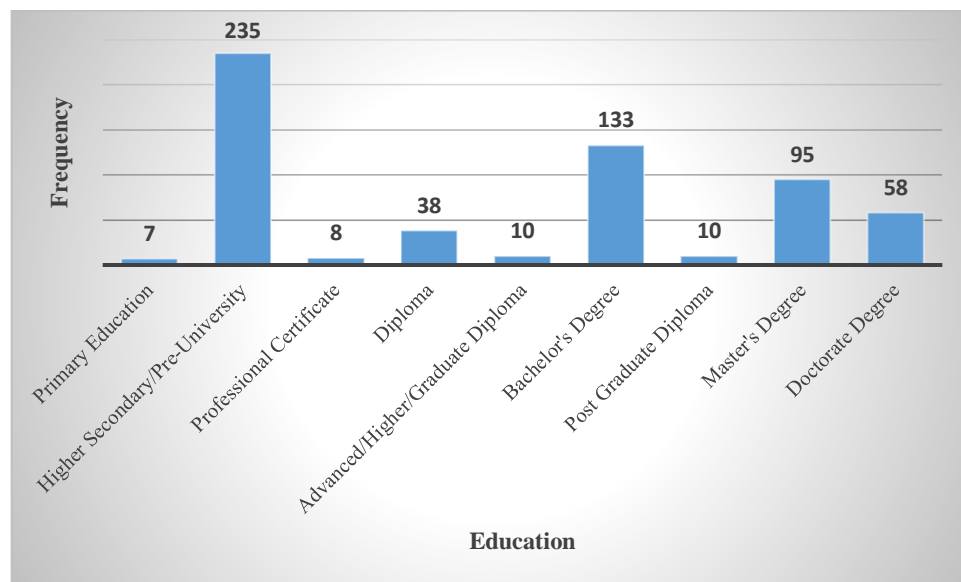


Figure 36: Education breakdown of full sample

The highest proportion of participants had used WhatsApp (82.5%). 60% had used micro-blogging sites such as Twitter, 14.3% used blogs, 47.0% used Facebook, 3.4% used Myspace, 17.2% used LinkedIn, 17.3% used Wiki, 26.8% used WordPress, 62.0% used YouTube, and 15.8% used another type of social media site. A final 3.5% of the sample had never used any form of social media networking site. Figure 37 presents the full breakdown of social media sites used.

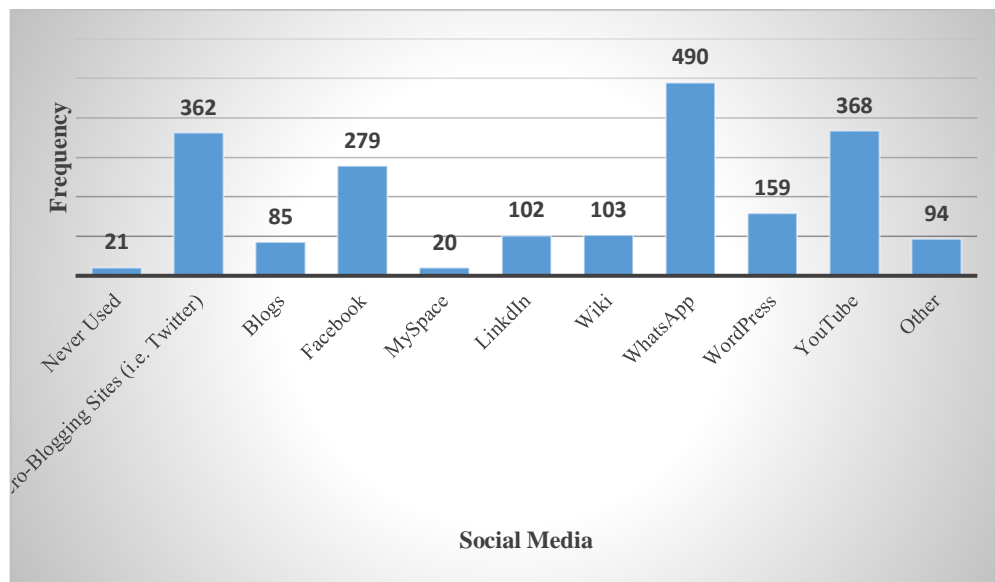


Figure 37: Social media sites used by full sample

Most non-students used social networking for personal networking (18.2%), while a larger proportion of students did the same (54.9%). There were 13.6% non-students and 25.4% students who used social networking for professional networking. 10.4% of the sample were non-students and 20.0% of the sample were students who used social networking for professional development. 10.1% of the sample of non-students used social networking for engagement with students, and 2.4% used it for other purposes. 26.4% of the sample who were students used social networking for engagement with lecturers, and 2.4% used it for other purposes. Figure 38 and Figure 39 present the usage of social media by non-students and students. Table 6 provides a summary of all the frequencies and percentages of these demographic variables.

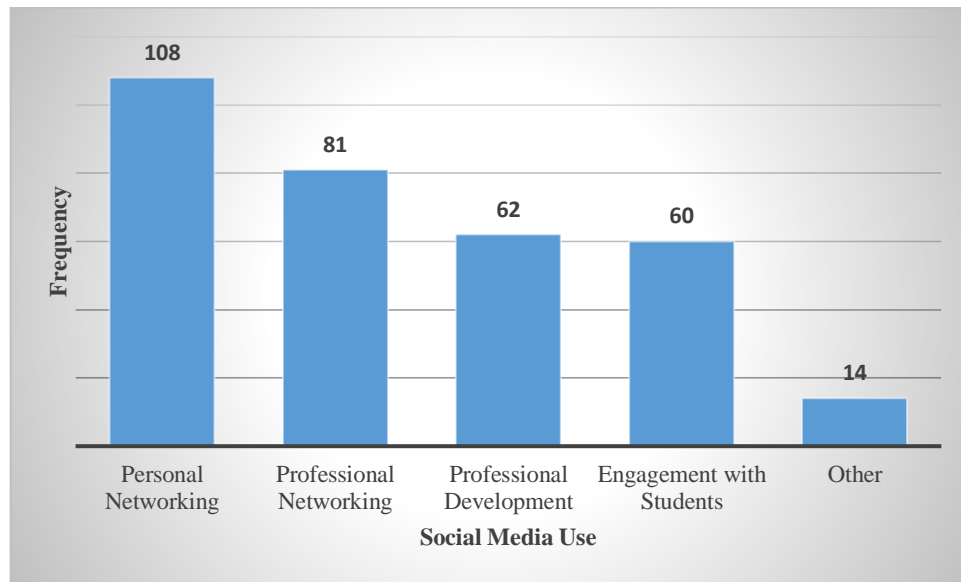


Figure 38: Non-student uses for social media

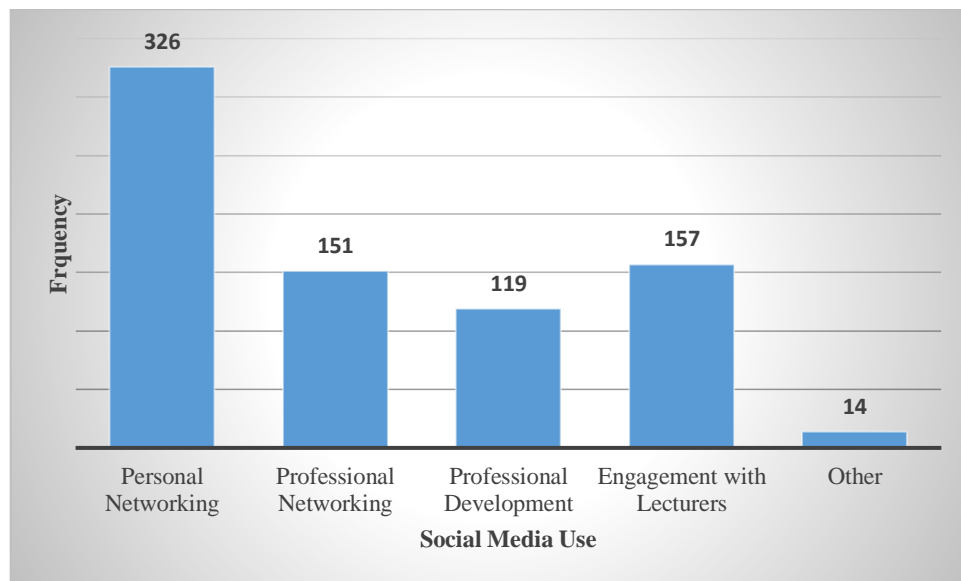


Figure 39: Student uses for social media

Table 6: Frequencies and Percentages of Demographic Information

Variable	n	%
<b>Gender</b>		
Male	295	49.7
Female	299	50.3
<b>Age</b>		
18-23	209	35.2
24-28	133	22.4
29-33	91	15.3
34-38	69	11.6
39-44	46	7.7
45-50	32	5.4
50 and above	14	2.4
<b>Job Title</b>		
Student	343	57.7
Lecturer	91	15.3
Other	84	14.1
Tutor	48	8.1
IT Department Staff	28	4.7
<b>Main Field of Study/Work</b>		
Accounting	38	6.4
Business Law	39	6.6
Economics and Finance	37	6.2
Information Systems	36	6.1
Information Technology	29	4.9
Computer Science	29	4.9
Management	84	14.1
Marketing	23	3.9
Health Sciences	60	10.1
Humanities	83	14.0
Science and Engineering	38	6.4
Art and Design	26	4.4
Other	72	12.1
<b>Year of Study (Students)</b>		
Year 1	77	22.4
Year 2	89	25.9
Year 3	100	29.2
Year 4 or more	77	22.4
<b>Highest Education Level</b>		
Higher Secondary/Pre-University	235	39.6
Bachelor's Degree	133	22.4
Master's Degree	95	16.0
Doctorate Degree	58	9.8
Diploma	38	6.4

Advanced/Higher/Graduate Diploma	10	1.7
Post Graduate Diploma	10	1.7
Professional Certificate	8	1.3
Primary Education	7	1.2
<b>University Type</b>		
Government	343	57.7
Private	181	30.5
Other	70	11.8
<b>Form of Social Networking Sites Being Used</b>		
WhatsApp	490	82.5
YouTube	368	62.0
Micro-Blogging Sites (i.e. Twitter)	362	60.9
Facebook	279	47.0
WordPress	159	26.8
Wiki	103	17.3
LinkedIn	102	17.2
Other	94	15.8
Blogs	85	14.3
Never Used	21	3.5
Myspace	20	3.4
<b>Lecturers Used Social Networking For:</b>		
Personal Networking	108	18.2
Professional Networking	81	13.6
Professional Development	62	10.4
Engagement with Students	60	10.1
Other	14	2.4
<b>Students Used Social Networking For:</b>		
Personal Networking	326	54.9
Professional Networking	151	25.4
Professional Development	119	20.0
Engagement with Lecturers	157	26.4
Other	14	2.4



## 5.7 Exploratory Factor Analysis

An EFA was used to determine the initial underlying structure of factors present in the survey responses. Factor analysis is a data reduction methodology which works by identifying representative variables from a larger set of variables. It is also capable of creating a new set of variables which are smaller in number than the original ([Hair et al. 2010](#)). A principal component factor extraction with a varimax rotation was used. First, the Kaiser-Meyer Olkin (KMO) measure of sampling adequacy was evaluated. The KMO value was above .60 (KMO = .91), indicating that the dataset is suitable for factor analysis ([Tabachnick and Fidell 2015](#)). Bartlett's test of sphericity was significant ( $p < .001$ ), indicating that there are significant relationships amongst the matrices of the variables, further indicating that the structure of the data is conducive to factor analysis ([Tabachnick and Fidell 2015](#)).

This EFA yielded the scree plot displayed in Figure 40, as well as the communalities in Table 7 and factor loadings displayed in Table 9. The communalities table (Table 7) presents the sum of the squared factor loadings, which represent the amount of a variable's variance extracted by the factor solution ([Tabachnick and Fidell 2015](#)). Most had relatively high communalities ([Tabachnick and Fidell 2015](#)).

Table 7: Communalities Values

Variables	Communalities	
	Initial	Extraction
SNF1	1.00	0.86
SNF2	1.00	0.82
SNF3	1.00	0.80
SNF4	1.00	0.58
SNF5	1.00	0.69
SNF6	1.00	0.72
SNF7	1.00	0.57
SNF8	1.00	0.39
SNF9	1.00	0.66
SNF10	1.00	0.65
SNF11	1.00	0.64
SNF12*	1.00	0.56
SNF13	1.00	0.65
SNF14	1.00	0.78
SNF15	1.00	0.79
SNF16*	1.00	0.56
SNF17	1.00	0.48
SNF18*	1.00	0.48
SNF19*	1.00	0.53
SNF20*	1.00	0.71
SNF21	1.00	0.62
SNF22	1.00	0.54
SNF23	1.00	0.37
SNF24	1.00	0.69
SNF25	1.00	0.55
SNF26*	1.00	0.49
SNF27	1.00	0.70
SNF28	1.00	0.78
SNF29	1.00	0.77
SNF30	1.00	0.70
SNF31	1.00	0.65
SNF32	1.00	0.56
SNF33	1.00	0.56

The scree plot (Figure 40) shows an elbow after the three factor solution, though this was slight, and did not become consistently horizontal until component six, at which point it not only leveled off, but also fell below an Eigenvalue of 1. The Eigenvalue of 1 is a typically accepted cut-off used for determining the number of factors in a set of variables, based on the Kaiser criterion. This is confirmed by the eigenvalues presented in Table 8. Table 8 also presents the variance explained by the components. The extracted solution indicated that the first component explained most of the variance (34.75), while all six factors together explained 63.18% of the variance. Based on these findings, results indicate that a six-factor solution may be the best fit, and this solution was assessed further by an examination of individual factor loadings (Table 9).

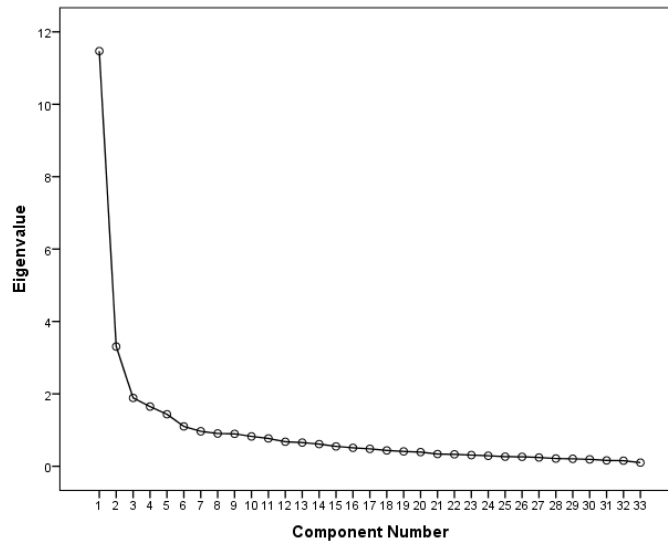


Figure 40: Scree plot for EFA

Table 8: Eigenvalues and Total Variance Explained by Component

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.47	34.75	34.75	11.47	34.75	34.75	4.68	14.17	14.17
2	3.31	10.02	44.77	3.31	10.02	44.77	3.60	10.89	25.06
3	1.89	5.72	50.49	1.89	5.72	50.49	3.21	9.72	34.78
4	1.65	5.00	55.49	1.65	5.00	55.49	3.17	9.60	44.38
5	1.44	4.35	59.85	1.44	4.35	59.85	3.16	9.57	53.95
6	1.10	3.34	63.18	1.10	3.34	63.18	3.05	9.23	63.18
7	0.97	2.93	66.11						
8	0.91	2.74	68.85						
9	0.90	2.72	71.57						
10	0.83	2.50	74.07						
11	0.77	2.33	76.40						
12	0.68	2.05	78.45						
13	0.65	1.98	80.43						
14	0.61	1.86	82.29						
15	0.55	1.66	83.95						
16	0.51	1.55	85.50						
17	0.48	1.46	86.96						
18	0.44	1.33	88.28						
19	0.41	1.24	89.52						
20	0.39	1.19	90.71						
21	0.34	1.03	91.74						
22	0.33	1.00	92.74						
23	0.31	0.94	93.67						
24	0.29	0.88	94.55						
25	0.27	0.81	95.36						
26	0.26	0.79	96.15						
27	0.24	0.74	96.89						
28	0.21	0.65	97.53						
29	0.21	0.62	98.16						
30	0.19	0.58	98.74						
31	0.16	0.49	99.23						
32	0.15	0.47	99.69						
33	0.10	0.31	100.00						

The factor loadings presented in Table 8 supports the existence of a six-factor solution, indicating that there may be six underlying factors in the survey. As seen in Table 9, all six factors had a number of items that loaded distinctly onto them, and not all items could be accurately loaded onto three factors. When items were loaded onto two or more factors, the strongest loaded factor ( $> .32$ ) [Comrey and Lee \(2013\)](#); [Tabachnick and Fidell \(2015\)](#) was considered, and any factor loadings below .30 were suppressed for ease of interpretation. Survey items 12, 16, 18-20, and 26 did not load cleanly onto a single factor and were considered for removal. These items were not included in the subsequent factor analyses. The highlighted factor loadings in Table 9 indicate acceptable convergent validity, since factor loadings are approximately .50 or higher ([Costello and Osborne 2005](#)).

Table 9: Factor Loadings for Components One Through Six

	Survey Question	Component					
		1	2	3	4	5	6
1	SNF 1				.92		
2	SNF 2				.89		
3	SNF 3				.88		
4	SNF 4	.34		.53			.32
5	SNF 5			.73			
6	SNF 6	.32		.72			
7	SNF 7			.65			
8	SNF 8				.48		-.37
9	SNF 9						.69
10	SNF 10						.68
11	SNF 11			.31			.66
12	SNF 12 *			.42			.39
13	SNF 13		.76				
14	SNF 14		.82				
15	SNF 15		.85				
16	SNF 16 *		.49	.46			
17	SNF 17					.50	
18	SNF 18 *	.35		.33		.38	
19	SNF 19 *	.45			.44		.36
20	SNF 20 *	.54				.40	.48
21	SNF 21					.72	
22	SNF 22					.36	.54
23	SNF 23					.49	
24	SNF 24					.77	
25	SNF 25		.37			.60	
26	SNF 26 *	.31		.34	.35	-.31	
27	SNF 27	.75					
28	SNF 28	.78					
29	SNF 29	.81					
30	SNF 30	.75					
31	SNF 31	.68					
32	SNF 32	.38	.52				
33	SNF 33	.35	.54				

Note. Values below .30 are suppressed for ease of interpretation. Strongest loadings are highlighted. \*indicates an item was removed because of indeterminate loading.

## 5.7.1 Factor Labelling

Loadings and factor scores describe the data patterns that emerge from the analysis. Once patterns have been discerned, a researcher is able to label them appropriately in order to convey the results. There are generally three methods of labelling patterns: symbolic, descriptive and causal. A symbolic label carries no meaning of its own, for example, A or B which was utilised in the previous section. Descriptive labels, on the other hand, carry meanings which categorise the factor and serve to identify it. Finally, causal labelling is a way of attaching a cause or attribution of a cause to a pattern. Below is the descriptive labelling used in this research, which is easier to recall and serves as a guide to the content of a pattern ([Rummel 2002](#)).

Variables		Factor Loading	Factor label
SNF1	There should be clear guidelines for implementation/usage	.916	Implementation
SNF2	There should be a set of steps for implementation/usage (i.e. user guide and other documentation)	.893	
SNF3	There should be a visual representation of the framework/model to be implemented/used	.882	
SNF8	Social networking sites are easy to use	.685	

Variables		Factor Loading	Factor label
SNF9	The system should be based on only one social networking site rather than a range	.476	Usability and User Experience
SNF10	Social networking sites are enjoyable to use	.677	
SNF11	Social networking sites are easy to navigate through	.656	
SNF22	Students have high user acceptance of technology	.536	

Variables		Factor Loading	Factor label
SNF4	The system should allow collaboration with others within the university (e.g. Facebook)	.534	Functionality
SNF5	The system should allow content creation and retrieval (e.g. blogs, wikis)	.732	
SNF6	The system should allow information to be managed and organized (e.g. bookmarking)	.722	
SNF7	The system allows the users access to a range of tools within one LMS	.652	

Variables		Factor Loading	Factor label
SNF32	Universities in Saudi Arabia are open to adapting new innovative technologies	.524	Technological Infrastructure and Institutional support
SNF33	Universities in Saudi Arabia have enough funding to adopt new innovative technologies	.544	
SNF13	The university must have high speed Internet connectivity	.759	
SNF14	The university must have sufficient hardware	.817	
SNF15	The university must have sufficient software	.846	



Variables		Factor Loading	Factor label
SNF21	The system needs to be suited to Saudi Arabia's culture and social roles	.718	Social and Institutional Culture
SNF23	Staff have high user acceptance of technology	.488	
SNF24	The system needs to be suited to Saudi Arabia's religious environment	.766	
SNF25	There are ethical concerns regarding the usage of social networking site	.601	
SNF17	All stakeholders should be consulted about the implementation and usage of social networking in universities	.503	

Variables		Factor Loading	Factor label
SNF27	The government must support social networking integration at universities	.754	National context
SNF28	Incorporating social networking sites into educational plans by the government	.780	
SNF29	Government policies should encourage the use of social networking site in the higher education system	.807	
SNF30	Funding by the government and a sufficient budget are vital for social networking integration	.750	
SNF31	University funding and budget sufficiency is important for social networking integration	.675	

## 5.8 Confirmatory Factor Analysis

Confirmatory Factor Analysis (CFA) is a multivariate technique to test and confirm pre-specified relationships that can be drawn from EFA. Confirmatory factor analysis is a statistical technique used to evaluate factor structures among variables that have been predetermined by the researcher or by previous EFA. It acts as a cross-validation measure in the context of this research ([Hu 2015](#); [Hair et al. 2010](#); [Kline 2015](#)). A confirmatory factor analysis (CFA) was conducted using the second randomly selected sample, and the factors that were suggested by the EFA. In a CFA, a chi-square ( $\chi^2$ ), as well as fit indices of CFI, TLI, and RMSEA are interpreted in order to ascertain whether the specified model explains the patterns found within the data ([Tabachnick and Fidell 2015](#)). Because the  $\chi^2$  statistic can be overly sensitive to sample size, the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI), and the Tucker-Lewis Index were also reported ([Kline 2015](#); [Hooper, Coughlan and Mullen 2008](#)). For a model to exhibit good fit, there should be a non-significant  $\chi^2$ , a RMSEA below .09, a CFI greater than .95, and a TLI greater than .90 ([Kline 2015](#)). Each component's model fit is expounded upon below. Table 10 presents final fit indices for each component. Each component was examined and named accordingly: Component One was named National Context, Component Two was named Technological Infrastructure and Institutional Support, Component Three was named Functionality, Component Four was named Implementation, Component Five was named Social and Institutional Culture, and Component Six was named Usability and User Experience.

### 5.8.1 Component One: National Context

Component one, National Context, consisted of questions 27, 28, 29, 30 and 31, all of which loaded cleanly onto component one. All factor loadings were strong (above  $> .50$ ; [Comrey and Lee \(2013\)](#); see Figure 41). The initial model did not show acceptable fit  $\chi^2(5) = 49.75, p < .001, RMSEA = .17, CFI = .95, TLI = .90$ , and modification indices were assessed to determine if additions to the model could improve model fit. Modification indices indicated that covariance between the exogenous error terms for survey items 31 and 30 should be accounted for (see covariance between e4 and e5 in Figure 41). The exogenous error terms represent unmeasured sources of variability in the model not accounted for by the factors themselves ([Kline 2015](#)). The presence of correlated errors is indicative of some systematic error variance and is not directly interpreted itself ([Kline 2015](#)). After accounting for the covariance between these items, model fit drastically improved. The revised model (seen in Figure 41) had excellent fit:  $\chi^2(4) = 1.78, p = .776, RMSEA < .01, CFI = 1.00, TLI = 1.00$ . Figure 41 presents the final model for this component.

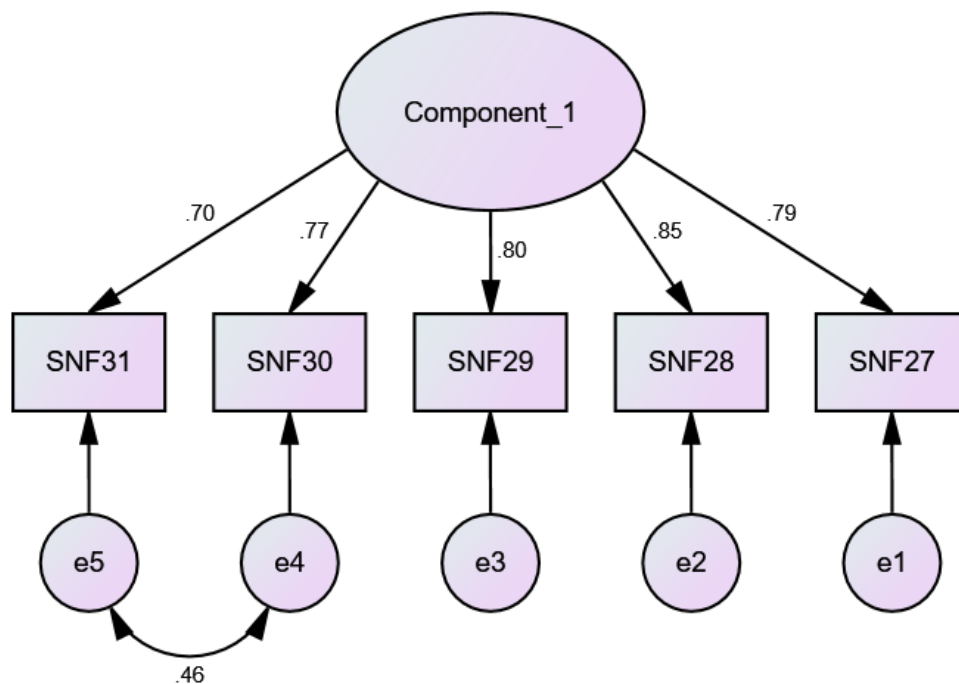


Figure 41: Final model for component one: National Context

## 5.8.2 Component Two: Technological Infrastructure and Institutional Support

Component two consisted of questions 13, 14, 15, 32 and 33, which loaded cleanly onto component two. All factor loadings were strong, with survey item 32 showing a weaker relationship with the component (see Figure 42) (Comrey and Lee 2013). The initial model showed poor fit:  $\chi^2(5) = 70.88, p < .001, RMSEA = .21, CFI = .88, TLI = .77$ . Modification indices indicated that covariance between error terms for survey items 32 and 33 should be accounted for. As previously stated, the presence of correlated errors is indicative of some systematic error variance and is not directly interpreted itself (Kline 2015). After redrawing the model with this covariance accounted for, model fit was excellent:  $\chi^2(4) = 2.61, p = .624, RMSEA < .01, CFI = 1.00, TLI = 1.00$ . Figure 42 presents the final model of component two.

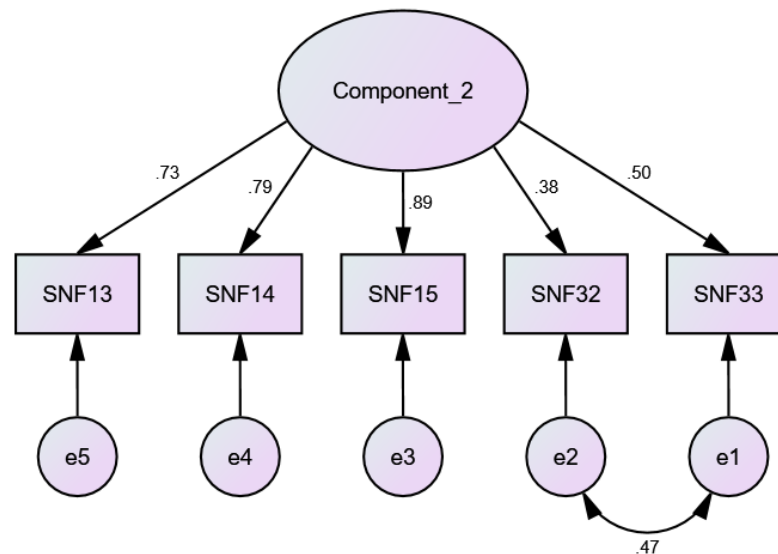


Figure 42: Final model for component two: Technological Infrastructure and Institutional Support

### 5.8.3 Component Three: Functionality

Component three consisted of questions 4, 5, 6 and 7, which loaded cleanly onto component three. All factor loadings were strong (see Figure 43) (Comrey and Lee 2013). Pre-modification indices showed that the model did not exhibit good fit:  $\chi^2(2) = 21.72, p < .001, RMSEA = .18, CFI = .95, TLI = .86$ . Modification indices indicated that covariances between the error terms of items 4 and 5 (see Figure 43) could be drawn to improve model fit. As stated previously, the presence of correlated errors is indicative of some systematic error variance and is not directly interpreted itself (Kline 2015). The revised model showed excellent fit:  $\chi^2(1) = 1.34, p = .247, RMSEA = .03, CFI = .99, TLI = .99$ . Figure 43 depicts the final model of component three.

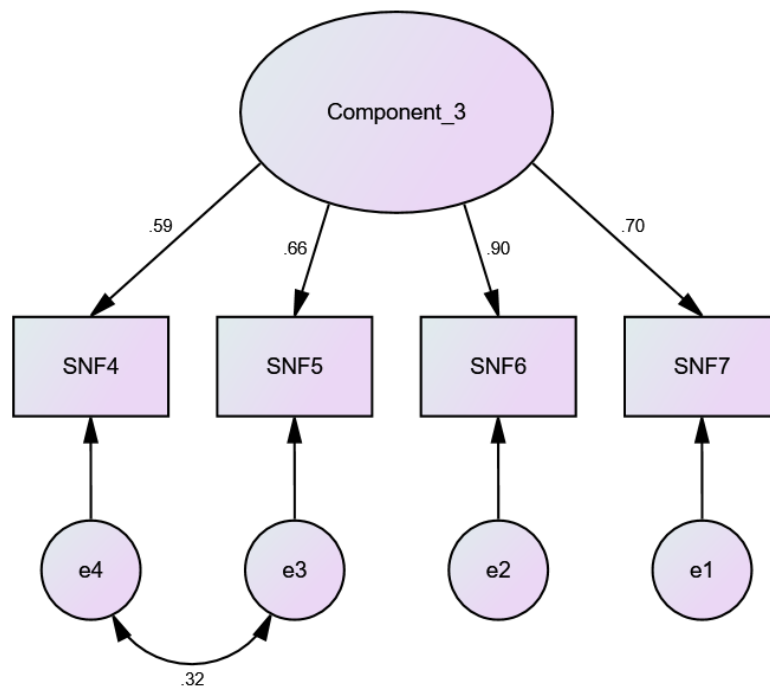


Figure 43: Final model for component three: Functionality

### 5.8.4 Component Four: Implementation

Component four consisted of questions 1, 2, 3 and 8, which loaded cleanly onto component four. All factor loadings were strong (Kline 2015) (see Figure 44) The initial model showed excellent fit,  $\chi^2(2) = 3.30$ ,  $p = .192$ , RMSEA = .05, CFI = .99, TLI = .99, indicating that no modifications were necessary. Figure 44 presents this model.

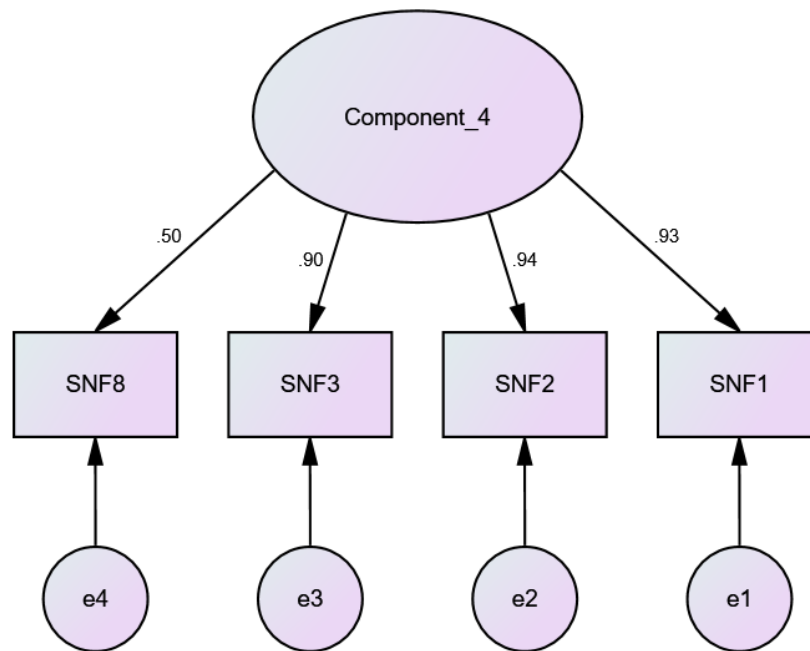


Figure 44: Final model for component four: Implementation

### 5.8.5 Component Five: Social and Institutional Culture

Questions 17, 21, 23, 24 and 25 loaded cleanly onto component five. All factor loadings were strong except for survey item 23 (see Figure 45) (Comrey and Lee 2013). Initial specification of the model indicated excellent fit,  $\chi^2(5) = 11.14, p = .049, RMSEA = .06, CFI = .98, TLI = .96$ , suggesting that no modifications were necessary. Figure 45 presents this model.

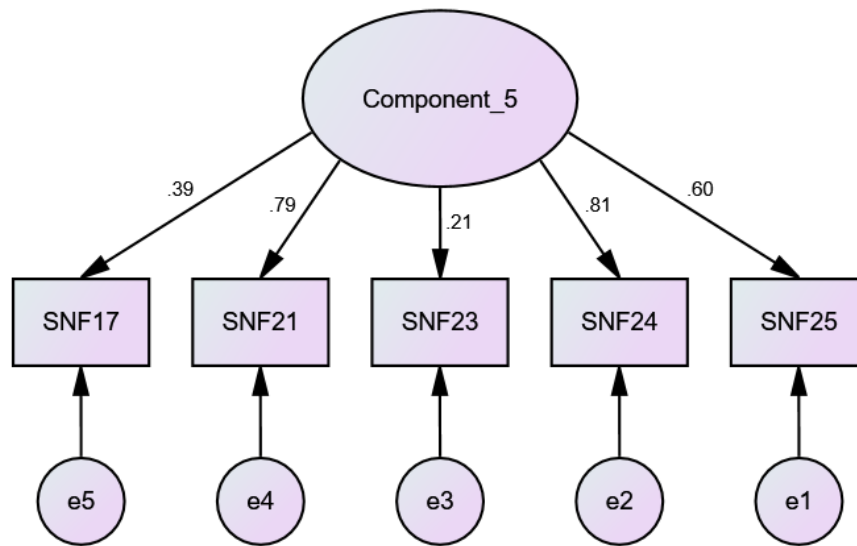


Figure 45: Final model for component five: Social and Institutional Culture

## 5.8.6 Component Six: Usability and User Experience

Questions 9, 10, 11 and 22 loaded cleanly onto component six. All factor loadings were strong, with a slightly weaker relationship for survey item 22 (see Figure 46) (Comrey and Lee 2013). Pre-modification, the model indicated a good fit,  $\chi^2(2) = 7.85$ ,  $p = .020$ , RMSEA = .10, CFI = .98, TLI = .94, but modification indices were assessed to determine if fit could be improved, based on the significant chi square value. Modification indices indicated that covariance between the error terms for items 9 and 22 should be accounted for. Post-modification, the model showed improved fit:  $\chi^2(1) = 2.09$ ,  $p = .148$ , RMSEA = .06, CFI = .99, TLI = .98. Model fit was improved because the modification indices accounted for unmeasured sources of variability in the model not accounted for by the factors themselves (Kline 2015). As stated previously, the presence of correlated errors is indicative of some systematic error variance and is not directly interpreted itself (Kline 2015). Figure 46 presents the final model for component six. Table 10 presents the final fit indices for each component.

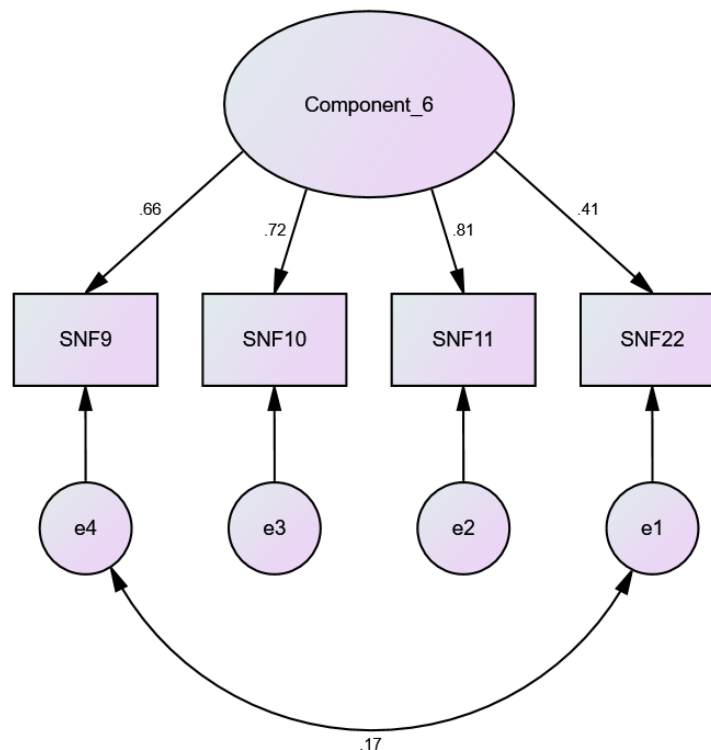


Figure 46: Final model for component six: Usability and User Experience



The results of the CFA confirmed the results of the EFA. A six-factor structure seemed to explain the variability inherent in the data well. The factor structure suggested by the EFA generally exhibited excellent model fit as shown in Table 9 when examined with CFA techniques.

Table 10: Fit Indices for Components 1-6

Component	Items	Model Modification	Fit Indices				
			$\chi^2$	<i>p</i>	RMSEA	CFI	TLI
One	27-31	-	49.75	< .001	.17	.95	.90
One <sub>Mod</sub>	27-31	Covariance	1.78	.776	< .01	1.00	1.00
Two	13-15, 32-33	-	70.88	< .001	.21	.88	.77
Two <sub>Mod</sub>	13-15, 32-33	Covariance	2.61	.624	< .01	1.00	1.00
Three	4-7	-	21.72	< .001	.18	.95	.86
Three <sub>Mod</sub>	4-7	Covariance	1.34	.247	.03	.99	.99
Four	1-3, 8	-	3.30	.192	.05	.99	.99
Five	17, 21, 23-25	-	11.14	.049	.06	.98	.96
Six	9-11, 22	-	7.85	.020	.10	.98	.94
Six <sub>Mod</sub>	9-11, 22	Covariance	2.09	.148	.06	.99	.98

Note. A subscript Mod indicates that the row corresponds with the modified model.

## 5.9 Reliability Analysis

The reliability, or internal consistency, of these six factors was further assessed using Cronbach's alpha. Cronbach's alpha coefficients were interpreted according to [George and Mallery \(2010\)](#) guidelines, where coefficients of .70 and above are considered acceptable, coefficients of .80 and above are considered good, and coefficients above .90 are considered excellent. Table 11 presents the alpha coefficients for each component. All factors achieved at least acceptable reliability, except for component five, which approached acceptable reliability ( $\alpha = .66$ ). However, according to [Vaske, Beaman, and Sponarski \(2017\)](#), a composite score has adequate reliability if the Cronbach's Alpha coefficient is between .65 and higher

Table 10 presents the alpha coefficients for each component. All factors achieved at least acceptable reliability according to [George and Mallery \(2010\)](#) guidelines, except for component five, which approached acceptable reliability ( $\alpha = .66$ ). This lower score may indicate that the items for this component do not as reliably measure the same construct. However, since Cronbach's alpha is based on the variability found within the sample, it may also mean that the participants exhibited more variability in their responses to the items in this component ([George and Mallery 2010](#)). However, Cronbach's ( $\alpha = .66$ ) is still at an acceptable level ([Vaske, Beaman and Sponarski 2017](#)).

*Table 11: Reliability coefficients*

Scale	Scale Name	Cronbach's $\alpha$	No. Items
Component One	National Context	.90	5
Component Two	Technological Infrastructure and Institutional Support	.81	5
Component Three	Functionality	.82	4
Component Four	Implementation	.89	4
Component Five	Social and Institutional Culture	.66	5
Component Six	Usability and User Experience	.76	4

## 5.10 Participant Comments

In addition to the quantitative data analysis provided earlier, the anecdotal evidence from the respondents to the survey is presented below.

In terms of functionality, students emphasised the importance of having adequate communicative function of social networking in order to access information and share ideas between members of the academic community:

Factor	Comments
Functionality	Working on the development of communication networks so that students can benefit from the amount of useful and scientific information published on the social networking sites.
	To facilitate communication between members of the educational system.

In relation to useability and user experience, participants mentioned fun and enjoyment as crucial to the uptake of social networking technology:

Factor	Comment
Usability and User experience	Since they have a great impact these days, I agree with the integration of these sites in order to make them both useful and fun; not to be only for communication, with no purpose except to waste time.
	Being interested in accessible, comfortable and enjoyable learning is considered among the factors that facilitate integration.
	The learner's passion for communication is one of the most important factors.

A number of comments were made about technological infrastructure and institutional support, including the importance of user training, speedy connectivity and provision of technical support. The need for institutional encouragement and support from administration and departments was also mentioned:

Factor	Comment
Technological Infrastructure and Institutional support	Educators must understand how to use this tool before they can use it with their students in the classroom
	The importance of the immediate training and practising of work for the courses and the immediate planning and implementation of any work
	Computer and modern devices proficiency of most society members.
	Strong networks must also be available to help speed up the completion of tasks in order not to waste time.
	Electronic support must be increased.
	Administrations of departments must facilitate the use of social networking sites for faculty members, encourage them to use them and enable using them from the beginning of each semester.
	Consultation and training by specialists should be provided.
	Incentives, high speed Internet

The national context drew a variety of comments, particularly in regard to the attractiveness of social networking to the predominantly youthful population of Saudi Arabia. It was also seen as crucial to national development. Two participants mentioned gender, with one approving of social networking as a means of bridging the divide and another suggesting that co-mingling electronically was not to be encouraged.

Factor	Comment
National Context	Social networking tools are great tools and it is helping young Saudis to communicate with other genders within the religious boundaries that suits Saudi people.
	Development is considered among the contributing factors.
	The turnout of youth for the electronic tools is considered one of the most important factors of integration.
	Encouraging the government to integrate and monitor them
	The youth group is considered the largest age group in society and they like development in everything, and not to forget that they are characterized by rapid learning.

	The attraction of e-learning to the new generation.
	The young generation likes development and the integration facilitates and accelerates learning as well as develops society groups.
	The emergence of a new generation that are busy and skilful in technology.
	There are many educated young people who wish to develop and search for new things.
	It is possible for communicating with the other gender if he is the professor or the Deanship. Otherwise, it is rejected if it is between male and female students, since this contradicts religion, customs and traditions.
	It can be successfully integrated to develop society members and improve education in our country.
	Yes, we are in the age of technology and we need cultural awareness and we need to raise the level of intellectuals and society members.

In terms of social and institutional culture, participants raised such ethical issues as privacy concerns, unethical users and unreliable websites. It was suggested that social networking should be used within the parameters allowed by Saudi society:

Factor	Comment
Social and Institutional Culture	I am against the use of social media in education because of privacy reasons. Especially when almost all universities have their own smart system e.g. Blackboard
	Some of the bad users from outside the educational system
	There are many privacy issues when it comes to social network. it cannot be considered as an official way of communication. Collecting data by private sector helped by the government could be seen as a treason.
	The high cultural level and scientific development are considered among the factors that facilitate the integration.
	Using social networking sites by all staff
	Providing pre-training for students, choosing reliable sites, publishing names of unreliable sites in a weekly or monthly bulletin and warning against accessing these sites, and then establishing security controls on their use.
	Non-academics do not have to use social networking sites since there is no need for that, while academics (instructors and lecturers) must use them in order to communicate with them if they are not available at their offices.
	There must be certain conditions that correspond to our traditions and religious customs and focus on benefits for the student without compromising his/her ethics.

In regard to pedagogy, participants commented on the importance of integrating social networking into teaching and learning as part of a modernising push towards scholastic and professional development. Comments were also made about starting the integration process at an early stage as well as monitoring the quality of outcomes of social networking:

Factor	Comment
Pedagogy	It should be a part of the subjects and to be used in a professional way ... and to add value for both staff and students.
	Sometimes faculty are used to certain methods that makes the presentation of new ones, especially ones related to technology, are received negatively.
	I think that among the factors that facilitate the integration is to start it in primary education stage.
	Distance learning
	The desire to develop the new generation and their aspiration, facilitate learning and academic communication and facilitate the process of professional development in society
	The most important point to focus on is to monitor the quality of using social networking sites as many of the tools and technologies in our university are not used by the lecturers: smart board, Blackboard, Administrators, Twitter account, where neglecting them leads to losing the benefit of creating them in the first place.
	Including course materials in universities that show the usefulness of social networking sites in the educational process
	Integrating them in the public education which means that they become integrated from primary school to university
	A group includes the materials related to each lesson and a video clip for the explanation of lessons.
	Social networking sites are the most important elements of the technology-based modern age. Therefore, the educational process without them is considerably lacking much.

Some suggestions included a trial of social networking before committing to using it, linking to the Ministry of Education and, on the negative side, the risks of allowing electronic technology to be controlled by external bodies:

	Comment
Suggestions	Start a trial period for a year, for example, and then stop to study the effects and results. Later on, they can be approved according to the results.
	Each university should have a webpage with links for all its social networking sites and then this webpage should be linked to the Ministry of Education, which gathers the webpages of all universities in Saudi Arabia.
	It is the age of technology; therefore, integration is a must.
	Some of the contradictions in my answers mean that I am fluctuating between accepting and rejecting the idea of putting our electronic systems under the control of bodies (we do not know or we have no authority over) to avoid fragility when establishing our own electronic transactions.
	Teaching these tools as a science in universities and schools
	The integration of social networking sites has negative and positive aspects. Therefore, the matter must be studied carefully before applying it and it must be organized adequately.

## 6.1 Introduction

The previous chapter covered the quantitative data phase of the research and the analysis of data arising from surveys using analytical software, namely, NVivo, SPSS and AMOS. This led to a refinement of the factors retained in the framework which then proceeded to a different phase of qualitative data collection in order to enrich and strengthen the data and findings.

This chapter deals with the findings from structured online interviews with university academic staff. The chapter follows on from the findings of the literature review, focus groups and the quantitative analysis of data in order to arrive at a final view of the social networking framework from the perspective of the ultimate end users, the lecturers and professors who may embed these technologies in their teaching practice.

Analysis results arising from previous chapters led to the retention and elimination of several factors in the initial framework. The retained factors were then subjected to further confirmatory investigation through consultation with university academic staff. Some of the eliminated factors were selected to be retained for this final phase, namely, gender segregation issues, technical support and motivation and incentives. The reason for retaining these was that the researcher accorded them a high level of importance deriving from the first phase of data collection as well as the literature review.

The data from the structured interviews (see Appendix 5: Interview Questions) was analysed via NVivo 11 software. In general, the findings from the structured interviews confirm and support the results from the earlier phases, namely, the focus groups and surveys. The academics who were interviewed expressed their views of the factors identified and the majority indicate their acceptance of the framework and their endorsement of its effectiveness.

The following sections of the chapter will discuss the findings and the analysis process of the structured interviews based on the identified factors that comprise the social networking framework.

## **5.11 Findings**

The analysis of the EFA resulted in a scree plot, eigenvalues, and the extracted factor loadings that indicated six underlying factors in the survey. Each of the six factors had a number of items that loaded distinctly onto them.

The highest factor loading under “Implementation” was for “clear guidelines for implementation/usage” at .916 while “steps for implementation” and “visual representation of the framework/model” received similar loadings of .893 and .882 respectively. The lowest loading was .685 for ease of use of social networking sites.

In terms of “Usability and User experience”, the highest loading was for how “enjoyable social networking sites are to use” at .677, followed by “ease of navigability” (.656) and



“high student user acceptance of technology” (.536). A lower loading of .476 was allocated to “the system being based on only one social networking site rather than a range”.

The issue of “Functionality” yielded the following results: “content creation and retrieval” received the highest loading of .732 while “management and organisation” received a loading of .722. “Allowing users access to a range of tools within one LMS” produced a loading of .652 while “collaboration with others” yielded a loading of .534.

The highest loading in the area of “Technological Infrastructure and Institutional support” was attributed to “sufficient software” (.846) followed by “sufficient hardware” (.817). “High speed connectivity” received a relatively high loading of .759 whilst lower loadings emerged for “universities having sufficient funding for new technologies” and “universities being open to adapting new technologies, at .544 and .524 respectively.

In relation to “Social and Institutional Culture”, the highest loading of .766 was given over to the system being “suited to Saudi Arabia’s religious environment”. The system being suited to “Saudi Arabian culture and social roles” followed on from this with a loading of .718. “Ethical concerns” drew a loading of .601 followed by lower loadings for “staff user acceptance” (.488) and “consultation of stakeholders” (.503).

Loadings for “National Context” scored highly with “government policies” that encourage the use of social networking, attracting the highest loading of .807. Similar loadings were obtained for “government support for social networking integration at universities” (.754), “incorporating social networking sites into educational plans by the government” (.780) and “funding from the government and a sufficient budget” (.750). “University budget and funding sufficiency” drew the lowest loading of .675.

The refined version of the framework in Figure 47 shows some changes compared to the previous version in Figure 29. These changes were the removal of survey items 12, 16, 18-20 and 26 from the subsequent factor analysis because they did not load cleanly onto a single factor. Subsequent factor analysis indicated that component one (“National

Context”) showed strong factor loadings and excellent model fit after modification indices. Component two (“Technological Infrastructure and Institutional Support”) showed relatively strong factor loadings and excellent model fit after modification indices. Component four (“Implementation”) showed excellent model fit with no modifications, and strong factor loadings. Component five (“Social and Institutional Culture”) showed excellent model fit with no modifications, and relatively strong factor loadings. Component six (“Usability and User Experience”) showed excellent model fit after modification and strong factor loadings. Results of Cronbach’s alpha indicated that each factor had acceptable reliability. Strong factor loadings generally indicated good convergent validity.

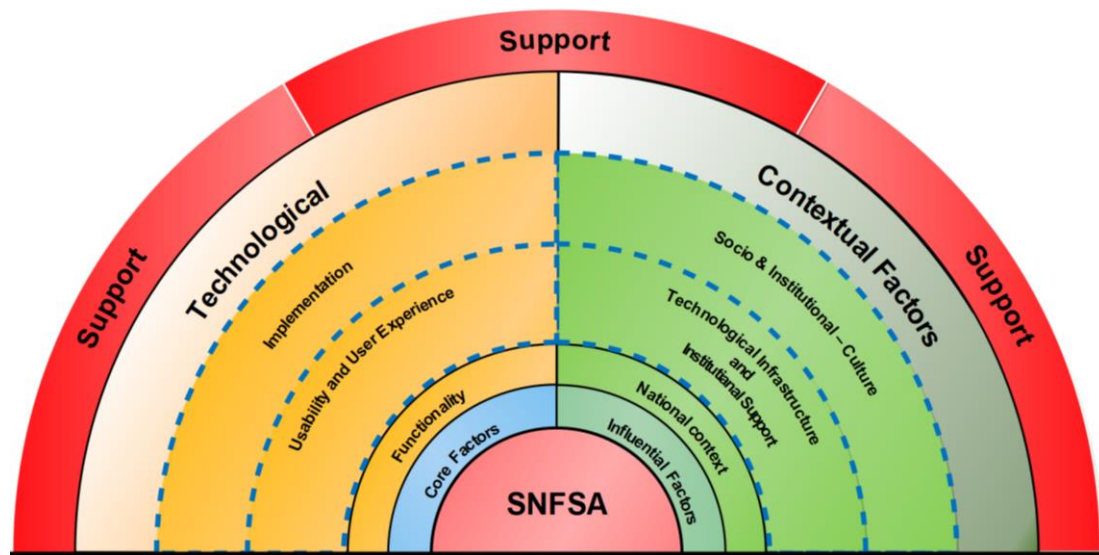


Figure 47: Social Networking Framework for Universities in Saudi Arabia Version 2

## **5.12 Conclusion**

This chapter followed on from the findings of the literature review and focus groups by carrying out a survey and analysing the data yielded from it by means of Microsoft Excel, SPSS version 22 and AMOS software. The chapter has explained the survey design, target audience and how data was collected. As a result of exploratory and confirmatory factor analyses, the chapter presented the factors that were retained for the framework for social networking in Saudi Arabian universities and those which were dropped from consideration. The Cronbach alpha for component 6, social and institutional culture, resulted in a low value. This is a result of variability of participants' responses ([George and Mallery 2010](#)). This chapter leads into the next phase of the research which is the use of interviews with university academic staff as a means to seek further validation and confirmation of the final framework.

## **Chapter 6**

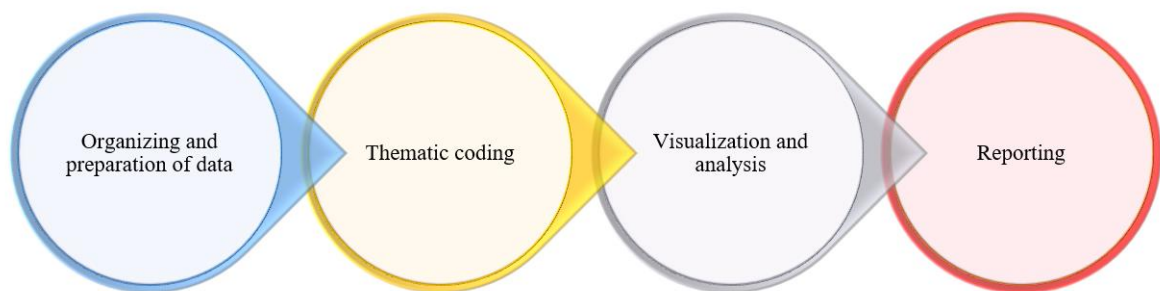
# **Interview Results and Analysis**

## 6.2 Data Reporting

NVivo software enabled the grouping and categorisation of similarities and differences in the data. This involved the generation of frequencies, matrix queries and cluster analyses in the form of graphs, charts and tables for the reporting of data ([Bazeley and Jackson 2013](#)).

## 6.3 Data analysis

The structured interviews with the academic staff members were gathered via the Qualtrics platform which allowed them to express their thoughts about the set of factors comprising the framework. Transcripts were then imported to NVivo to undergo thematic coding and analysis. In total, eight interviews produced 72 pages of transcripts. NVivo is a categorising mechanism which organises data from the transcripts into themes called nodes which are encoded in the software. NVivo identifies similarities and differences in content and makes it easier to compare and contrast themes and concepts identified ([Bazeley and Jackson 2013](#)).



*Figure 48: Steps of Interview analysis (prepared by author)*

The study produced three categories and seven main themes of the framework with 40 questions in total that were ranked by participants. The data was coded using a confirmatory thematic approach, themes were coded deductively as to pre-determined categories derived from literature as well as the findings of the online survey. Themes were then refined and arranged based on their hierarchical position within the framework.

As before, main categories centred around pedagogical, contextual, and technological aspects, including issues such as learning strategies, political and governmental factors, and technical support.

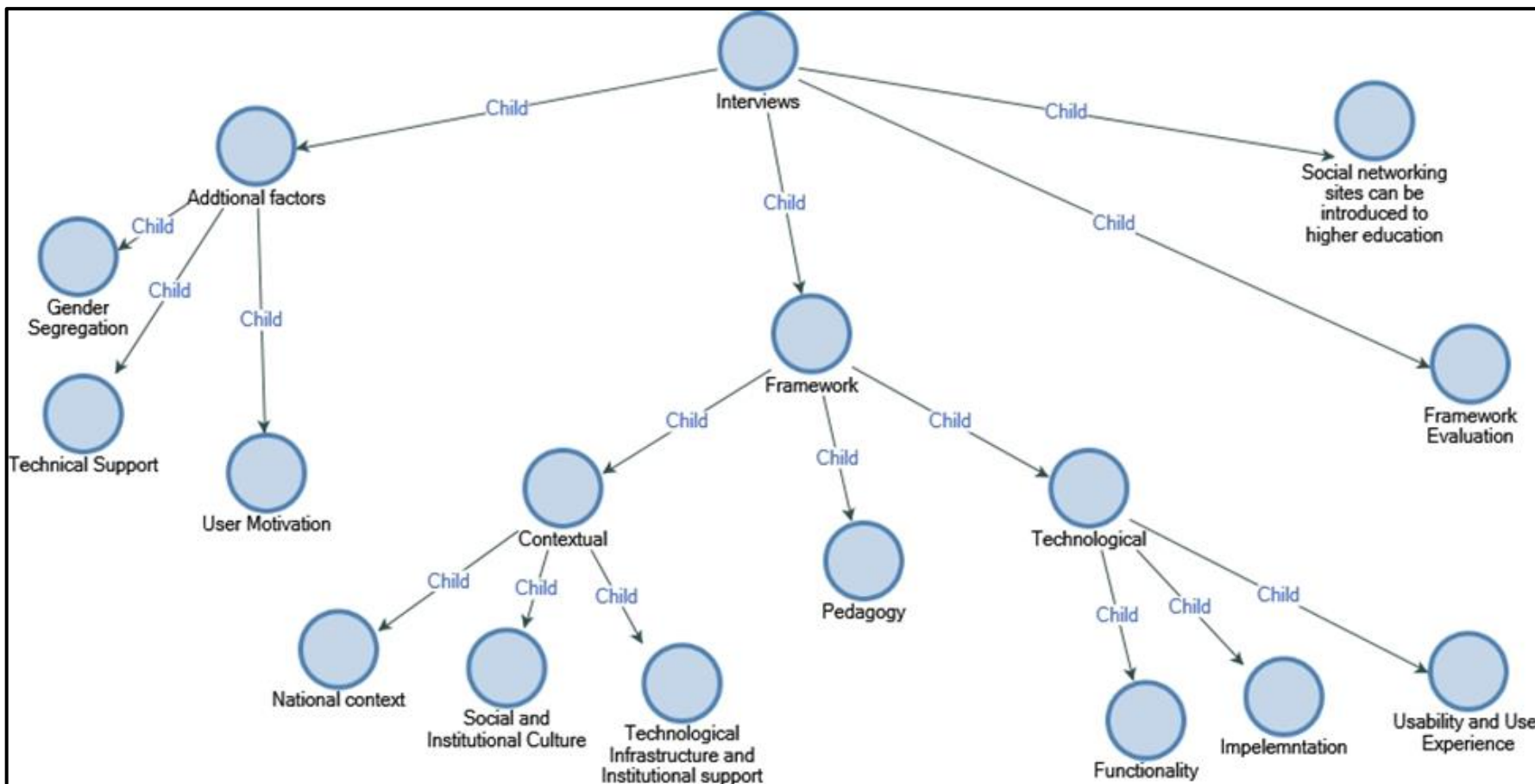


Figure 49: Interview coding tree (prepared by author)

## 6.4 Participants

As described earlier in section 2.8.6, the survey was emailed to eight participants who work at Saudi Arabian universities in an academic capacity and had a competent knowledge of social networking tools. The survey had 51 questions which were a mix of open-ended and multiple-choice items.

*Table 12: Interviews and participant information*

Participant	Gender	Age	Duration (min)	University
1FF	Female	20-30	65	F
2MU	Male	31-40	47	U
3FP	Female	41-50	69	P
4MS	Male	31-40	48	S
5ME	Male	31-40	62	E
6FF	Female	31-40	56	F
7MT	Male	31-40	77	T
8MI	Male	31-40	66	I

Of the participants, 37.5% were female and 62.5% were male from six different institutions. In terms of age range, 12.5 % were in the bracket 41-50 years of age while 75% of the interviewees were in the range 31 – 40 years of age. 12.5% were in the 20-30 age group. Only 13% considered themselves to be “extremely competent”. Interview durations ranged from 47 to 77 minutes.



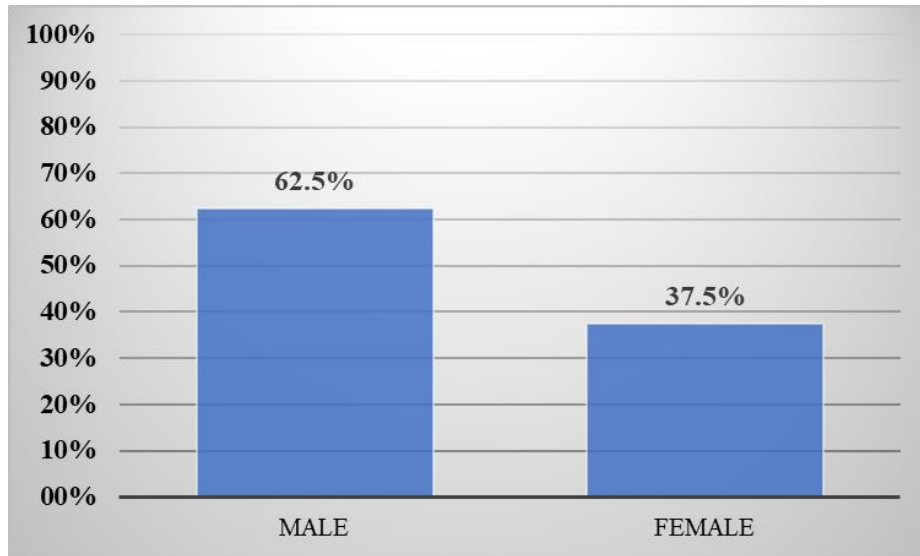


Figure 50: Gender breakdown of interviewed participants

Of those interviewed, 88% described themselves as “somewhat competent” in the use of social networking tools which was the second highest option available.

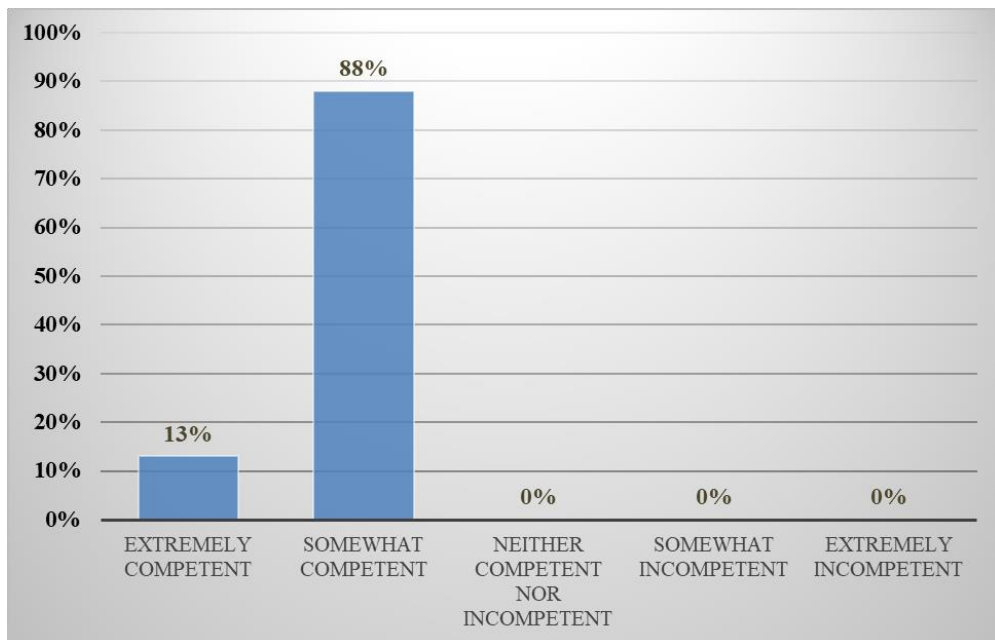


Figure 51: Level of experience with social networking tools

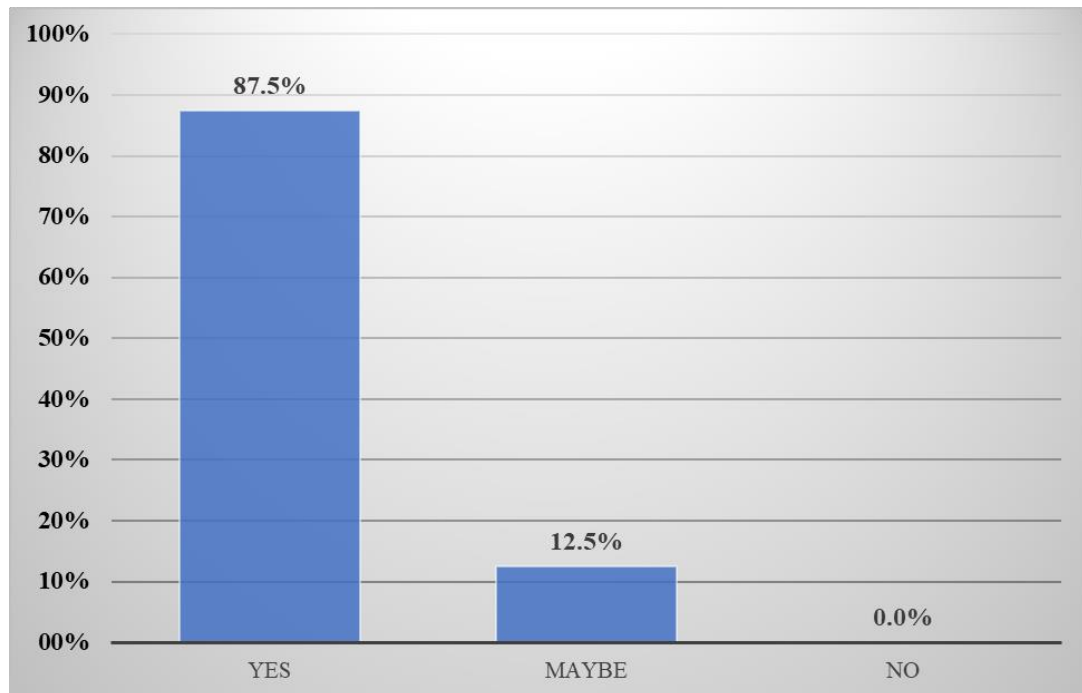


Figure 52: Social networking sites can be introduced to higher education

Of those interviewed, 87.5% affirmed the importance of implementing social networking sites into Saudi Arabian higher education. Reasons for this included the “availability and accessibility” of social networking sites, their provision of ready access to information without having to visit a physical library, and their ability to provide connectivity for users who can communicate with each other and share opinions, comments, feedback and ideas in a convenient way. Participants commented on the ability to improve communication between students and lecturers as well as to engage millennial students who enthusiastically embrace social networking sites. They were also seen as a means of updating students in the form of announcements and as a means of sharing resources such as videos and links.

*“They are considered as a very important tool because they play an important role both in the life of the student or the teaching staff. The reason for their importance might be: 1. The availability and accessibility of the technological devices. For example, it is rare nowadays to see a person who*

*does not have at least one mobile phone while some have more than one device. 2. Easy access to information. Regardless of whether the source is reliable or not, it is very easy to look for information in the social networks, compared to the traditional way of looking for information in libraries and so on.” [1FF]*

*“Social media is the new way of communicating and students are enthusiastic about it. If we want student engagement, this is the best way to do it.” [5ME]*

*“Social networking sites can arguably be a useful on-way communication tool (e.g. making announcements, keeping students up to date with the latest research in the field, referring them to video material on, say, YouTube).” [4MS]*

*“The social network platforms offer one place for sharing feedback, comments, opinions, and expertise regarding any service or product. I think we can do just like that for any social community like universities to share expertise regarding students and academic affairs.” [3FP]*

*“For its potentials of enhancing the learning experience. Better communication between instructors and students is an example of how social networking sites support learning. Because of the ubiquity of social networking tools, communication has become easier resulting in an improved feedback process.” [6FF]*

*“Because it will improve the learning process between students and lecturers. A few in students and lecturers in Saudi Arabia started to use it and its helping them with their education to some extent” [7MT]*

*“Social network can be used as source to share information and upload materials among students. Also, it helps in delivering information up to date. It helps to make the learning more cooperative.” [8MI]*

Tellingly, however, two respondents pointed to the reluctance to use social networking in Saudi Arabian education, suggesting that it is incorporated by a “few” only, and that it is yet to be formally implemented as a teaching and learning resource:

*“I came across many conferences in Saudi Arabia and there are some discussion on incorporating social media improving the education system. However, most of these discussions were theoretical and none of them have been formally applied so far.” [2MU]*

*“A few in students and lecturers in Saudi Arabia started to use it and it’s helping them with their education to some extent however, some students are using it more for as entertainment tool rather than educational purposes.” [7MT]*

However, 12.5% of those interviewed did not fully support the incorporation of social networking into tertiary pedagogy, stating that it would cause distraction to students who might prioritise social and entertainment usages of these media:

*“Social networking sites can arguably be a useful on-way communication tool (e.g. making*

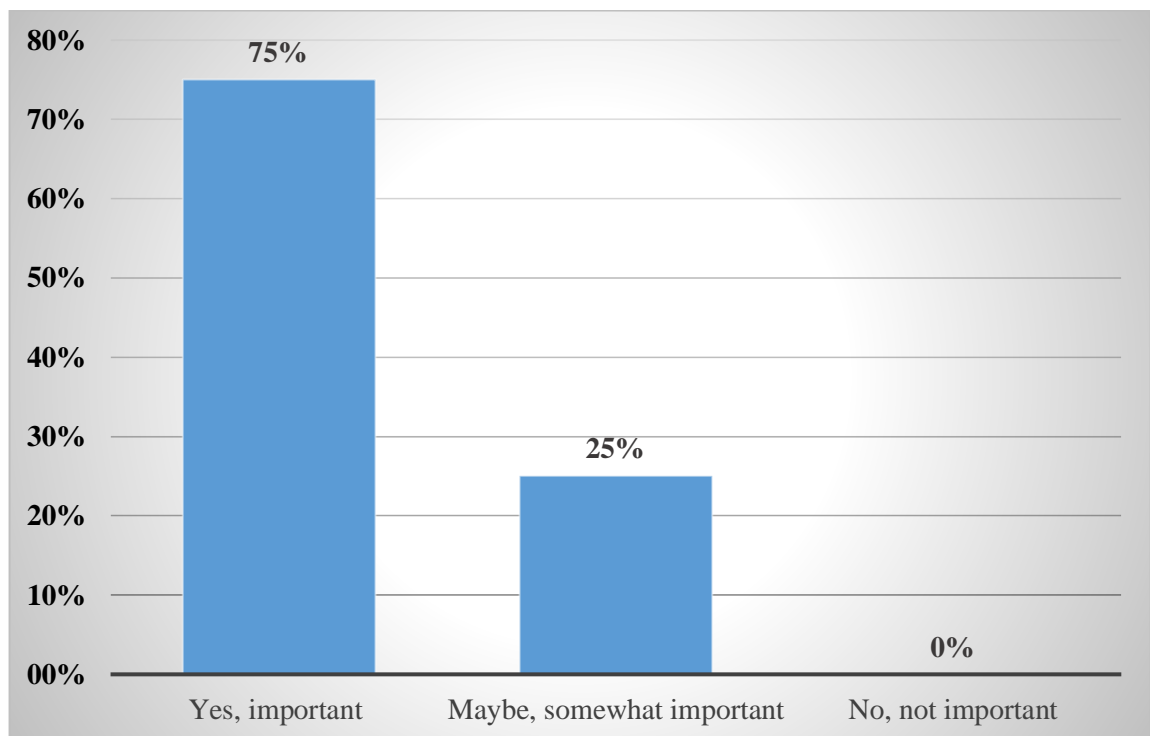
*announcements, keeping students up to date with the latest research in the field, referring them to video material on, say, YouTube). However, overuse of SNS can expose students to distractions (since they are also heavily used for entertainment, personal networking, etc.)” [4MS]*

*“however, some students are using it more for as entertainment tool rather than educational purposes.” [7MT]*

## 6.5 Implementation

The majority of respondents (75%) applauded the notion of a wider integration of social networking into university education through a planned and thorough implementation while (25%) indicated their agreement to an extent:

*“To integrate social media in higher education you must have a clear implementation plan in which facilitate the integration process in order to achieve a successful use of social media in higher education.” [2MU]*



*Figure 53: Participants' agreement on importance of the Implementation factor for the adaptation process*

Most participants pointed to the need for organizational support and back-up in order to facilitate a wider adoption which goes beyond individual effort:

*“It is important because with the delineated guidelines, there will be organizational support which will streamline*

*the implementation, and eventually encourage the adoption of Social networking sites.” [3FP]*

*“Any individual effort by faculty to implement SNS in higher education must be backed by the institution by offering relevant tools not only to faculty but also, most importantly, to students.” [4MS]*

*“Wider adoption will not occur unless the system is implemented at a university-wide level and everyone is trained to use it and consulted about its usages. Clear steps for use are vital. However, there may be some who do not want to use it and we shouldn't force them” [5ME]*

Clearly, then, the interviewees felt that there was a need for a systematic and structured approach to integration, encompassing clear steps and guidelines, university provision of resources and user training.

*“Only a few learning strategies support low-level of integration. This could be due to several factors including: · Lack of appropriate design models and guidelines. · Lack of a clear institutional vision. · Stereotyping management approach. · Low technological awareness or knowledge for many academics. · Some students' resistance to the use of technology” [6FF]*

*“Well implementation help to improve the willingness to adopt social network by teachers. We had some new technologies adopted in the university but because we haven't had guidelines on how to use the equipment in the lab. Therefore, the lecturers started to use things*

*traditional methods rather than the innovative and new techniques.” [8MI]*

Significantly, one participant revealed the difficulty of integrating Twitter into instructional design when she was left to her own devices and received no support, guidelines or resourcing from the university:

*“It is important for me as an academic to consider the implications surrounding the adoption of SNS in the T&L practices, bearing in mind the lack of support supposed to be provided by the university. For example, one of the courses I was teaching involved the use of Twitter as an e-portfolio learning tool. So, throughout the course, it took me considerable time and efforts to design, prepare, create, follow-up and evaluate students’ online content. It could have been easier if the university provides some kind of support regarding the creation of online content in the form of building tools for online content or an IT personnel assistance.” [6FF]*

This view was reiterated by another participant who suggested that a critical success factor in implementing social networking would be adequate support from the “responsible department” rather than academic staff being reliant on their own efforts entirely:

*“It is important because it has to be formally introduced and encouraged the use of social media tools by the top management of the university as if there are any challenges it can be addressed and solved by the responsible department. This will help to successful integration of social media tools in universities.” [7MT]*

Of the sub-factors, the highest-ranking factor was ease of use of social media tools, followed by the importance of having implementation guidelines inclusive of visual



representation such as guidelines and charts to guide users in the usage of these tools. Steps in implementation received a slightly lower ranking of 75%.

Implementation	Implementation Guidelines	83%
	Steps in implementation	75%
	Visual representation (e.g. diagrams and flowcharts)	83%
	Ease of use	95%

## 6.6 Functionality

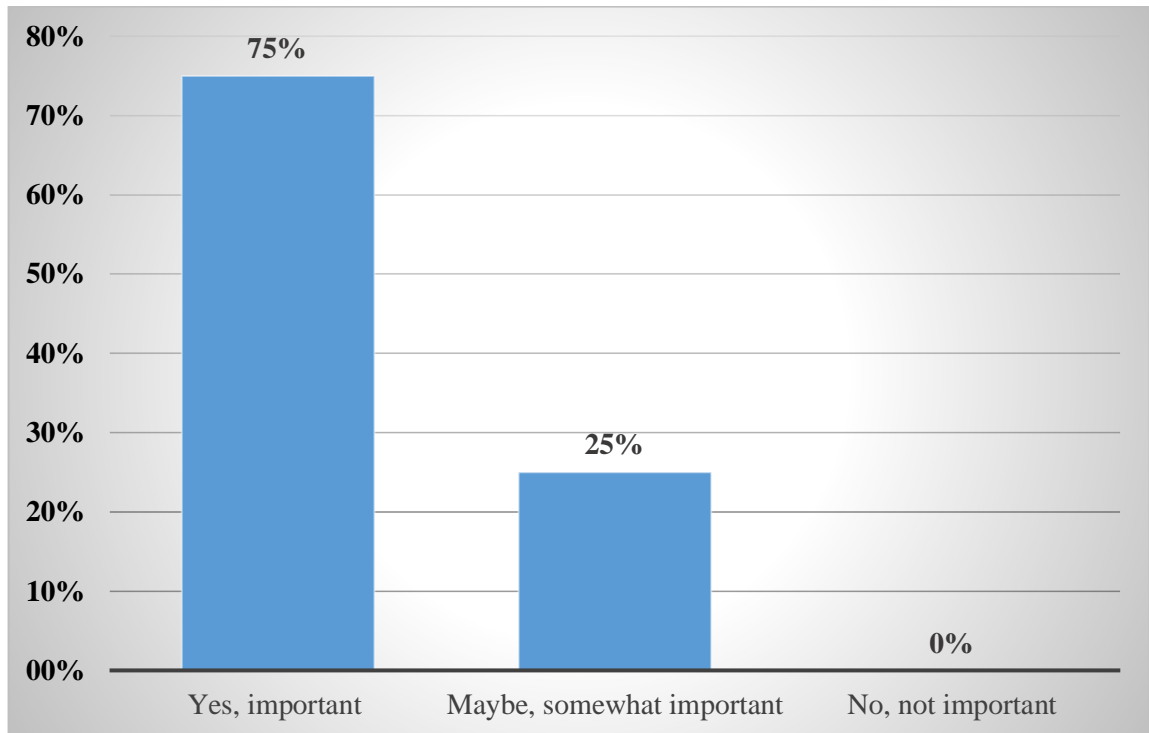
Seventy-five percent of respondents suggested that functionality is a key component of any successful implementation of social networking with 25% agreeing to some extent. Most interviewees identified communication between students and lecturers and peer to peer networking as the key functionality which is required:

*“Functionality is crucial because it will assist lecturers and students to collaborate more effectively. This is a good feature that most social media tools offer and should be considered when using it for educational purposes. The flexibility and the exchange of information in real-time have led to successful usage of social media in many sectors.” [7MT]*

*“Adding Topics Adding instructors for a certain topic for example is essential when review opinions regarding any issue.” [3FP]*

*“The access to the social networks nowadays is very easy, which can accelerate the communication between students and instructors and their peers.” [1FF]*

*“Saving time and effort and increase the communication between students and lecturers” [8MI]*



*Figure 54: Participants agreement on importance of the Functionality factor for the adaptation process*

Another key function mentioned by interviewees was collaboration on academic tasks through setting up research networks, with one interviewee recommending the possibility of joining communities of international scholars through social networking:

*“Functionalities offered by SNS help personalising the learning environment by allowing access to the bigger scholarly community where it is possible to build personal profile and upload customized content. Encourage collaborative learning through the interactivity features that facilitate the communication of students with their peers or instructors.” [6FF]*

*“The social media have not been used in higher education in Saudi public universities. The functionality of social media might be useful in certain field or majors such as*

*applied science. Functionality which includes collaboration as well as share some knowledge with other researchers which might be helpful to increase the level of interactivity between researchers.” [2MU]*

Other functionalities considered were resource sharing and storage of information, though these were less mentioned than communication and collaboration:

*“The most important function to my way of thinking is providing students with a wide range of material such as pre-recorded lectures. Also, students can easily network with their peers.” [4MS]*

*“It is important to capture the functionalities that these sites can offer. There are many different sites offering different services e.g. ways of connecting with others, storing information. A successful system will depend on accessing all these functions.” [5ME]*

In terms of ranking sub-factors, the collaborative capacity of social networking tools was highest ranked alongside content retrieval and storage. Organising and managing information attracted 70% in the rankings while having access to a wide range of tools was lowest ranked at 60%.

Functionality	Collaboration	83%
	Content Retrieval and Storage	83%
	Organise and manage information	70%
	A wide range of Social Networking tools within one system	60%

## 6.7 Usability and User Experience

All respondents attested to the paramount importance of usability as a key critical success factor in order to foster user engagement, suggesting that users would not “bother” with systems which are complex and challenging to use:

*“if the design is simple and easy to use, it will be easier to use, whereas if the design is complex, this would be an obstacle for some users in terms of using or even understanding it as it depends on the user's abilities and level of understanding” [1FF]*

*“Usability helps to develop the systems with improved instructional and pedagogical approach. The system should be simple to learn, effective to use and easy to remember.” [8MI]*

*“Without good usability and user experience, new technologies will struggle to be adopted. Users will not bother with a system that is difficult to use.” [5ME]*

*“User friendly SNS is important in terms of students' level of engagement in the learning process. The more 'usable' the SNS, the better the engagement of the students with the instructional content, discussion, collaboration, or participation. For instance, studies show that by relying on the web 2.0 or simulation technologies, students' engagement level is improved resulting in better performance outcomes.” [6FF]*

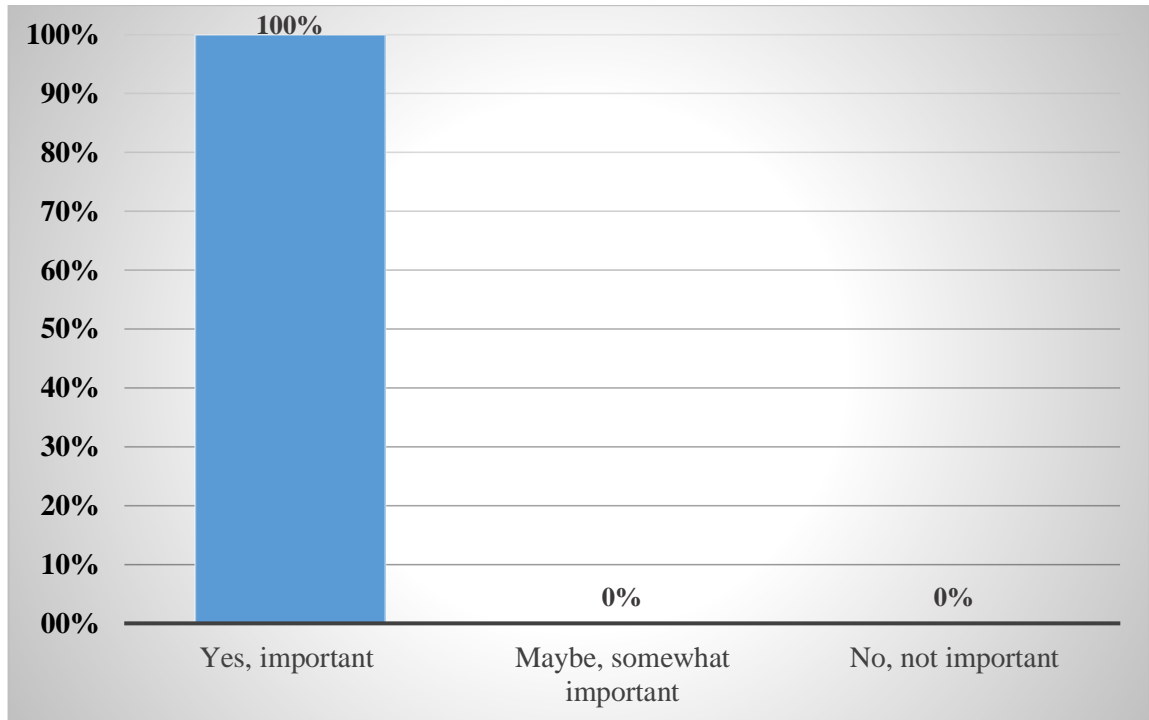


Figure 55: Participants agreement on importance of the Usability and User Experience factor for the adaptation process

One participant commented that one of the reasons for the slow uptake of new technologies in Saudi Arabia was the non-user-friendly systems:

*“The most important point to consider when using a new application is the high usability (easy to use) and that’s what made social media tools more successful in many sectors. There have been some challenges in introducing a new educational online tool (learning management systems) in Saudi Arabia because of the system wasn’t user-friendly.” [7MT]*

*“Usability is very important because some new technologies have for example low usability which makes it challenging for lecturers and students to benefit from these tools. Therefore, I believe this factor is most important factor to consider when adopting any new teaching tool” [8MI]*

Two participants pinpointed lack of Arabic language interfaces in social networking tools as an obstacle that might impede useability and, by extension, user acceptance and take up:

*“One problem may that there are some of the new, cutting edge social media tools might not support Arabic language and this may affect usability and acceptance by users.”*  
[5ME]

*“Arabic Language adaption.”* [3FP]

In terms of sub-factors, students’ acceptance of the system was the highest ranked item while navigability of the system and the enjoyment engendered by its use were the next two items in the ranking. The issue of basing the system on one kind of tool only was ranked at 73%.

Usability and User Experience	Navigability	80%
	The system should be based on only one social networking site rather than a range	73%
	Enjoyment of use	85%
	Students high acceptance	93%

## 6.8 Technological Infrastructure and Institutional support

All respondents believed that a strong technological infrastructure which guaranteed connectivity and service continuity, as well as speed, and institutional support for any technological innovations were crucial critical success factors:

*“In terms of the strong technological infrastructure, it has a vital role in integrating social media to the higher education sector in Saudi Arabia.” [1FF]*

*“To include social media in education it’s important to consider the availability of internet connectivity and bandwidth connection at all time so lecturers and student can access at any time without interruption issues”. [2MU]*

*“I think the Institutional supports should be for success.” [3FP]*

*“In fact in order to have a strong technological infrastructure, institutional support is a necessity. There should be some willingness and support from the top management for the adoption of SNFSA for an optimized usage of these platforms.” [1FF]*

*“The main concern here in my opinion is hardware and internet connectivity.” [4MS]*

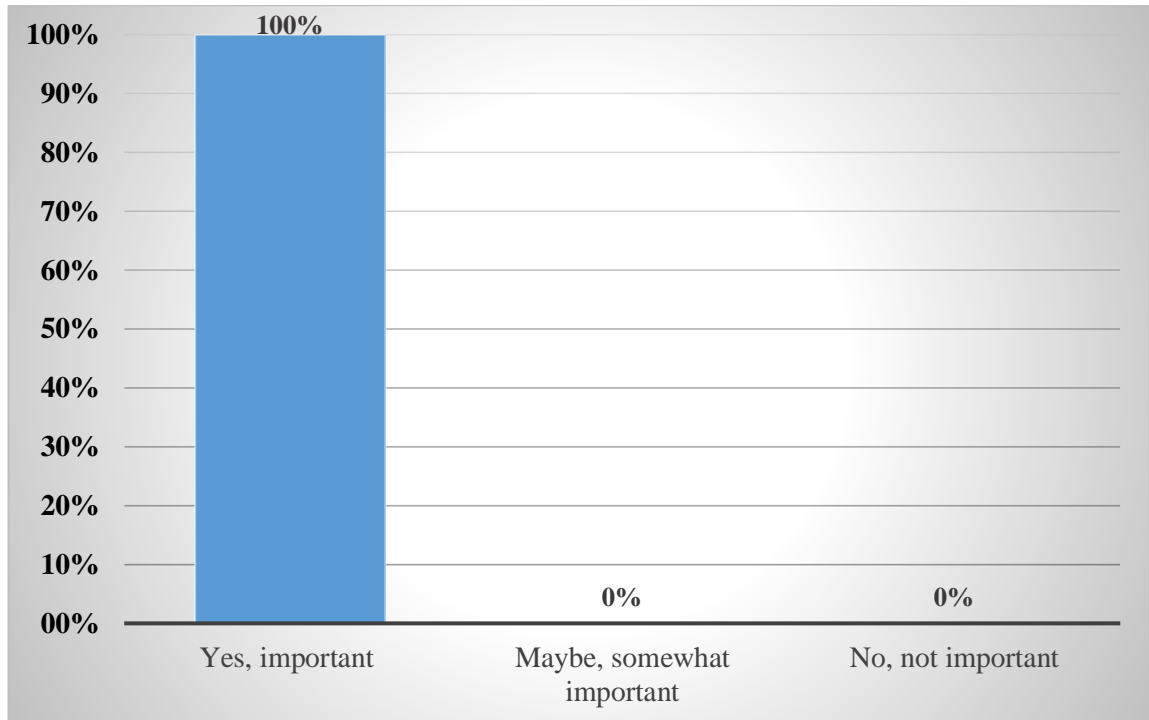


Figure 56: Participants agreement importance of the Technological Infrastructure and Institutional support factor for the adaptation process

However, some participants commented that, despite its financial and budgetary capacity, Saudi Arabia is still lacking in the area of solid technological infrastructure, particularly in remote regions:

*“The current technical infrastructure is still not firm as it is facing many challenges to be improved” [IFF]*

*“In Saudi Arabia, we have money to implement systems but the actual technology infrastructure is lacking and we do not have enough speed and connectivity to make the system reliable. It is also vital to have the budget at universities to implement new technologies and the mindset of management at universities to be open to change and acceptance of these technologies. I don't think this is always the case in Saudi Arabia.” [SME]*



*“Faculty and students alike should be provided with proper hardware and internet connectivity for the implementation to work.” [4MS]*

*“It is important for example in some areas in Saudi Arabia where they have poor technological infrastructure its quit challenging to introduce any technology and this is always caused by having a low speed internet in some villages in Saudi Arabia as an example. Also some of the newly established university have lower budget compared to universities that have been established long time ago.” [8MI]*

*“Teaching with technologies requires strong technological support that provides the necessary components of hardware and software, networking and connectivity through Internet services, and most importantly the maintenance and constant IT services.” [6FF]*

One of the staff members reported in detail about the lack of technological infrastructure available at the university and the challenges to usage that this caused:

*“Of course, you, as an academic instructor, did not have your own computer or internet connection, although the university was just a new building fully equipped with modern equipment. The difficulty of providing computers and making them available to the academic staff was an obstacle to the application of technology. Internet access was also very limited and did not include all buildings. As for the students, there were not enough labs to enable them to use the internet within the computers there and if they were available, they required approval from the department and the dean of the college to use them. Thus,*

*the process was very complicated. Another obstacle was that some low-income students did not have internet connection nor did they have computers. I tried hard to communicate with the dean of the college to have the approval for the students in order to use the labs, and I got it actually but with very complicated terms.” [IFF]*

One participant commented that the issue of institutional budget, or the allocation of resources to technological development, was not an area of concern as Saudi Arabian institutions are well equipped financially:

*“Having a sufficient infrastructure can help to avoid further technical problem that might arise during the educational process. Institutional budget is important but in Saudi Arabia is not the case as Saudi is high in financial resources therefore, I don’t think it’s important for the Saudi context.” [7MT]*

In terms of rankings, hardware emerged as the most important consideration, followed by software and speed of connectivity. Flexibility of the institution towards technological change was also ranked highly, following by institutional budget.

Technological Infrastructure and Institutional support	High speed Internet Connectivity	88%
	Sufficient Hardware	100%
	Sufficient Software	88%
	Institutional flexibility i.e. openness to change	88%
	Institutional budget	85%

## 6.9 Pedagogy

Of the respondents, 62.5% agreed that a new approach to pedagogy is a vital key success factor for the implementation of social networking. Indeed, all interviewees stressed the point that there needs to be a paradigm shift in Saudi Arabia from a “lecturer centric” to a learner centred approach which incorporates team work, critical thinking and problem solving:

*“It is a very important factor and there should be a transformation from spoon-feeding teaching to self-learning and from focusing on the teacher to the learner and teacher together, as both of them are important.”*

**[1FF]**

*“Faculty should first abandon the conventional teacher-student relationship in which learning is a top-down, one-way track. For SNS to work in teaching, it must be done interactively.”* **[4MS]**

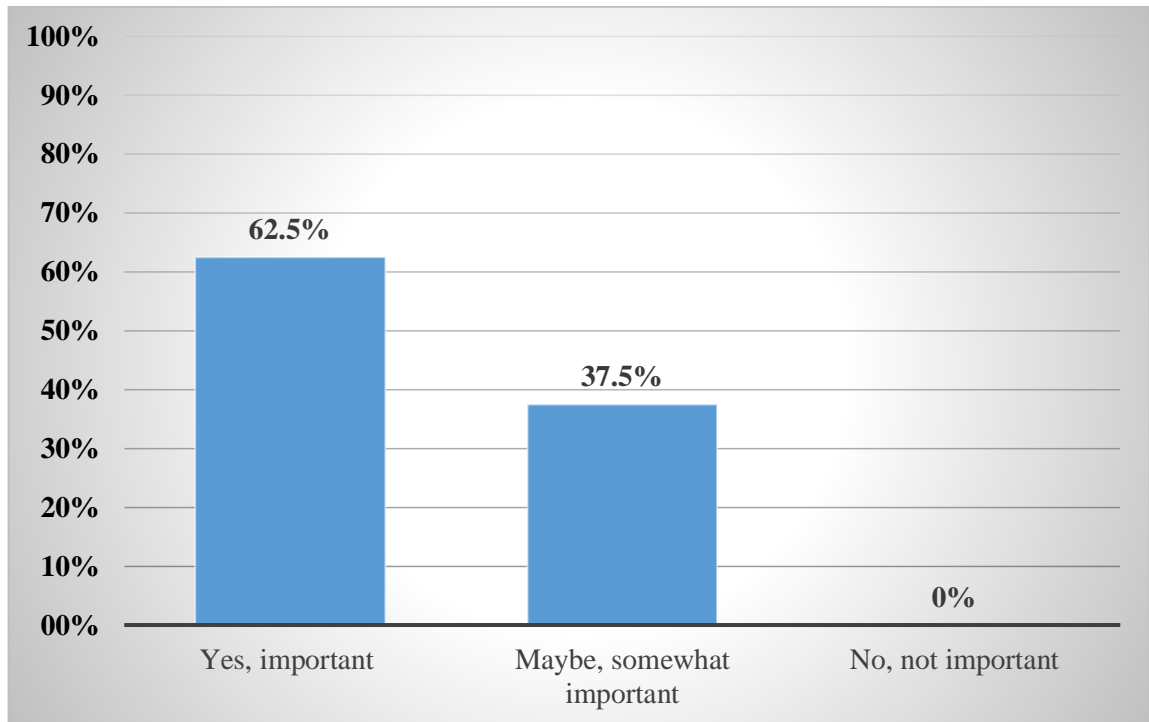
*“Yes, there would need to be a different approach. Lecturers need to give more power to the students to find out things by themselves and to teach them how to find and evaluate information, not just repeat it mindlessly. These ideas are common to Western education but have not spread much yet to Saudi Arabia.”* **[5ME]**

*“There’s a need for a reconceptualization and revamping of the nature of pedagogy. The focus of the pedagogy necessitates a shift from an instructor-centric into learner-centric approach, then it requires to be contextualised to align with the Saudi Arabian’s Islamic theological belie.”*

**[6FF]**

*“Teaching and learning must be re-envisioned away from traditional teacher-student relations described above.”*

*[4MS]*



*Figure 57: Participants agreement on importance of the Pedagogical factor for the adaptation process*

All of the participants alluded to the current pedagogical regimen in Saudi Arabia which is traditional, teacher-focused and based on rote-learning, suggesting that there is a need to empower learners to source and evaluate information independently by means of social networking. There was agreement that the current set of beliefs and practices regarding tertiary education in Saudi Arabia do not support the incorporation of social networking as an academic tool:

*“The current pedagogical approaches of the Saudi Arabian higher education do not support the incorporation of social media.” [2MU]*

*“I think it will ease your task.” [3FP]*

*“This a point to think about, because the new approach to pedagogy should support the new skills such as team-work*

*and collaborative learning. As the current approach does not focus much on analytical skills which is an important skill that student should gain through their educational journey.” [7MT]*

*“Yes as if we have the pedagogical traditional method in place as 10 years ago, social networking technology will be more challenging to incorporate” [8MI]*

### **6.9.1 Learning Theories**

Learning theory refers to learning principals and process which describes how students absorb, process and retain knowledge. The majority of respondents indicated that the Saudi Arabian higher education sector is not yet ready to integrate social networking tools due to the current lack of understanding and poor usage of contemporary theories of learning:

*“No. This is because it is done individually most of the time (i.e. the faculty member is the one who takes the initiative).” [4MS]*

*“No, I don’t. Lecturers here prefer the traditional methods and are used to rote learning and students just repeating lecturer ideas. Using social media will require critical thinking and problem-solving skills which we do not develop enough in Saudi Arabia. Little is known about contemporary pedagogies such as knowledge construction by students themselves and students learning from each other” [5ME]*

*“No. Either new/different learning theories and practices need to be applied, culturally-responsive, learner-centric approaches are required to accommodate learners’ instructional needs for optimal integration of SNS.” [6FF]*

One respondent commented on the lack of familiarity of Saudi students with the concept of collaboration and shared learning styles, suggesting that social networking usage might lead to “plagiarism” as students could appropriate each other’s work.

*“No, it doesn’t support it because the collaboration strategy and techniques are not very well understood between students. As such a collaboration might results in plagiarism between students.” [2MU]*

Another participant mentioned that it might be challenging to incorporate social networking due to the emphasis in Saudi Arabian education on theoretical modes of learning rather than practical, hands-on learning experiences:

*“No, I don’t think so as some of our current learning theories depends on constructive learning or learning by doing rather than theoretical.” [8MI]*

Only one respondent believed that Saudi Arabia is conceptually and pedagogically ready to accept social networking, commenting that the existence of Blackboard and social forums has already prepared universities for usage of social media tools in higher education:

*“Yes, because most of universities already have blackboards and social forums. I think they are ready for such experience.” [3FP]*

## 6.9.2 Learning Strategies

Learning Strategies in the context of this research is a broad direction for teaching and learning using social networking applications. According to most participants, current learning strategy and educational planning in Saudi Arabian universities does not support the inclusion of social networking as a means of teaching and learning. A number of reasons are given. Firstly, one respondent believed that even if planning

incorporated the formal usage of social networking, departments would reject such strategies and refuse to implement them:

*“Somewhat, but even if the plans are good enough, the departments are still traditional and their identity is also traditional and they refuse to change.” [IFF]*

Another respondent commented that such strategies would be ill-suited to the current educational milieu in Saudi Arabia as students are not well-versed in collaborative methods of pedagogy:

*“No, I don’t think so. To the best of my knowledge there is not much collaborative assessment compared to individual work. The student attitude in Saudi Arabia never has been taught in schools to practice team work skills prior the university level of education. Also the criteria of evaluating students’ skills is inadequate in the Saudi higher education.” [2MU]*

Another view was that lecturers do not show any inclination to use social networking sites as they are ignorant of how to use them or dismissive of them within a context where its usage is not expected:

*“The learning strategy does not support social networking sites. Lecturers do not plan to use technologies and nor are they expected to in their delivery. They may not know how to or just don’t want to use them in teaching” [5ME]*

The current teaching and learning strategy based on tests and examinations was also seen as an obstacle to the incorporation of social networking:

*“No, because, the current strategy dependent on test/exams so there aren’t many assignments compare to well-known international universities. Therefore, to adopt social media in education there has to be a new strategy that support group work rather than individual work.” [7MT]*

In contrast, two respondents felt that Saudi Arabia does possess the necessary learning strategies to support social networking. One suggested that social networks are already being used in Saudi Arabia, while another commented that the “new generation of academic staff” was aware of and willing to incorporate social networking into the curriculum:

*“Yes, the students and instructors used different social networks beside using blackboard and group discussion.” [3FP]*

*“Yes, as many of the new generation of the academic staff in Saudi use social networking tools to communicate and share content material with students. There is actually plans to incorporate social media tool in their future learning strategies at our university.” [8MI]*

### **6.9.3 Learning Activities**

In relation to learning activities, participants suggested that there is limited use of technologically-mediated learning activities in Saudi Arabian universities and that



these activities tend to be confined to Blackboard which is a learner management system rather than a social networking platform:

*“No, no, no, unfortunately, the closest example is the application of Blackboard in our university. Actually, when I was a student at the same university, Blackboard was not available at that time. However, when I was sent abroad to continue my graduate studies by the same university I have been appointed at (since I was among the top students at the university at that time)” [IFF]*

*“In Saudi Arabia we do share information via technological means via email and blackboard between lecturers and students. Some of the activities that we currently use are weekly quizzes, mid-term test and presentations. Most of these activities that we currently use will not be valuable if they were to be carried out via social media tools.” [2MU]*

*“They are mostly done traditionally (face-to-face lectures). However, I think virtual learning environment systems are making their way into universities today (Blackboard Learn in specific). Email is used for communication but less so for learning.” [4MS]*

*“There is no such a learning activity that support team work which is always the case in Social media.” [7MT]*

One respondent declared that current activities used in university pedagogy are centred on rote learning and that academic staff would need to be trained in selecting suitable learning activities employing social networking tools:

*“Mainly the lecturer transmitting knowledge to students who have to write notes and then rote learn and repeat in the exams. These activities do not allow for social networking usage. We need lecturers to be aware of ways of incorporating these into their classroom activities e.g. forming research groupings” [5ME]*

Only one respondent felt that Saudi Arabian universities were already utilizing learning activities that support social networking, mentioning group work and assignments to foster collaborative and research skills:

*“Yes, looking back at the past 10 years Saudi higher education improved dramatically. In the past we used to rely only on exam and text to examine student knowledge where now we have incorporated new methods such as group work and assignments to increase students collaborative and research skills. So, these new activates will definitely allow the adoption of Social media and it will actually improve these skills.” [8MI]*

All sub-factors of the pedagogy factor received high ratings, attesting to the respondents’ view that theories of teaching, learning strategies and activities need to align with a pedagogical paradigm based on the formal inclusion of social networking tools:

Pedagogy	Theory of Teaching	90%
	Learning Strategies	83%
	Learning Activities	98%

## 6.10 Social and Institutional Culture

Most of the participants (87.5%) agreed that the social, cultural and institutional environment plays a pivotal role in the implementation of social networking in institutions of higher learning in Saudi Arabia. In particular, respondents mentioned the strong Islamic character of Saudi Arabia and how this might influence the usage and uptake of new technologies in relation to behavioural patterns and mindsets:

*“Absolutely, the cultural factor is very important, especially for the complicated culture of the Saudi society and its members. The society is saturated in its culture and has some kind of bias to it, and members of this society will fight you if you ever challenged their culture” [IFF]*

*“Because the T&L practices are considered effective if it is adhered to the political and economic set up of the instructional context, especially within the collectivist culture of SA which values family or group-orientation. The decision of technology adoption for members from collectivist cultures is governed by the norms of society and rules that usually promote unity.” [6FF]*

*“Emails, learning management systems (Blackboards), limited use of social media platforms. Do these activities allow for Social networking sites to be incorporated? To some extent. If yes why? If no why not? · Lack of organizational support · As an individual initiative, key issues like the time, efforts, and spending allocated to create the best learning environments possible may discourage academics from*

*integrating SNS into the L&T practices. · Resistance to technology and its usage. · Low ICT skills and lack of training for academics.” [6FF]*

*“There somewhat important as in Saudi Arabia we have strong religious beliefs as well as cultural and tradition beliefs. The life style in Saudi Arabia is different compared to the rest of the world because of its Islamic values and one of the biggest Islamic countries in the world. Introducing social media tools to the higher education in Saudi Arabia might be looked as more of a leisure tool rather than learning tool.” [2MU]*

*“This is very important. Saudi Arabia has a very strict society so we need to be careful how we introduce new things” [5ME]*

*“When adopting social network in education, the perspective of such adoption by the culture should be considered in order for the individuals in this culture to feel comfortable and not worried about harming their values. If social media breaks any social norms this might cause a resistance in adopting it. Hence it’s important to be considered.” [7MT]*

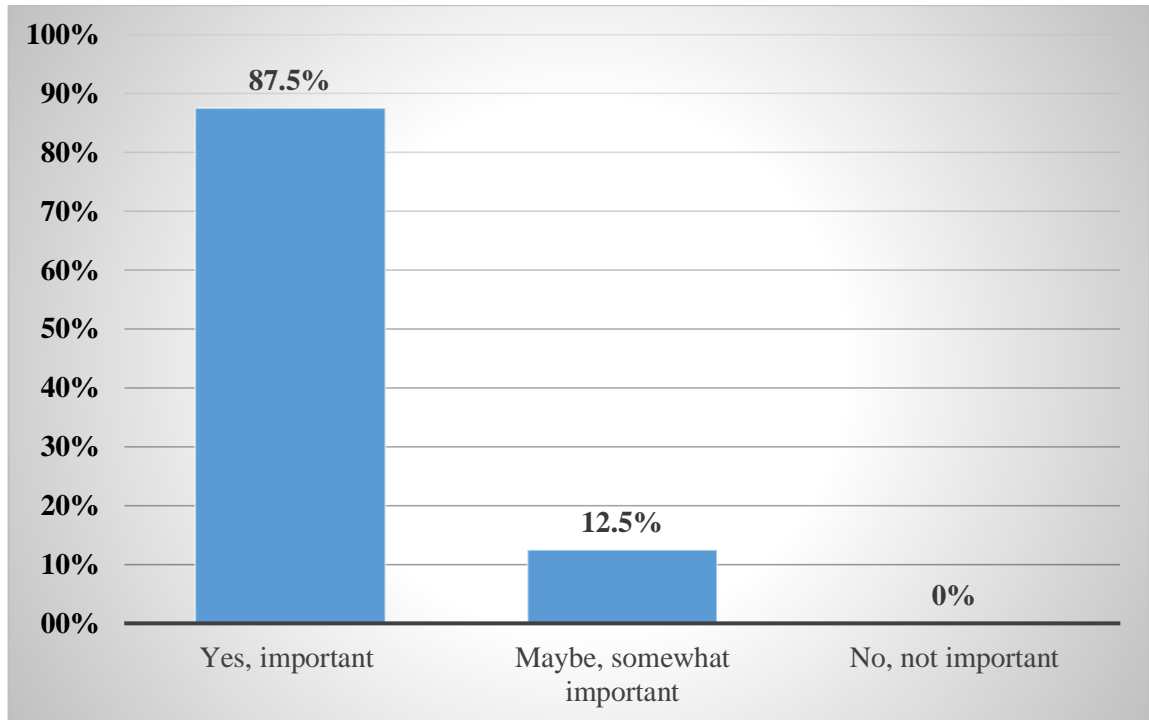


Figure 58: Participants agreement on importance of the Social & Institutional Culture factor for the adaptation process

There was concern expressed that social networking tools might undermine cultural values and lead to the sharing of inappropriate information which might be considered un-Islamic:

*“As a religious country and culture if it goes with the religious teaching and rules it will be easier to incorporate. Incorporating social networking tools informally which is happening now in Saudi Arabia particularly between students, might result in sharing information or content that are against the ethical and traditional roles in Saudi. So it has to be restricted and formally introduced.” [8MI]*

A further issue raised was the perceived need to design technology that aligns with the cultural needs of the country:

*“Also, there is no technology that suits our need as a Saudi listener, and even if we think about a*

*technological design that suits our culture, this will be very difficult because of the lack of programmers and designers in this field in addition to the fact that English language is considered as a major obstacle in this regard.” [1FF]*

*“No because in some areas Saudi Arabia they still have their conservative values which make them reluctant to adopted the new learning theories such as collaborative learning theory which always the learning style via social media.” [7MT]*

Another obstacle identified was the role of government censorship in the control of the Internet in Saudi Arabia:

*“It is important to design technology integration into HE systems in SA with consideration to the social and cultural context surrounding its implementation. Simply because there are some cultural or governmental restrictions imposed during the use of ICT.” [6FF]*

Only one interviewee spoke about the changes sweeping the nation which might make the introduction of social networking less of a barrier:

*“However, I think things are starting to change in our country. Gender separation and opportunities for women are not like the way they were a decade ago. The new vision for Saudi Arabia is bringing modernisation in many areas. Religion is important still in the way that it may be a challenge for people to accept new ideas that come to them*

*via technology because of their way of thinking.”*

**[5ME]**

Only one respondent dealt with institutional culture, suggesting that it was important, but without giving specific details regarding how this factor might affect the implementation of social networking inside universities:

*“I think you should perform a survey to know what is the culture inside the universities’ community to ensure successful implementation.” [3FP]*

The highest ranked factors concerned ethics and user acceptance of technology whilst the need to consult all stakeholders followed. The religious and socio-cultural environment and its impact on the adoption of new technologies were ranked at 78%.

Social & Institutional Culture	All stakeholders should be consulted about the implementation and usage of social networking in universities.	85%
	The system needs to be suited to Saudi Arabia’s religious environment.	78%
	Ethical concerns	98%
	University staff have high user acceptance of technology.	93%
	The system needs to be suited to Saudi Arabian culture and social roles.	78%

## 6.11 National context

Seventy-five percent of respondents opined that the political and economic context greatly affects the implementation of social networking. Some interviewees commented on the need for government support and encouragement as well as making available a budget for new technology:

*“Any education budget cuts can severely affect implementation, as the provision of tools relies heavily on proper government funding.” [4MS]*

*“To establish a sufficient infrastructure, government support and a generous budget is important. The government does give money to the university sector and does encourage use of technologies but it is up to the universities and their management as to how this is done. One thing to be aware of though is that the government needs to allow for openness of information if social networking is to be used. Open access to information and ideas is the essence of social media.” [5ME]*

*“You should take into consideration some issues related to security and political practices in the country.” [3FP]*



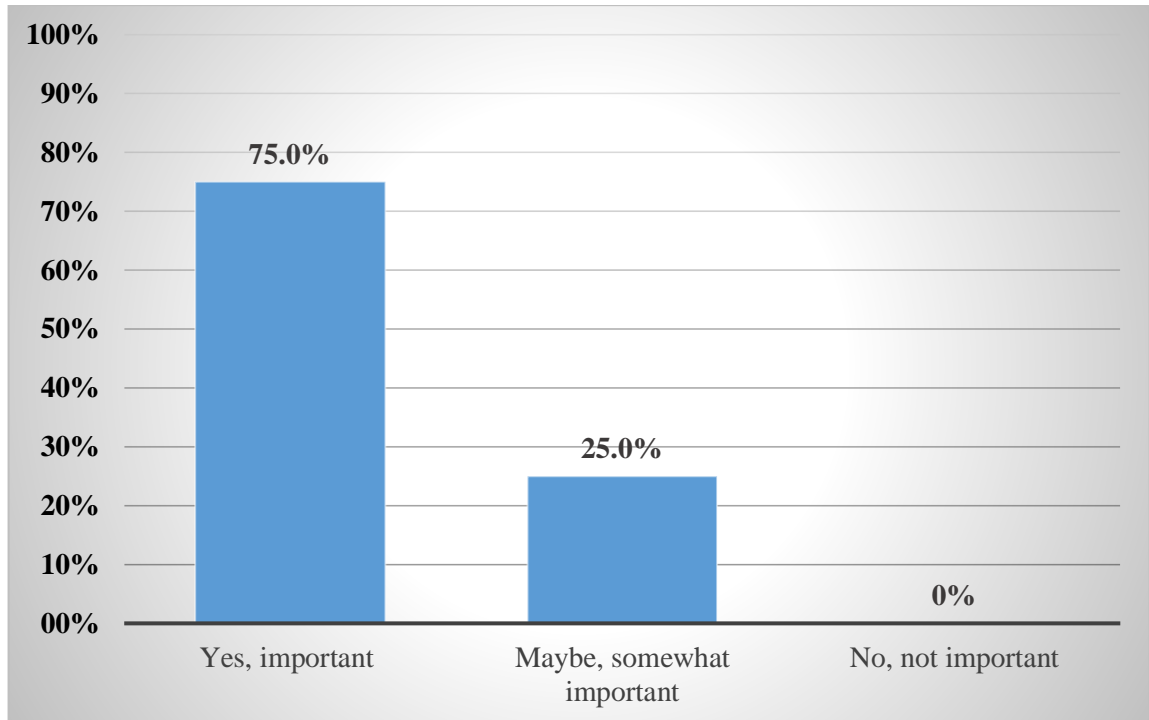


Figure 59: Participants agreement on importance of the National Context factor for the adaptation process

One participant explicitly linked the use of social networking technology with the Saudi Vision 2030 blueprint which has been adopted and promoted by the government:

*“Because Saudi Arabia established a new vision for 2030 which seeks to use new technologies for the education sector. Social networking tools is one of the new and advanced tools that are used informally in the education sector. I expect that social media tools will be implemented officially in education by Saudi Arabian universities in the near future.” [2MU]*

Two respondents acknowledged the role of governmental and economic support for emergent technologies, but suggested that the government itself does not make decisions about which technologies to incorporate into higher education, leaving these decisions to university management:

*“It is somewhat important because the government does not control the internal decisions within universities but it would be good if the Saudi government policies encourage the use of the social networking tools.” [7MT]*

*“National context and contextualizing any technology is vital for its success. However, I don’t think our government enforce which technology should be adopted. This matter in Saudi Arabia is always managed by the top management in the organization.” [8MI]*

However, another respondent disagreed with these views, commenting that the government does have a say in which technologies citizens use:

*“Yes of course, the political and economic factors are considered as interdependent factors. For example, in Abshir system, as an example beyond education, the user was forced to use it by the government. Here we can see that the role of the government is clearly shown in applying technology, and the same thing applies to education.” [IFF]*

The highest ranked sub-factor was the importance of adequate budget and funding by the institutions themselves, whilst 83% was accorded to both governmental budgetary allocation and government policy supportive of adopting new technologies. The formal inclusion of social networking into educational planning and government support for social networking at universities attracted a score of 75%.

National context	Government support of social networking integration at universities	75%
	The inclusion of social networking site into educational plans by the government	75%
	Government policies should encourage the use of social networking site in the higher education system	83%
	Funding by the government and a sufficient budget are vital for social networking integration	83%
	Institutional funding and budget sufficiency are important for social networking integration	88%

## 6.12 Framework Evaluation

Seventy-five percent of the respondents found the social networking framework to be effective containing the necessary factors to ensure an effective implementation of social networking in higher education:

*“It seems solid and well-thought-out.” [4MS]*

*“The framework covers all the aspects that need to be considered in the Saudi environment if the integration of social networking sites in higher education is to be successful. If these things are not present, the implementation will be a failure and very risky.” [5ME]*

*“It is a well-considered set of factors I cannot think of any factors.” [8MI]*

*“The SNFSA framework is effective as a starting point in adopting social networking tools in higher education in Saudi Arabia” [7MT]*

*“The framework above is a very useful guide to adopt social media in universities in Saudi Arabia. However, the current cultural roles is not very encouraging to use social media in education.”*  
[2MU]

*“Critical for consideration by policy makers or instructors who are planning to improve the T&L practices by encouraging the use of SNS in HE”*  
[6FF]

*“Inclusive in terms of combining all the necessary components for effective integration of SNS”*  
[6FF]

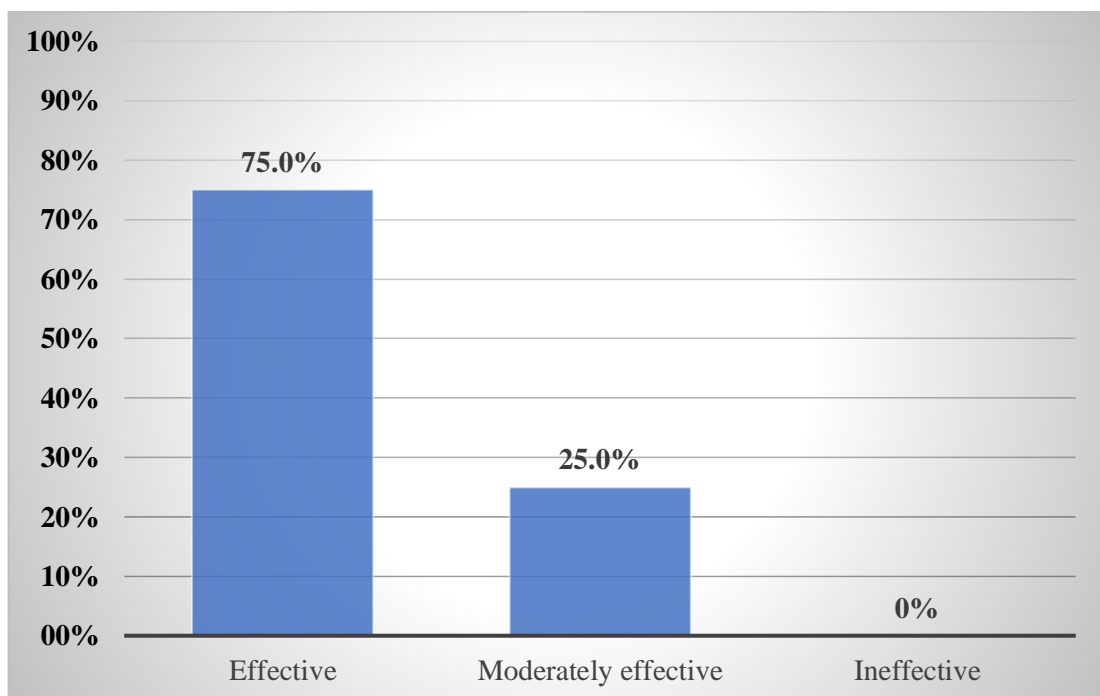


Figure 60: Participants agreement on evaluation of SNFSA framework

Of the interviewees, 25% considered the framework to be moderately effective, mentioning the need to focus more on the user, on learning factors and on hierarchies of stakeholders. Another respondent mentioned the need to consider a code of conduct for usage of social networking tools in tertiary learning processes:

*“hierarchy for different type of employees including leaders, instructors, management, students” [3FP]*

*“it would be a good idea if the code of conduct is included under the implementation because code of conduct is different from other ethical concern related to cultural perspective.” [7MT]*

*“the user who represents the basic element in the framework, of course all types of users” [1FF]*

## 6.13 Gender

In terms of whether social networking might assist in bridging the gender divide in the country, only 25% were confident that it could do so:

*“I think it will be one of the best solution to overcome the segregation that we are having currently the Kingdome of Saudi Arabia and it will increase the communication of students from different gender.” [8MI]*

*“This can help the genders to communicate without violating rules of engagement of Saudi society. However, it may be that social networking sites will just perpetuate gender division e.g. women only usages which means there might be segregation even through the social media.” [5ME]*

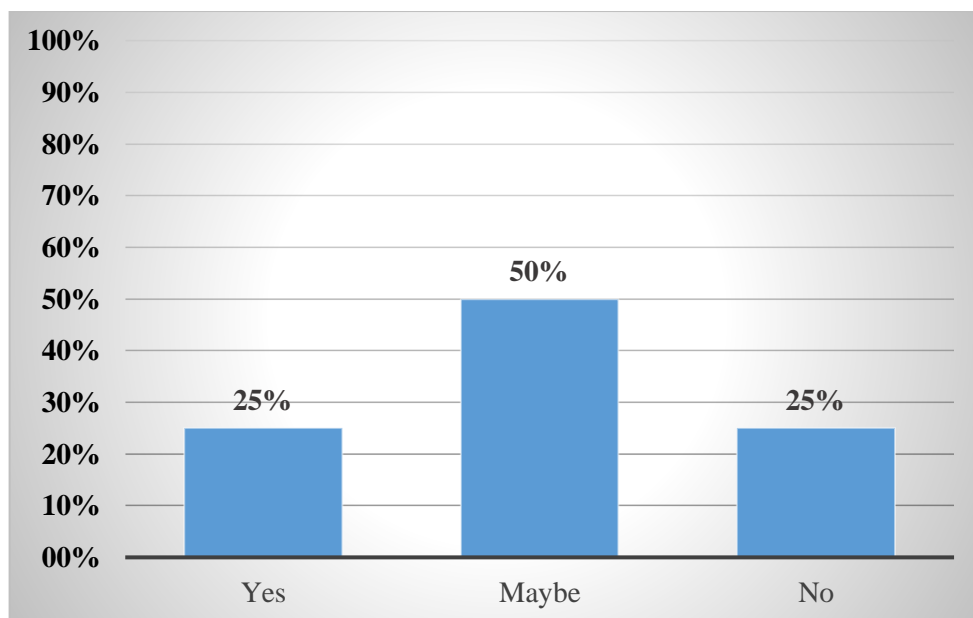


Figure 61: Participants agreement on importance of the Gender segregation issue for the adaptation process

The majority of respondents were equivocal about whether social networking would positively benefit the gender segregation of students and teachers:

*“I think gender roles in the Kingdom is going through a shakeup. Social networking sites helped in that it provided venues for discussions and debate. The integration of SNS into higher education could intensify such movement but perhaps it is quite difficult to predict the outcome.”*  
[4MS]

*“Will social networking tools challenge current socio-cultural and gender roles? Only if it well-designed and effectively implemented, will social networking tools be advantageous to Saudi Arabian higher education? Probably yes with a proper application approach.”* [6FF]

*“It’s partially true that implementing social networking tools can help overcome segregation in Saudi Arabia yet we have to keep in mind that gender segregation not seen as a problem in Saudi Arabia in all forms. However, in terms and adopting social networking tools for educational purposes, the collaborating between both genders can help the learning process for the lecturers and the students to reach better outcomes.”* [7MT]

*“At the beginning, the idea was that using social media in education is dangerous to the girl even if she uses it for educational purposes. For example, when I was a university student, some of my friends found it difficult to send e-mail messages to the assignment group because they were monitored*

*and prevented from using the social media by their parents, and those who could use them did not tell the others. When I became an academic instructor, I used the social media and discussed my students at them. At the beginning, I found that most of the students were against the idea and I did not know why. Thus, I started digging further in this issue and discussing this issue with them, where I found that since the human nature generally refuses to change they rejected this idea because it was a new thing to them. However, at the end of the course, I found that most of them accepted and liked the idea” [IFF]*

*“Compared to the time when I was an undergraduate student, where it was very difficult to communicate with the professor either by email or website. Moreover, you know how the method of teaching us as Saudi women was. It used to be conducted through the screen because the professor is male. Thus, we found it difficult to ask about our grades either in the test or in the projects or even ask about information concerning the course. It is difficult, in the culture of our society, to communicate with a strange man who is unrelated to us even if it is for the sake of knowledge. When I was appointed as an academic instructor at the same university, I tried to facilitate the process of communication with the female students using social networks because it was an experience I underwent and I wanted to facilitate it for my students. At that time, there was no Blackboard or official email to communicate*



*with students, so I tried to find the alternative, which was “Acadox” website, and I used an official email to communicate with them about anything related to the course or education.”*

**[1FF]**

For a further 25%, no benefit was seen in social networking in relation to the gender divide in Saudi Arabia:

*“No, I do not think so” [3FP]*

*“It will challenge the cultural roles and I don’t think it will benefit the higher education as in my opinion the disadvantages of social media tool in education outweigh the advantages.” [2MU]*

*“Unfortunately, no no no Because until now the majority uses nicknames not their real names, and this applies to both girls and boys, therefore, how can I discuss students or people whom I do not know their identities?” [1FF]*

## 6.14 Technical Support

100% of respondents recognised the paramount importance of technical support, suggesting that it should be retained as a factor:

*“Technical support is very important” [1FF]*

*“Technical support is an essential for any adoption of new technologies and the universities should be collaborated to ensure the successful of such platform.” [3FP]*

*“It is highly important to receive continuous technical support (resources and assistance)” [6FF]*

*“Without technical support any new technology will be difficult to adopt” [8MI]*

*“The main concern here in my opinion is hardware and internet connectivity.” [4MS]*

*“Faculty and students must be well acquainted with SNS. This could be done through specially designed mini-courses.” [4MS]*

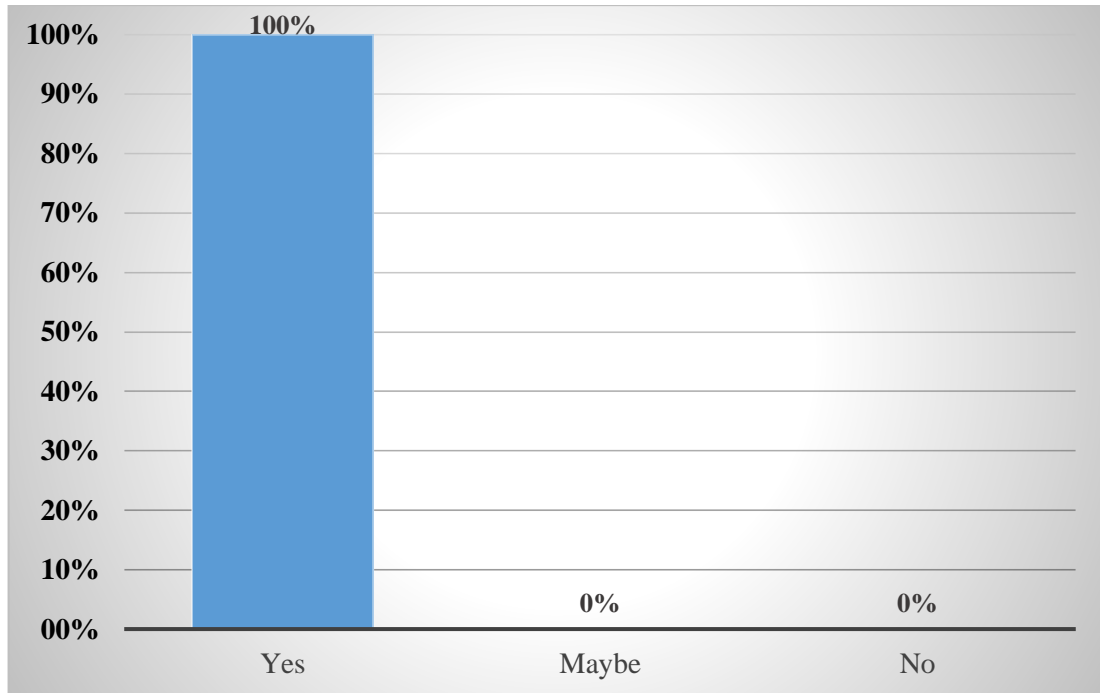


Figure 62: Participants agreement on importance of the Technical Support for the adaptation process

However, the respondents felt that the technical support available at institutions of higher learning in Saudi Arabia was inadequate or lacking:

*“As I mentioned before, with the example of the hacking incident, the whole learning process was effected due to the lack of the technical support that could provide a highly secured virtual environment.” [IFF]*

*“To use these technologies in education there must be sufficient technical support. The lack of technical support in Saudi higher education is an existing issue and needs to be developed by providing training programs so can users solve the issues that they face.” [2MU]*

*“There is some support but not enough and not up to standard. Universities need to improve the current dedicated technical support departments*

*and helpdesks which often we cannot get or very low level support in the universities.” [5ME]*

*“Current level of technical support can be described as low.” [6FF]*

*“For example, at one stage we did suffer from the lack of IT support for the computer labs and this resulted in many problems as some of the computer labs were completely unusable due to technical problems.” [8MI]*

## **6.15 User Motivation and Use of Incentives**

Half of the participants agreed that user motivation and incentivisation was important to the successful implementation of social networking in higher education in Saudi Arabia:

*“I think the motivation is an important factor and you need to reach your stakeholder and prepare them to the integration of such platform maybe through advertisement, workshops, and seminars.” [3FP]*

*“I think we need to encourage students and lecturers to use the system. If they are not motivated by themselves because they are scared of new technologies or unfamiliar with them, we can, for example, allocate some marks for students using social media in their studies, like participating in a discussion forum. Also feedback and improvement” [5ME]*

*“Users’ motivational needs for adopting SN tools is a critical factor which drives them to utilise these*

*platforms for information-seeking, peer-interaction, personality-identification, networking, content-creation and sharing, and entertaining.”*  
[6FF]

*“Yes, I believe so, as I had this problem with my students. They weren’t participating in blackboard much until I have motivated them by adding marks to their blackboard participation. After that many of my student started participating by them self and they were more motivated. I think this will be the same case if we introduce social media tool and it’s important to consider.”* [8MI]

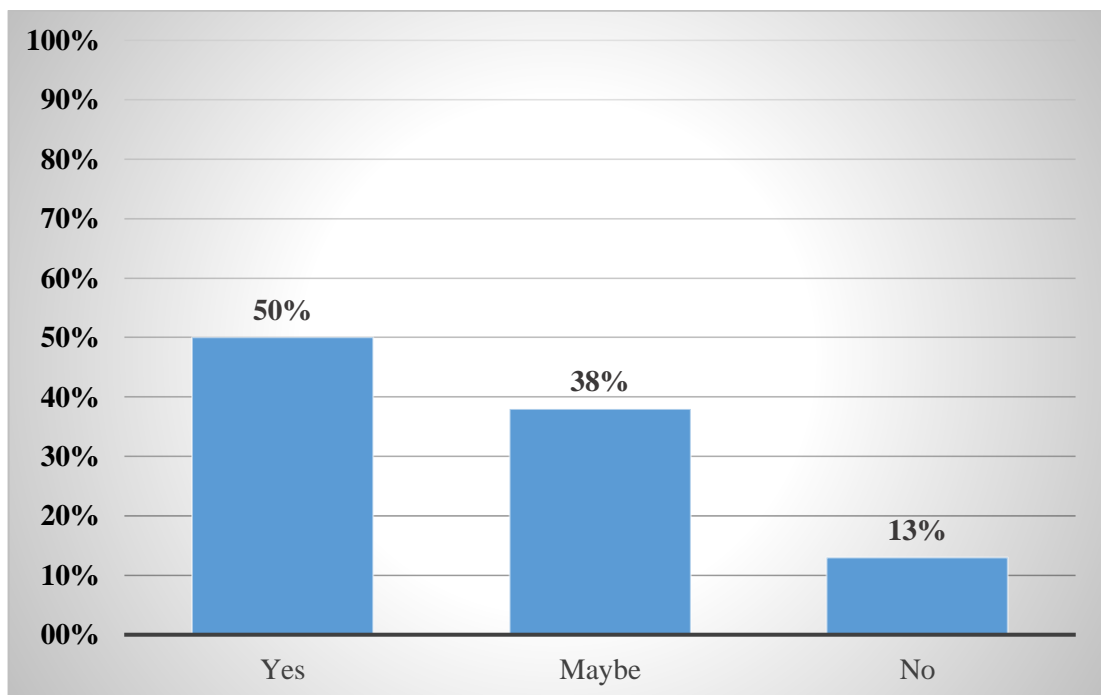


Figure 63: Participants agreement on importance of Motivation and Incentives for the adaptation process

Thirty-eight percent of interviewees thought that this factor might be of importance but were not fully convinced as indicated by the comments below:

*“It is possible but the user may be forced to use the social media tools in order to pass.” [1FF]*

*“I think many faculty and students alike are ready and motivated.” [4MS]*

*“It could be a good idea to incentivize users at the preliminary adoption of social networking tools so more lecturers and students can use these tools which help to identify the benefits and the difficulties of the adoption.” [7MT]*

Only one respondent categorically stated that motivation and incentivisation were not important:

*“This is not a main reason to the success of incorporating social media technology. As if there are benefits of social media tool then it should be incorporated regardless of motivating or giving incentives to use it because the benefit itself should be the motive to use these technologies.” [2MU]*

## 6.16 Findings

This phase yielded a range of responses, all of which confirmed the importance of the factors making up the framework. Firstly, in regard to the implementation factor, this was rated at 75% with subfactors as follows: ease of use within the range of 90%, followed by the need for implementation guidelines and visual representations within the 80% range and steps in implementation at 70%. In terms of the factor of functionality, collaboration and content retrieval and storage were seen as the predominant sub-factors (80%) with information management coming in at 70%. Only 60% thought that having a wide range of social networking tools to draw on was important, suggesting that this was not a crucial sub-factor. Usability and user experience resulted in the predominance of the following sub-factors: student high

acceptance (90%) and navigability and enjoyment of use at 80%. Once again, the sub-factor concerning single versus multiple social media on which to draw received a relatively low score of 70%. In terms of the national context surrounding social networking implementation, government policies, government funding and institutional buy-in through funding sufficiency emerged as the top-rated sub-factors (80%) with 70% of the respondents rating the need for government support and incorporation of social networking into government education plans. Pedagogy was seen as a vitally important factor with 90% of interviewees supporting the need for learning activities and theories of teaching that align with social networking practices, with 80% opting for learning strategies that engage social networking tools. Technical infrastructure and support were also seen as a crucial factor with high speed Internet connectivity and sufficient hardware rating the highest followed by sufficient software, institutional budget dedicated to technical resourcing as well as institutional flexibility and openness to incorporating social networking. In regard to the factor related to social and institutional culture, ethical concerns and university staff acceptance of social networking received the highest scores (90% range) with the need to consult all stakeholders and to adapt social networking to the socio-cultural milieu of Saudi Arabia attracting 80% of the respondents. The issue of religion received a relatively lower score of 70%.

Certain factors were included in this phase for further examination although the previous phase suggested that they be removed from analysis. These factors were subsumed under the following main factor headings: gender was included as part of National Context; technical support was seen as belonging to Technological Infrastructure and motivation was assigned to Useability and User Experience. Of these factors, technical support was deemed important by 90% of respondents with motivation/incentives to use social networking at 70%. Gender was the only factor rated at 50%, the lowest of all the factors, suggesting that it was not regarded as a factor of extreme importance influencing the adoption of social networking in Saudi Arabia. As can be seen from the above discussion, the participants confirmed the importance of all of the factors. Participants were given the choice of ranking in order to rate their confirmation. The rankings were gathered and are presented in Figure 64 below:

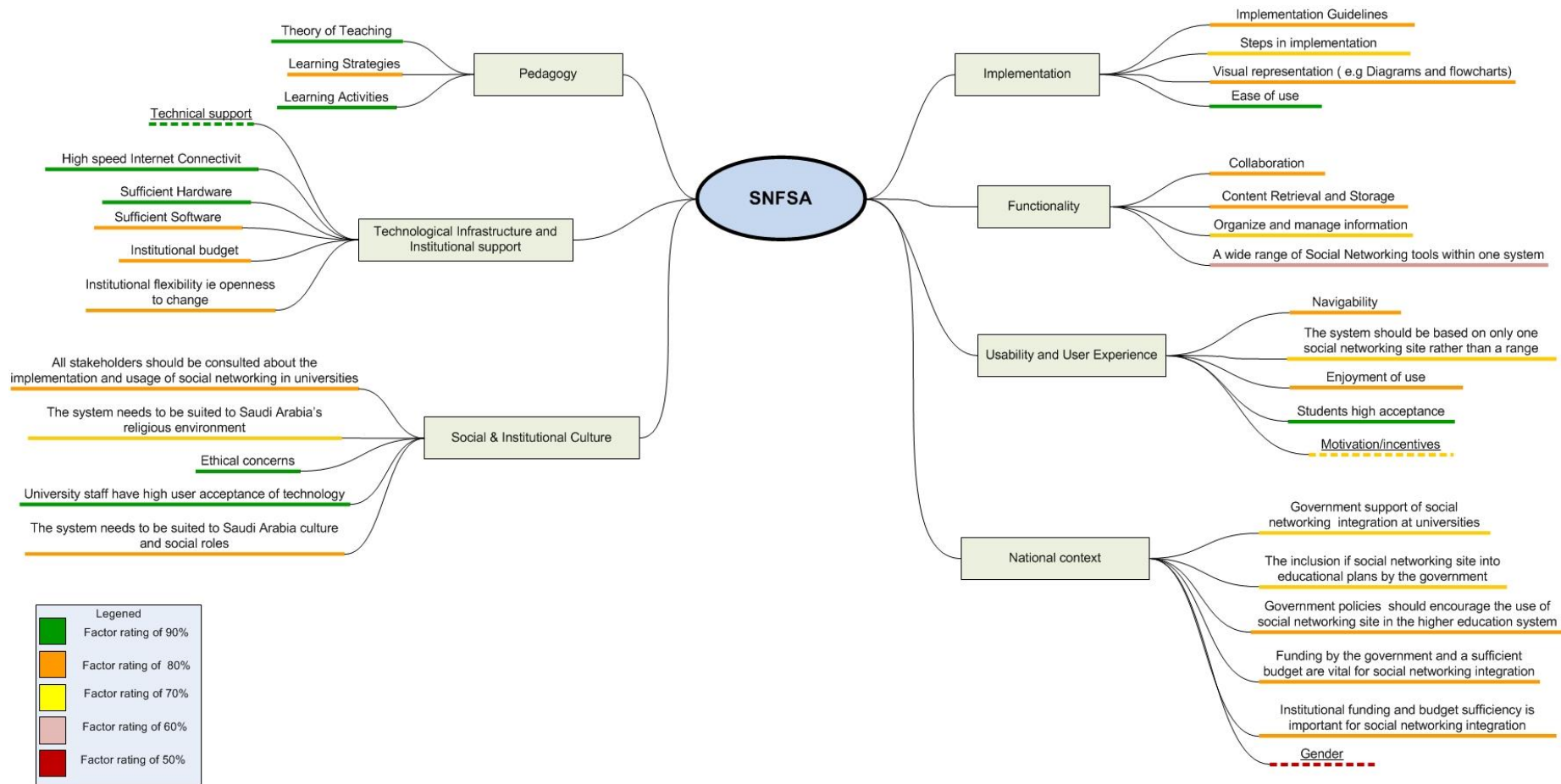


Figure 64: Conceptual map of overall factors from the interview phase (prepared by author)



## **6.17 Conclusion**

This chapter represented the final phase of data collection for this research whereby the overall findings were evaluated by participants. These participants were competent users of social networking and had well-developed understandings of the concepts and a wealth of solid teaching experience. The data was collected from eight participants who were end users of the framework, namely, university academic staff, and the data yielded was analysed via NVivo. Thematic coding was conducted on the transcripts, resulting in producing an evaluation of the framework and a rating of the main and sub-factors. Participants were given the opportunity to express their perspectives on all factors and most comments suggested support for the factors that comprise the framework. Respondents commented on the current status of some of the factors which are currently under-developed in Saudi Arabia, in particular, issues relating to technological infrastructure and the use of contemporary pedagogy.

## **Chapter 7**

# **Discussion and Conclusion**

## **7.1. Introduction**

The previous chapter presented the final phase of the research and the consolidation of the factors in the framework which were upheld as valid by the interview participants. The data yielded from the interviews was encoded using NVivo and led to the production of a final framework for the introduction of social networking into universities in Saudi Arabia.

This chapter presents the findings of all three phases of the research which led to the production of the final framework of factors to consider for implementation of social networking in universities in Saudi Arabia. As discussed earlier in Chapter 3, important factors for a successful implementation were identified and derived from a comprehensive literature review drawing on global literature regarding the role that social networking can play as a pedagogical tool in higher education. These factors were drawn together to produce a preliminary framework of factors which was then evaluated through a mixed methodology research approach which utilised qualitative and quantitative data. The findings from the data collection confirmed the importance of particular factors and yielded several additional sub-factors which were subsequently incorporated into the framework.

This chapter will present the final set of factors considered critical for the implementation of social networking in Saudi Arabian higher education. Moreover, several recommendations are offered on ways to successfully incorporate social networking into higher education whilst mitigating against potential failure and possible obstacles. These recommendations are made to address the needs of potential users of the framework which includes all university stakeholders. The chapter also discusses the limitations of the study as well as areas for future research in this field.

## 7.2. SNFSA Framework Discussion and Recommendations

### 7.2.1 Implementation

Whilst global literature in the main represents the efforts and endeavours of individual academic staff in trialling social networking tools within their classrooms and courses, there is a dearth of wider, structured and planned implementations which would be of benefit to all stakeholders within the university. This view draws on the work of ([Baxter et al. 2011](#)) Baxter et al. who postulate that the key to the success of using social networking as a pedagogical affordance is to approach its implementation in a structured manner that includes step-by-step guidelines for stakeholders. In this way, social networking might become part of the university-wide landscape of teaching and learning rather than a matter of individualised initiative. This might include visual representations such as flowcharts and diagrams to guide novice users in the incorporation process. The [Baxter et al. \(2011\)](#) model for implementation is divided into three clear-cut phases: planning, support and development. The planning stage addresses the institutional culture into which the tools will be introduced, including its mission, vision, values and limitations so as to determine which platforms might best serve the interests of teaching and learning. The next phase consists of rationalising the choice of social media tools for immediate stakeholders such as students and staff, also incorporating user-education and training through the use of clearly articulated guidelines. Finally, the development phase involves piloting, trialling and evaluating the implemented system. Thus, [Baxter et al. \(2011\)](#) provide a methodical set of steps that will facilitate a smooth implementation of new technologies into an educational setting. The approach taken by Baxter et al. is also evident in an article by [Aymerich-Franch and Fedele \(2014\)](#) which advocates that the implementation of social media in education must be accompanied by guidelines for usage so as to mitigate against risks, such as improper use of social networking tools which have been designed for purposes other than education. Another example of a structured, planned and step-by-step implementation is provided by [Murphy and Keck \(2014\)](#) who suggest that the cultural change wrought by the introduction of new technologies must be negotiated

with care; in this case, the introduction of social networking tools into a university environment was underwritten by Kotter's eight staged model which is designed to bring about cultural and organisational change as seamlessly as possible through a staged introduction with clearly defined steps. A related aspect is ease of use of platforms which will encourage user willingness to accept social networking tools, thereby encouraging a successful implementation ([Salminen 2014](#)).

Derived from the literature review, the issue of a planned and methodical implementation of social networking accompanied by guidelines and a step-by-step procedure was incorporated into the initial model and its importance was confirmed by the data collection process, including the focus groups, surveys and interviews with key stakeholders.

Moving on from this, it is recommended that the Saudi Arabian higher education sector develop a comprehensive set of steps and guidelines to aid its transition to using social networking tools in its universities. It is suggested that any move to introduce social networking tools designed for purposes other than education should include rigorous pre-implementation analysis, the development of policies and procedures for usage, and detailed guidelines for users, which could also incorporate visual representations. Another crucial aspect of successful implementation is the ease of use of these tools in order to facilitate acceptance and a smooth transition.

### 7.2.2 Functionality

Although still in its infancy, global best practice in social networking implementation in universities is looking beyond individual platforms in the classroom, such as Facebook or Twitter, in order to create systematic design for social media which incorporates a number of tools and a plethora of functionalities ([Pektas 2012](#)). For example, [Blees and Rittberger \(2009\)](#) propose a social networking "system" which co-opts various tools to cater for different purposes, such as collaborative learning through wikis, resource management through bookmarking and tagging, and student reflection and publication through blogging technology. Another researcher, [Consoli \(2013\)](#), aligns with this approach, dividing his system into Student Space, Teacher Space and Administrative Space, each with its own relevant social media tools. Crucial to this

approach is that implementation of social networking in universities is best served by incorporating an array of existing technologies and applications rather than custom-building a system. This also includes enriching and improving knowledge management systems such as Blackboard by inserting social networking tools into them ([Mott 2010](#); [Muhammad and Musbah 2013](#)).

These approaches support the results of the data collection phases which affirm the importance of including an appropriate range of functionalities into any social networking implementation project. In particular, respondents pointed to collaboration, content retrieval and storage, and the management and organisation of information as vital functions that universities could harness via social networking. Respondents also acknowledged the importance of incorporating a range of Web 2.0 tools into teaching and learning rather than relying on one tool only, as is found in research which examines the efficacy of just one type of platform (for example, the multiple studies on Facebook as a pedagogical aid).

Drawing from this, it is highly recommended that the implementation of social networking into universities should not comprise customised university learner management systems only, but should go beyond the capacities of systems such as Blackboard or Moodle to embrace the plethora of existing, open-source tools which would serve the purpose of opening Saudi Arabia to “the world” and giving users access to global materials. What is required is the creation of systems models which incorporate a number of tools with various functionalities. Equally so, this will include the need to educate end users about the different types of Web 2.0 tools that exist and the function of each so that they are able to use a blended system with ease and confidence. It may also entail broadening the knowledge of Saudi students and staff regarding the numerous tools available, including new and emerging tools, which may have benefits for educational purposes.

### **7.2.3 Usability and User Experience**

Aside from the various functionalities offered by social networking, any implementation must also consider usability and user experience factors, or risk that users will reject the system. [Davis \(1989\)](#), drawing from the work of [Venkatesh](#),

[Morris, Davis, Davis, et al. \(2003\)](#), comments that perceived ease of use of a system will determine the degree of uptake by end users. Users are influenced by their emotional experience in using a system and their enjoyment of this experience. In the model proposed by [Fakeh et al. \(2014\)](#), user-related factors are divided into five areas: ease of use, navigation, interactivity, useful links and useful tools. The present study has considered interactivity and tools under the factor of functionality; however, the importance of ease of use and navigability cannot be underestimated. According to [Fakeh et al. \(2014\)](#), ease of use refers to the way in which features of a system enable tasks to be carried out faster and more smoothly, aided by user-friendly navigability whereby users find their way easily around a system. In addition, user experience might include user motivation to use a system which could be encouraged by giving incentives to end users, such as additional marks for students who engage with the required technologies. ([Foroughi 2011](#))

From the results of the data collection, useability and user experience were considered vital. This factor suggests that any proposed implementation model must be user-friendly, easy to navigate, offer convenience and improved performance, and deliver an enjoyable experience to end users. As Saudi Arabian students have demonstrated high levels of enthusiasm and orientation towards using social networking in education, it is clear that there is an opportunity for a well-thought-out and easy-to-use system to be incorporated into universities.

It is recommended that university management and administration leverage students' high level of acceptance of social networking to create a system that captures ease of use, clear navigability and delivery of an enjoyable experience. A complex and clumsy system design would risk successful implementation so this is an essential factor to be considered in the context of Saudi Arabia where enthusiasm does not always translate into user knowledge and expertise.

#### **7.2.4 Technological Infrastructure and Institutional support**

[Munguatosha, Muyinda, and Lubega \(2011\)](#) identify a number of key factors which contribute to the successful implementation of social networking in higher education.

According to this model, a sufficient technological infrastructure (comprising hardware and software), high speed Internet connectivity, institutional openness and flexibility in welcoming new technologies, and the availability of a sufficient budget for IT projects, are crucial to the success of any implementation, as is the provision of adequate technical support to end users. [Munguatosha, Muyinda, and Lubega \(2011\)](#) explore these themes in the context of a developing country, suggesting that lack of these factors will doom to failure any attempt to introduce social networking into universities.

The factors identified by [Munguatosha, Muyinda, and Lubega \(2011\)](#) were incorporated into the social networking framework designed for Saudi Arabia and were confirmed as being of primary importance. Saudi Arabia occupies an anomalous and somewhat contradictory position in relation to these issues: whilst it has a generous budget allocated to ICT projects derived from the Ministry for Higher Education and seeking support from institutions, evidence suggests that there is still a lack of computers and software for use at universities and that technological infrastructure and technical support lag behind world standards. Whilst the country has invested in high speed Internet, there is also a lack of service outside the larger cities. Finally, user training is not on the scale of what is required to create adequate knowledge and expertise.

In order to align with Vision 2030, the aim of which is to ensure that Saudi Arabia will in future meet the global technological standards of technology, it is recommended that universities allocate sufficient financial resources to upgrading technological features such as hardware, software and, in rural areas, reliable Internet connectivity. There is also an urgent need for rigorous user training and the provision of key technical support as required by users. It is also crucial that university management and administration consult with users, such as academic staff, about the technologies that need to be purchased and invested in so that their benefits are maximised.

### **7.2.5 Pedagogy**

As described in section 3.9.1, numerous authors have commented on the alignment between student-centred pedagogies and Web 2.0 tools ([Muhammad and Musbah](#)



[2013](#)). Research indicates that the usage of social networking as a pedagogical tool offers several benefits, allowing students to communicate with peers and lecturers, share ideas and resources, build knowledge-based communities, and reflect critically on learning. Such studies draw on contemporary learning theories such as constructivism, Community of Practice and Situated Learning which postulate that learning is a social process constructed through collaborative practices ([Hricko 2011](#); [Dabbagh and Kitsantas 2012](#)). While many of these research articles concern localised and individual efforts by university academic staff wishing to trial social networking in their classrooms, some authors have identified learning theories, strategies, activities and tasks which might be put to practical use ([Boghian 2013](#); [Laru, Näykki and Järvelä 2012](#); [Gunawardena et al. 2009](#))

The need to produce well-considered pedagogical plans incorporating theory and practice was included in the framework for implementing social networking in higher education in Saudi Arabia. This factor was validated by the results of the data collection phase as being of critical importance.

If Saudi Arabia is to take its place as a modern nation, it is recommended that universities equip students with 21<sup>st</sup> century competencies such as critical thinking, problem solving and application of ideas and theories to practical contexts. This can be achieved by opening up universities to universal knowledge sources contained in social media tools and in garnering their collaborative capacities to the benefit of teamwork and collegiality. Central to this will be educating university academic staff in contemporary pedagogical theories and practices so that they are able to understand the rationale for using social networking within their courses and are able to achieve best practice in providing students with suitable activities and tasks based on social networking instruments. Students would also need to be trained in critical reading techniques so that they are able to make sound judgements on the veracity and usefulness of what they encounter via social networking.

### **7.2.6 Social & Institutional Culture**

As described previously in section 3.9.3, organisational culture can be understood as a sense of identity which enables the continuity of business operations ([Murphy and](#)

[Keck 2014](#)). In this sense, introducing social media could constitute a threat to organisational culture in that it disrupts conventional practices, opens up an organisation to international scrutiny and raises privacy and ethical concerns ([Murphy and Keck 2014](#)). Therefore, a successful implementation of social networking requires careful analysis of the organisational culture that prevails in Saudi Arabian universities and the resulting concerns that may arise. This may include rigorous consultation with all stakeholders to create institutional buy-in from users, including technology acceptance by staff members ([Baxter et al. 2011](#)). Similarly, dealing with ethical concerns is essential due to the risk of unprofessional behaviour, inappropriate sharing and confidentiality breaches which may emerge from a social media environment ([Judd and Johnston 2012](#)). Equally so, it is vital to understand the prevailing culture that surrounds institutions which shapes the values and practices of educational providers ([Andersson and Grönlund 2009](#)). In the case of Saudi Arabia, this means considering the role of religion as it dictates socio-cultural roles, traditions and perceptions, implying that any social networking system implemented into Saudi Arabia must be adapted to the unique needs of the nation and its socio-cultural norms.

The careful consideration of the institutional and socio-cultural context into which social networking will be embedded was confirmed as an important factor underpinning a successful implementation. In Saudi Arabia, this means that issues such as religion, socio-cultural roles and norms and prevailing mindsets must be handled with sensitivity and tact to ensure user acceptance and uptake of the technology.

While ethical concerns around the use of social networking technologies is a world-wide concern, it was hypothesised and confirmed by data collection research that Saudi Arabia is particularly sensitive to this variable due to its religious climate and how this relates to identity management and the extreme need for privacy and confidentiality. There is also the concern that users might be exposed to immoral content via social networking which might be in conflict with prevailing religious mores. To redress this, it is recommended that any adoption of social networking in universities should develop a Code of Ethics which take into account the strictures of Saudi Arabian society and culture. This document should be purpose-written for the needs of Saudi Arabian users and consider the special sensitivities that apply to this context. The Code

of Ethics would also need to be written against the backdrop of governmental control of information flow and that totally free access to social networking tools might not always be possible.

### 7.2.7 National context

Research by [Munguatosha, Muyinda, and Lubega \(2011\)](#) suggests that the national context may act as a driver or an inhibitor of success in implementing new technologies. In this case, national support for technological development is vital in terms of budgetary expenditure, incorporation of ICT initiatives into national educational plans and the attitude of governments towards using technologies.

The stance of the Saudi Arabian government towards technological developments and the unique issue of gender as a feature of the national context, were upheld as important factors by the data collection and analysis results that emerged from this research. Indeed, with the unveiling of the ambitious Vision 2030 which aims to modernise Saudi Arabia and bring it in line with other nations, it can be stated that, politically, Saudi Arabia is uniquely positioned to take advantage of the modernising and democratising aspects of social networking. Governmental budgetary considerations are favourable to the implementation of current technologies and the political climate in Saudi Arabia is inclined towards progressive and contemporary practices. Allied to this, the gender divide in Saudi Arabia would directly benefit from the implementation of social networking as it would allow hitherto separated males and females to unite in a virtual space without physically meeting and interacting, thus smoothing the delivery of education to the nation's females ([Alkahtani 2012](#)). Hence, the national context of Saudi Arabia strongly supports the implementation of social networking provided that it is carried out in a thoughtful and well-planned manner.

## 7.3. Answering the Research Questions

Answering the main question for this research was: *What are the factors that must be considered when developing a social networking framework for the higher education sector in Saudi Arabia?*

In order to summarise the findings and answering this question, a comprehensive literature review was undertaken and key global themes were extracted. These were used to construct an initial framework of factors that might underlie a successful implementation of social networking in universities in Saudi Arabia. The preliminary framework was then subjected to scrutiny by stakeholders in the form of focus groups (students) and interviews (academic staff). The data was then analysed using NVivo software to sort the factors in terms of their importance and to group them logically. The result is the framework shown below which encompasses the critical key factors which might be used to ensure a successful outcome if social networking were to be introduced to universities in Saudi Arabia on a larger scale and in a carefully considered way. These factors were discussed and explained in the previous section (7.2).

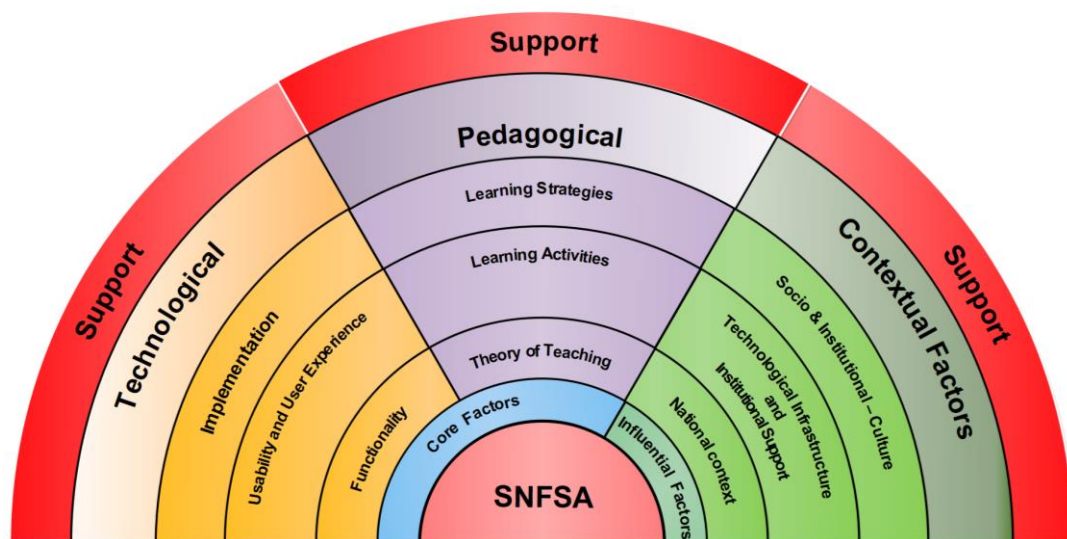


Figure 65: Social Networking Framework for Universities in Saudi Arabia (Final Version)

The framework is of value to decision-makers by highlighting both the advantages and potential risks of using social networking as an academic tool. The proposed framework is believed to facilitate the instructional decision-making in terms of the integration of social networking into the learning process aligning with learners' needs. Overall, the framework benefits the higher education sector, students and academic staff who could make use of the availability of these tools in their educational pursuits. For example, the framework will provide some clarity and practical guidance for policy-makers and instructors seeking to implement social networking sites. In

deciding on the amalgamation of social networking tools, the framework can be used as a blueprint to investigate the proposed key factors and determine whether they have a suitable case to integrate social networking tools in higher education. Alternatively, policy-makers can rely on the proposed framework as a diagnosis measure to evaluate their technological infrastructure for the purpose of effective social networking tools integration. For example, an examination of the technological factors and sub-factors from the proposed framework would reveal problematic issues such as poor internet connectivity, that hinder the integration process of social networking tools into the teaching and learning. Examining these factors in the context where the technology will be implemented is important to mitigate the risk of failure and improve the overall instructional outcome. Figure 66 illustrates the potential users and beneficiaries of the proposed framework.

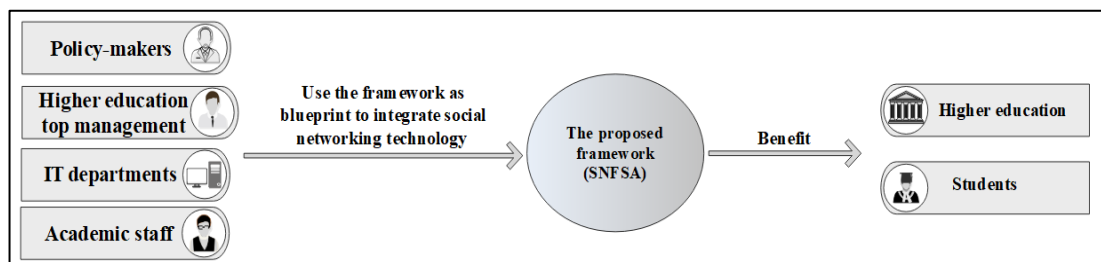


Figure 66: The potential users and beneficiaries of the proposed framework

In terms of the first secondary research questions is:

- *What are the specific cultural, social (including ethical) and technological factors that must be considered when developing a Social Networking framework for higher education in Saudi Arabia?*

Regarding specific cultural, social and technological factors that must be considered when developing a social networking framework for universities in Saudi Arabia, it was found that Saudi Arabia shares much equivalency with the rest of the world and cultural differences are beginning to soften due to the impact of the modernising Vision2030 and how this is shaping Saudi Arabian society. Nonetheless, the study found that Saudi Arabia occupies a contradictory position in relation to social networking. On the one hand, end users, particularly students and younger faculty members, are enthusiastic and ready to embrace innovative technologies and the government and institutions are willing to devote substantial budget to development

of ICT in universities. On the other hand, Saudi Arabia still retains much of its socio-cultural character, traditional teacher and student roles and a model of education that is not amenable to social networking pedagogies. Similarly, while budget expenditure on ICT is substantial, evidence shows that facilities, training, user support and high-speed connectivity are still not at world standard and that user knowledge and expertise remains fairly low (Aldosemani, Shepherd, and Bolliger 2018). Thus, when implementing social networking into universities in Saudi Arabia, more than just technology needs to be taken account; any successful implementation will require a thorough analysis of the special needs of Saudi Arabian users within a changing - yet still traditional – socio-cultural context. Hence, careful management of confidentiality and privacy concerns is of paramount importance as is the issue of handling open-source content.

The above framework (Figure 65) was initially developed through the literature review and then viewed by the focus groups in order to gather perceptions and opinions on this initial framework and the use of social media. From the focus group phase, a new sub-factor, “motivation” emerged from the focus group phase, which was placed under the factor of User Experience. During the survey phase, the factors in the framework were confirmed except for the pedagogical aspects as the majority of the participants in this phase were students with little knowledge of teaching and learning mechanisms. The survey phase resulted in the removal of six sub-factors which were Reliability and Continuity of social networking sites, Technical support, Stakeholder training, Non-academic staff use of social networking sites, Support for usage of social networking sites within university educational systems (development plans), and Gender. These sub-factors did not load cleanly onto a single factor. However, a decision was made by the researcher to retain some of these factors (Gender and Technical Support) to be further examined in the interview phase. Finally, the interview phase confirmed the overall findings of all the phases and suggested that the participants believed the framework to be effective. In addition, the participants confirmed the importance of the retained factors (Gender and Technical Support).

The second secondary research question was:

- *What are the perceptions and attitudes of university students and academics towards the Social Networking Framework for Universities in Saudi Arabia?*

The research revealed that students and academic staff welcomed the use of social networking in university teaching and learning and did not feel that the cultural restrictions of Saudi Arabia would be a major impediment to successful usage. While some obstacles were mentioned, end users were generally optimistic and enthused by the prospect of using contemporary technology in their academic pursuits. This aligns with the current re-shaping of the Saudi Arabian landscape through Vision2030 which Saudi citizens are eagerly anticipating.

## **7.4. Research Limitations**

All research projects suffer from limitations which provide directions for future research. In the case of this research, several limitations emerged which are linked to the cultural context of Saudi Arabia.

Firstly, the gender roles enforced upon Saudi citizens – despite some recent amelioration – led to only a small pool of female participants as it was difficult to reach them and arrange their participation. In addition, most of the female participants recruited for this study were reticent to communicate and it was difficult to encourage them to participate. This is a clear indication that many women in Saudi Arabia are not accustomed to participating in public life and expressing their opinions openly. However, this was not true of all female respondents; one of the participants was a university academic who provided detailed and lengthy feedback. It is worth noting that this individual had been educated abroad and, furthermore, that this degree of participation by a female was rare in this study. Nonetheless, generally speaking, male participants dominated the discussion in the focus groups despite female participants being encouraged to contribute.

Another limitation was the limited budget available for research. Saudi Arabia is a geographically large and dispersed country and the researcher was not able to afford travel costs, such as flights and accommodation, especially since there were three phases of data collection. This was compounded by the fact that the researcher is based

in Australia. However, it must be noted that the researcher did undertake two trips to Saudi Arabia with the express purpose of collecting data.

In addition to distance, the time zone difference between Australia and Saudi Arabia was also a limitation in the sense that it made contacting participants more challenging. Moreover, Saudi university semesters do not coincide with those in Western countries and there are lengthy holiday periods to consider, such as Ramadan holidays. These variables also influenced the ease of communication with universities and the smooth scheduling of participants for data collection.

The geographical spaciousness of Saudi Arabia and the number of universities in a growing higher education sector also comprised a limitation in that only four universities were involved in the focus group. This represents a relatively small sample given that there are 34 universities in this country. However, the researcher was only able to contact potential participants and conduct focus groups with this particular sample size. In addition, the data was obtained from universities in the metropolitan region, meaning that rural and regional population samples were not highly involved in this research. A further obstacle was the bureaucratic nature of universities in Saudi Arabia which are hierarchically structured, making it difficult to obtain permission to conduct research. Furthermore, not all university faculties were open to participation and requests to conduct research were rejected.

Finally, from the practical aspect, a large number of responses were returned to the researcher incomplete. This could suggest participants' lack of motivation to take part in voluntary surveys and/or possibly a lack of knowledge about some of the concepts involved in the research.

To conclude, there were some limitations to the research which the researcher tried to avoid, for example, by setting up a suitable venue and private space for females involved in the focus groups. In general, though, it was not possible to totally avoid all limitations. Nevertheless, it is believed that the research presents a useful perspective regarding the factors that are required to successfully introduce social networking into universities in Saudi Arabia and that these findings could be applied to higher education providers seeking an entry point to implementation.



## **7.5. Significance and Further Research**

The main significance of this research was to propose a framework which can be drawn on by a range of stakeholders in order to guide the implantation of social networking into the university sector in Saudi Arabia. This study represents the first effort to pinpoint factors that must be taken into consideration for the adoption of social networking in this particular socio-cultural region.

The findings of this study reveal that Saudi Arabia is ideally situated to benefit from social networking and that end users endorsed the critical factors comprising the framework for implementation of social networking in higher education. There are numerous implications for further research which could expand on the insights yielded by this investigation.

Firstly, this study developed and evaluated a framework for implementation. A useful extension would be to actually implement social networking formally in a university or universities in Saudi Arabia in accordance with the factors in the framework so as to ascertain whether the framework is indeed comprehensive or whether there might be additional factors to be addressed. In this way, the efficacy of the framework as a blueprint for implementation could be trialled and tested.

Another future research undertaking could involve the replication of the study using different methodologies and tools, such as SmartPLS and LISREL, as these might produce a different result that could be considered when introducing social networking into higher education.

The limitations of this research in terms of sample size have been acknowledged. Another consideration for further research could be carrying out the study with a larger pool of respondents, thereby increasing the qualitative aspect of the research. This might include using incentives to motivate participants to contribute readily to the study.

Yet another avenue for further research is the investigation of attitudes and perceptions of social networking sites in education in regional and rural areas of Saudi Arabia. This study, in the main, looked at social networking in metropolitan areas of Saudi

Arabia. It can be argued that social networking tools could be of great benefit to learners in remote areas, opening up a repository of knowledge, provided that adequate technological infrastructure could be assured. Thus, a study of how social networking may be implemented in more marginalised geographical regions of Saudi Arabia could produce a different set of success factors.

Given the current adoption of Vision30, a major set of reforms aimed at modernising Saudi Arabia and making it a leading world nation, it would be useful to conduct a longitudinal study which examines the changing perceptions of stakeholders towards social networking and which considers the different socio-cultural environment of Saudi Arabia. The socio-cultural analysis of Saudi Arabia undertaken in this study might produce a different set of results as new ideologies and values permeate the kingdom. This could include less restriction on women's participation in society as they now have more rights compared to previous years.

Thus, in Saudi Arabia, there is vast potential for future research in this area, particularly because little has been published on the theme of social networking in higher education in this country.

## **7.6. Conclusion**

This chapter presented the overall findings of the research by enumerating the critical factors that were identified for inclusion in a framework to guide the implementation of social networking in the higher education sector in Saudi Arabia. These factors were confirmed and accepted by the respondents in the data collection phases as being the most important when underwriting a successful outcome if social networking were to be incorporated on a wider scale in universities. For each factor, this chapter provided recommendations in regard to how social networking could be incorporated in an optimal way in higher education in Saudi Arabia, considering its unique social, cultural and technological context. Limitations of the study were acknowledged and directions for future research were provided. It is the final position of this research that Saudi Arabia is currently well placed to implement social networking into its teaching and learning repertoire and that it can benefit from the affordances of such tools.

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[+and+academic+performance+among+university+students+in+the+United+States%2C+Europe%2C+and+Turkey%3A+A+multigroup+structural+equation+modeling+approach&issn=&date=2014-01-01&volume=&issue=&spage=&au=Ozer%2C+Ipek&isbn=9781321476835&jtitle=&bttitle=&rft\\_id=info:eric/&rft\\_id=info:doi/.](https://doi.org/10.1016/j.chb.2013.07.033)

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# Appendices

# Appendix 1: Focus Groups Consent Form



## CONSENT FORM

**Research Title:** Developing and Assessing a Social Networking Framework for Universities in Saudi Arabia

**Name and position of researcher:** Sulaiman Alqahtani – Postgraduate student at Curtin University

- I understand the purpose and procedures of the study.
- I have been provided with the participation information sheet.
- I understand that the procedure itself may not benefit me.
- I understand that my involvement is voluntary and I can withdraw at any time without problem.
- I understand that no personal identifying information like my name and address will be used in any published materials.
- I understand that I have the right to withdraw from the study at any time without disadvantage to myself and without being obliged to give any reason.
- I understand that all information will be securely stored for at least 7 years before a decision is made as to whether it should be destroyed.
- I have been given the opportunity to ask questions about this research.
- I agree to participate in the study outlined to me

*Please Tick Box*

*Yes          No*

1. I agree to participate in the study as outlined to me.
2. I agree to the interview being audio recorded.
3. I agree to the use of anonymised quotes in publications.

<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

*Name of participant:*


*Date:*

*Signature:*


## Appendix 2: Focus Group Questions

English version

### Focus Group

		Duration
1	Have you used any social network sites? If yes, what are they? Why? What are the outcomes of your social networking experience?	10 min
2	Do you believe that it would be beneficial to incorporate social networking into the Saudi education system? Why?	10 min
3	How do you think we can incorporate Social networking into the education system successfully? What factors need to be considered?	10 min
4	One of the advantages that Saudi Arabia holds over some other developing countries is high speed internet connectivity, can you think of any other advantages Saudi Arabia may have to make the social networking integration a smoother transition?	10 min
5	What are some factors which could be seen as barriers for the integration of social networking into Saudi educational system?	10 min
6	How likely do you think will be the user acceptance level of social networking in the Saudi Arabian educational system?	10 min
		10 min
7	What do you think of the Social Networking framework? List three factors about how this framework could be improved?	10 min

## Arabic version

المدة		
10 دقائق	هل استخدمت أي من مواقع التواصل الاجتماعي؟ إذا كانت الإجابة 'نعم' ما هي؟ لماذا (بمعنى للعمل أو للترفيه .. الخ)؟ ما هي نتيجة تجربتك في التواصل الاجتماعي (تجربة مفيدة أو تجربة غير مفيدة) ؟	1
10 دقائق	هل تعتقد أنه من المفيد إدماج التواصل الاجتماعي في نظام التعليم العالي السعودي؟ إذا كانت الإجابة 'نعم' - لماذا؟ وإذا كانت الإجابة 'لا' - لماذا؟	2
10 دقائق	كيف يمكننا في رأيك إدماج التواصل الاجتماعي في نظام التعليم العالي بالمملكة العربية السعودية بنجاح؟ ما هي العناصر التي ينبغي أخذها في الاعتبار؟ مثل الأجهزة؛ البرامج؛ التطبيقات ... الخ	3
10 دقائق	أحد المزايا التي تنفرد بها المملكة العربية السعودية عن دول نامية أخرى هي إتصال الإنترنت عالي السرعة. من وجهة نظرك ما هي المزايا الأخرى التي ينبغي على المملكة العربية السعودية أن تتبناها لكي تجعل المرحلة الانتقالية لإدماج التواصل الاجتماعي أكثر سلامة؟	4
10 دقائق	من وجهة نظرك، ما هي العوامل التي يمكن أن تعوق تطبيق التواصل الاجتماعي في التعليم العالي السعودي؟	5
10 دقائق	في رأيك، ماذا سيكون مستوى قبول المستخدم (طلاب و محاضرون) المحتمل لإدخال التواصل الاجتماعي في نظام التعليم العالي السعودي؟	6
15 دقيقة	ستعرض جميع عناصر الإطار على المشاركين	
		
10 دقائق	ما رأيك في إطار التواصل الاجتماعي الأولي/المبدئي؟ شارك معنا في اقتراح عناصر جديدة لتصميم هذا النموذج.	7

85 دقيقة



## Appendix 3: Online Survey Questions



# Curtin University

English (US) ▼

Dear Sir/Madam

I am conducting research regarding Developing and Assessing a Social Networking Framework for Universities in Saudi Arabia. This research involves a survey, which will take up to 10 minutes to complete. This survey contains three sections. Please read each statement and then circle the number or tick the box, which shows how you feel.

If you feel uncomfortable in answering certain questions, please feel free to disregard them.

We would appreciate it if you could complete this survey within a week. However, if this is too short a space of time, please respond as soon as you are able.

Participation in this research is completely voluntary and your responses will be completely anonymous. Participants may withdraw at any time without prejudice or negative consequences, and do not need to provide a reason. By completing this survey, you are consenting to participate.

Any information provided by you through the survey will be held as strictly confidential. Information will not be disclosed to any parties besides the researchers, unless required to do so by law. Finally, the researchers will ensure that published material will not contain any information that can identify you or your organization.

We encourage you to participate because this research will provide valuable insights into students' attitudes toward social networking adoption in the higher education sector in Saudi Arabia. Your assistance in this research is greatly appreciated and is crucial for the success of its findings.

Your interest and consideration are greatly appreciated. If you need any additional information from us, please let us know by contacting [Tomayess.Issa@cbs.curtin.edu.au](mailto:Tomayess.Issa@cbs.curtin.edu.au) (+61 8 9266 7682) or [S.Alqahtani8@postgrad.curtin.edu.au](mailto:S.Alqahtani8@postgrad.curtin.edu.au) (+614\*\*\*\*\*)

Curtin University Human Research Ethics Committee (HREC) has approved this study (HRE2016-0121). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email [hrec@curtin.edu.au](mailto:hrec@curtin.edu.au).

Thank you in advance

Yours faithfully,

Sulaiman Ghazi B Alqahtani  
PhD (IS)  
Curtin University  
Tel: +61 4\*\*\*\*\*  
Email: [S.Alqahtani8@postgrad.curtin.edu.au](mailto:S.Alqahtani8@postgrad.curtin.edu.au)

Dr. Tomayess Issa  
Senior Lecturer - School of Information Systems; Curtin University  
Australia  
Tel: +61 8 9266 7682  
Email: [Tomayess.Issa@cbs.curtin.edu.au](mailto:Tomayess.Issa@cbs.curtin.edu.au)

**Q2.****Gender**

- Male
- Female

**Q3.****What is your age?**

- 18 - 23
- 24 - 28
- 29 - 33
- 34- 38
- 39 - 44
- 45 - 50
- 50 and above

**Q4.****What is your Job Title?**

- Student
- Tutor
- Lecturer
- Information Technology department staff
- Other - please specify

**Q5.****Please tick your main field(s) of study / work**

- Accounting
- Business Law
- Economics and Finance
- Information Systems
- Information Technology
- Computer Science
- Management
- Marketing
- Health Sciences
- Humanities
- Science and Engineering
- Art and Design
- Other – Please specify

**Q6.****Please tick your year(s) of study at the university**

- Year 1
- Year 2
- Year 3
- Year 4 or more

**Q7.****Please tick your highest education level**

- Primary Education
- Higher Secondary/Pre-University
- Professional Certificate
- Diploma
- Advanced/Higher/Graduate Diploma
- Bachelor's Degree
- Post Graduate Diploma
- Master's Degree
- Doctorate Degree

**Q8.****Please tick your university**

- 
- 
- 
- 
- Other – Please specify

**Q9.****What form of Social Networking Sites have you used?**

- Never used Social Networking Sites
- Micro blogging sites (i.e twitter)
- Blogs
- Facebook
- Myspace
- LinkedIn
- Wiki
- Whatsapp

**Q10.**  
**What do you use Social Networking for?**

- Personal Networking
- Professional Networking
- Professional development
- Engagement with lecturers/students
- Other – Please specify

**Q11.**  
**Part 2: The core factors to take into consideration when integrating Social networking sites in the Saudi higher educational sector**  
*Under this section, the researchers will examine some of the core factors such as principles and guidelines of integration, usability, and technological infrastructure*

*In order to integrate social networking sites successfully into the Saudi Arabian higher educational, some factors need to be taken into consideration*

*Please indicate your level of agreement to each statement:*

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
There should be clear guidelines for implementation/usage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There should be a set of steps for implementation/usage (i.e user guide and other documentation)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There should be a visual representation of the framework/model to be implemented/used	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The system should allow collaboration with others within the university (eg. Facebook)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The system should allow content creation and retrieval (eg. Blogs, wikis)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The system should allow information to be managed and organized (eg bookmarking)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The system allow the users access to a range of tools within one LMS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social networking sites are easy to use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The system should be based on only one social networking site rather than a range	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social networking sites are enjoyable to use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social networking sites are easy to navigate through	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The system must offer reliability and continuity of social networking site integration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The university must have high speed internet connectivity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The university must have sufficient hardware	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The university must have sufficient software	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The university must provide technical support to users	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



**Q12.**

**Part 3: The influential factors of social networking site integration in Saudi higher education**

*Under this section, the researchers will examine some of the influential factors such as cultural and national factors*

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
All stakeholders should be consulted about the implementation and usage of social networking in universities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All stakeholders should receive training in the usage of social networking systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Both academic and non-academic staff should use Social Networking Sites	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Universities must support the usage of social networking sites within their educational systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The system needs to be suited to Saudi Arabia culture and social roles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Students have high user acceptance of technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Staff have high user acceptance of technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The system needs to be suited to Saudi Arabia's religious environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There are ethical concerns regarding the usage of social networking site	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social networking sites will help me to interact with the opposite gender for educational purposes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The government must support social networking integration at universities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Incorporating social networking site into educational plans by the government	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Government policies should encourage the use of social networking site in the higher education system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Funding by the government and a sufficient budget are vital for social networking integration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
University funding and budget sufficiency is important for social networking integration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Universities in Saudi Arabia are open to adapting new innovative technologies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Universities in Saudi Arabia have enough funding to adopt new innovative technologies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q13.**

**Comments: Please add other comments on other factors that might facilitate the integration of social networking tools in the universities**

## Appendix 4: Codes used for the analysis

Questions	Code
There should be clear guidelines for implementation/usage	SNF1
There should be a set of steps for implementation/usage (i.e user guide and other documentation)	SNF2
There should be a visual representation of the framework/model to be implemented/used	SNF3
The system should allow collaboration with others within the university (eg. Facebook)	SNF4
The system should allow content creation and retrieval (eg. Blogs, wikis)	SNF5
The system should allow information to be managed and organized (eg bookmarking)	SNF6
The system allows the users access to a range of tools within one LMS	SNF7
Social networking sites are easy to use	SNF8
The system should be based on only one social networking site rather than a range	SNF9
Social networking sites are enjoyable to use	SNF10
Social networking sites are easy to navigate through	SNF11
The system must offer reliability and continuity of social networking site integration	SNF12*
The university must have high speed internet connectivity	SNF13
The university must have sufficient hardware	SNF14
The university must have sufficient software	SNF15
The university must provide technical support to users	SNF16*
All stakeholders should be consulted about the implementation and usage of social networking in universities	SNF17
All stakeholders should receive training in the usage of social networking systems	SNF18*
Both academic and non-academic staff should use Social Networking Sites	SNF19*
Universities must support the usage of social networking sites within their educational systems	SNF20*

The system needs to be suited to Saudi Arabia culture and social roles	SNF21
Students have high user acceptance of technology	SNF22
Staff have high user acceptance of technology	SNF23
The system needs to be suited to Saudi Arabia's religious environment	SNF24
There are ethical concerns regarding the usage of social networking site	SNF25
Social networking sites will help me to interact with the opposite gender for educational purposes	SNF26*
The government must support social networking integration at universities	SNF27
Incorporating social networking site into educational plans by the government	SNF28
Government policies should encourage the use of social networking site in the higher education system	SNF29
Funding by the government and a sufficient budget are vital for social networking integration	SNF30
University funding and budget sufficiency is important for social networking integration	SNF31
Universities in Saudi Arabia are open to adapting new innovative technologies	SNF32
Universities in Saudi Arabia have enough funding to adopt new innovative technologies	SNF33

## Appendix 5: Interview Questions



Curtin University

Dear Sir/Madam

I am conducting a PhD research with regard to Developing and Assessing a Social Networking Framework for Universities in Saudi Arabia. This research involves an open-ended questionnaire, which will take up to 30 minutes to complete. The questionnaire contains open-ended questions as well as some rating scales for sub-factors which are shown using star ratings. Please read each statement and then circle the number or tick the box, which shows how you feel.

To complete the questionnaire please click on the statement below. If you feel uncomfortable in answering certain questions, please feel free to disregard them. We would appreciate it if you could complete this survey within a week. However, if this is too short a space of time, please respond as soon as you are able.

Participation in this research is completely voluntary and your responses will be completely anonymous. Participants may withdraw at any time without prejudice or negative consequences, and do not need to provide a reason. By completing this survey, you are consenting to participate.

Any information provided by you through the survey will be held as strictly confidential. Information will not be disclosed to any parties besides the researchers, unless required to do so by law. Finally, the researchers will ensure that published material will not contain any information that can identify you or your organization.

We encourage you to participate because this research will provide valuable insights into students' attitudes toward social networking adoption in the higher education sector in Saudi Arabia. Your assistance in this research is greatly appreciated and is crucial for the success of its findings. Your interest and consideration are greatly appreciated. If you need any additional information from us, please let us know by contacting Tomayess.Issa@cbs.curtin.edu.au (+61 8 9266 7682) or s.alqahtani8@postgrad.curtin.edu.au.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC number HRE2017-0840). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email hrec@curtin.edu.au.

Thank you in advance

Yours faithfully,  
Sulaiman Ghazi B Alqahtani PhD (IS)  
Curtin University Tel: +61 4\*\*\*\*\* Email: s.alqahtani8@postgrad.curtin.edu.au.

Dr. Tomayess Issa Senior Lecturer - School of Information Systems;  
Curtin University Australia Tel: +61 8 9266 7682 Email: Tomayess.Issa@cbs.curtin.edu.au

- I have received information regarding this research and had an opportunity to ask questions. I believe I understand the purpose, extent and possible risks of my involvement in this project and I voluntarily consent to take part.*

**Gender**

- Male
- Female

**Age**

- 20 - 30
- 31- 40
- 41-50
- 51-60
- 61 and over

**Your job title**

- Professor / Lecturer
- Information Technology department staff
- Management staff

**Your university****Indicate your level of experience with Social networking tools**

- Extremely competent
- Somewhat competent
- Neither competent nor incompetent
- Somewhat incompetent
- Extremely incompetent

**Please enter your work email address for communication and validation purposes if needed (note all data will be kept secure and confidential)**

**Social networking sites are used in many sectors such as business and health sector. Do you think Social networking sites can be introduced to higher education?**

- Yes
- Maybe
- No

**Why ? Can you explain and provide an example if possible?**

**Implementation**

**Most usages of Social networking sites in higher education consist of individual efforts to incorporate Social networking sites. In order to facilitate a wider adoption of Social networking sites in teaching and learning how important is the Implementation factor for adaptation process?**

- Yes, important
- Maybe, somewhat important
- No, not important

**Why? Provide an example if possible?**

**Please rate the importance of following sub-factors**

Implementation Guidelines ★★★★★

Steps in implementation ★★★★★

Visual representation ( e.g Diagrams and flowcharts) ★★★★★

Ease of use ★★★★★

**Functionality**

**Social networking sites offer a range of functionalities. Do you think Social networking sites functionalities are critical to be considered for the framework?**

- Yes, important
- Maybe, somewhat important
- No, not important

**Why? Provide an example if possible?**

**Please rate the importance of the following sub-factors**

Collaboration	★ ★ ★ ★ ★
Content Retrieval and Storage	★ ★ ★ ★ ★
Organize and manage information	★ ★ ★ ★ ★
A wide range of Social Networking tools within one system	★ ★ ★ ★ ★

**Usability and User Experience**

**Usability and User experience factors are crucial to be considered to adopt social networking in higher education in Saudi Arabia? can you indicate the importance of this factor below?**

- Yes, important
- Maybe, somewhat important
- No, not important

**Why? Provide an example if possible?**

**Please rate the importance of the following sub-factors**

Navigability	★ ★ ★ ★ ★
The system should be based on only one social networking site rather than a range	★ ★ ★ ★ ★
Enjoyment of use	★ ★ ★ ★ ★
Students high acceptance	★ ★ ★ ★ ★

### Technological Infrastructure and Institutional support

Having a solid Technological Infrastructure and Institutional support is a crucial factor to consider for the framework. Do you think it is important?

- Yes, important
- Maybe, somewhat important
- No, not important

Why? Provide an example if possible?

Please rate the importance of the following sub-factors

High speed Internet Connectivity

Sufficient Hardware

Sufficient Software

Institutional flexibility ie openness to change

Institutional budget



<b>Pedagogy</b>						
<p><b>Do you think the current learning theories and practices in the higher education of Saudi Arabia support the incorporation of Social networking sites? Why?</b></p> <input style="width: 90%; height: 20px;" type="text"/>						
<p><b>Do you think that the current learning strategies in Higher education support the incorporation of Social networking sites in the education system? Why?</b></p> <input style="width: 90%; height: 20px;" type="text"/>						
<p><b>What are the current learning activities that are used in Saudi Arabian higher education? Do these activities allow for Social networking sites to be incorporated? If yes why? If no why not?</b></p> <input style="width: 90%; height: 20px;" type="text"/>						
<p><b>Social networking sites usage implies a new approach to pedagogy. Do you think this factor is important to be considered when implementing Social networking sites into higher education?</b></p> <p> <input type="radio"/> Yes, important  <input type="radio"/> Maybe, somewhat important  <input type="radio"/> No, not Important                 </p>						
<p><b>Why? Provide an example if possible?</b></p> <input style="width: 90%; height: 30px;" type="text"/>						
<p><b>Please rate the importance of the following sub-factors</b></p> <table style="width: 100%; margin-top: 10px;"> <tr> <td style="width: 30%;">Theory of Teaching</td> <td style="text-align: center;">★ ★ ★ ★ ★</td> </tr> <tr style="background-color: #f0f0f0;"> <td>Learning Strategies</td> <td style="text-align: center;">★ ★ ★ ★ ★</td> </tr> <tr> <td>Learning Activities</td> <td style="text-align: center;">★ ★ ★ ★ ★</td> </tr> </table>	Theory of Teaching	★ ★ ★ ★ ★	Learning Strategies	★ ★ ★ ★ ★	Learning Activities	★ ★ ★ ★ ★
Theory of Teaching	★ ★ ★ ★ ★					
Learning Strategies	★ ★ ★ ★ ★					
Learning Activities	★ ★ ★ ★ ★					

**Social & Institutional Culture**

**When implementing a new technology such as Social networking sites into higher education. Is it important to consider the social and institutional culture in which the technology will be adopted?**

- Yes, Important
- Maybe, somewhat important
- No, not important

**Why? Provide an example if possible?**

**Please rate the importance of the following sub-factors**

All stakeholders should be consulted about the implementation and usage of social networking in universities ★ ★ ★ ★ ★

The system needs to be suited to Saudi Arabia's religious environment ★ ★ ★ ★ ★

Ethical concerns ★ ★ ★ ★ ★

University staff have high user acceptance of technology ★ ★ ★ ★ ★

The system needs to be suited to Saudi Arabia culture and social roles ★ ★ ★ ★ ★

### National context

**Does the national context which includes the political and economical system and practices of a country have an effect on the adoption of Social networking sites implementation into higher education?**

- Yes, important
- Maybe, somewhat important
- No, not Important

**Why? Provide an example if possible?**

**Please rate the importance of the following sub-factors**

Government support of social networking integration at universities

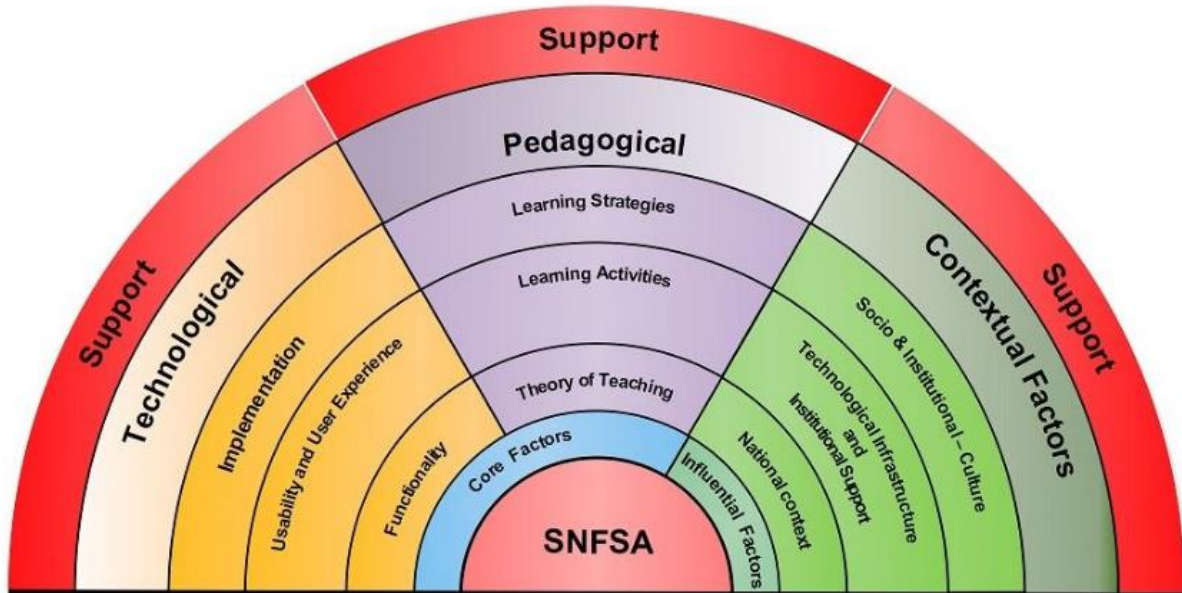
The inclusion if social networking site into educational plans by the government

Government policies should encourage the use of social networking site in the higher education system

Funding by the government and a sufficient budget are vital for social networking integration

Institutional funding and budget sufficiency is important for social networking integration

How would you evaluate the overall set of factors to integrate Social networking sites into higher education?



What is your evaluation of the overall SNFSA framework?

- Effective
- Moderately effective
- Ineffective

Comment below about your evaluation of the SNFSA framework?

**Do you think the gender segregation in Saudi Arabian higher education can be overcome by Social networking tools?**

- Yes
- Maybe
- No

**Will social networking tools challenge current socio-cultural and gender roles? or will social networking tools be advantageous to Saudi Arabian higher education? comment below.**

**Do you think technical support is vital for the adoption of social networking tools in higher education?**

- Yes, important
- Maybe, somewhat important
- No, not important

**Please comment about the importance of technical support and the current level of technical support**

**Do you think user motivation and use of incentives are vital for the adoption of social networking tools in higher education?**

- Yes, important
- Maybe, somewhat important
- No not important

**Please comment on the importance of user motivation and use of incentives for the adoption of social networking tools in higher education**

**Please rate the importance of the following sub-factors**

Gender

Technical support

Motivation/incentives

### Appendix 6: Research gap analysis table

Current Literature on Social Networking Frameworks for Higher Education	Author(s) & Year	Core Factors															Influential Factors																						
		A Clear overview			Functionality			Design Components				Technology Infrastructure				Pedagogy Framework				Stake Holders				Socio – Cultural					National context				Organisational Culture						
								Useability																	Political		Economical												
		Guidelines for implementation	Steps in implementation	Visual representation	Collaboration	Content Retrieval and Storage	Organise and manage information	Tools	Application Platforms	Hardware & Software	Navigability	Ease of use	Enjoyment of use	Continuity and Reliability	Internet Connectivity	Sufficient Hardware	Sufficient Software	Technology expertise and support	Theory of Teaching	Learning Strategies	Learning Activities	Students	Academic Staff	Management	Technical support staff	Gender	Religion	Ethical Concerns	User acceptance of technology	Cultural Roles	Government type	Development plans	Government Educational Policies	Budget	Development plans	Government Expenditure on Education	Flexibility ie openness to change	Budget	
To use or not to use web 2.0 in higher education?	(Grosseck 2009)	x	x	x	✓	✓	x	✓	x	x	x	x	x	✓	x	x	x	x	✓	✓	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
The implementation framework of social media for distance learners in Africa Nazarene University, Kenya	(Ooko and Oduor 2013)	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	x	✓	✓	✓	✓	x	x	x	✓	x	x	x	x	x	x	x	x	x	✓	x
A Conceptual Model of Social Networking in Higher Education	(Jucevičienė and Valinevičienė 2010)	x	x	x	✓	x	x	x	x	✓	✓	✓	x	x	x	x	✓	x	x	✓	✓	✓	✓	✓	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x
Social Networks in the Higher Education Framework— Understanding the University as an Organization	(Bermejo et al. 2012)	x	x	x	x	x	x	✓	✓	✓	x	x	✓	✓	x	x	x	x	x	✓	✓	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Social Capital Framework in the adoption of e-learning	(Barton 2013)	✓	x	x	✓	✓	✓	x	x	x	x	x	x	x	x	x	x	x	✓	x	x	✓	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x

Social Network Factor to Facilitate Learning in Knowledge Sharing	(Fahed et al.)	x	x	✓	✓	x	x	✓	x	x	✓	✓	✓	x	x	x	x	x	✓	x	x	✓	✓	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	✓	x	
A Conceptual Framework for Knowledge Sharing in Higher Education Institutions Using Web Approach	(Tella, Alias, and Ithnin 2009)	x	x	x	✓	✓	x	x	x	✓	x	x	x	x	x	x	x	x	x	✓	x	✓	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
A model for the effects of online social networks on learning	(Jonnavithula and Tretiakov 2012)	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Mapping pedagogy and tools for effective learning design	(Conole et al. 2004)	x	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	✓	✓	✓	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
SOCIAL NETWORKING AS AN ALTERNATIVE ENVIRONMENT FOR EDUCATION	(Stanciu, Mihai, and Aleca 2012)	x	x	x	✓	✓	✓	✓	x	x	x	x	x	✓	x	x	x	x	x	x	x	✓	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Social Media as Positive Disruption in Education, E-Learning and B-Learning	(King 2012)	✓	x	✓	✓	✓	✓	✓	x	x	x	x	x	x	x	x	x	x	x	✓	x	✓	x	x	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	x
Web 2.0 learning environment: concept, implementation, evaluation	(Blees and Ritberger 2009)	x	x	x	✓	✓	✓	✓	✓	x	x	x	x	x	x	x	✓	x	✓	✓	✓	✓	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
A social networked learning adoption model for higher education institutions in developing countries	(Munguatosha, Muvinda, and Lubega 2011)	✓	x	x	✓	✓	x	x	x	✓	x	✓	✓	✓	✓	✓	x	✓	✓	✓	✓	✓	✓	✓	x	x	✓	✓	✓	x	✓	✓	✓	✓	x	✓	✓	✓	✓	
Introducing Web 2.0 in education: A structured approach adopting a Web 2.0 implementation framework	(Baxter et al. 2011)	✓	✓	x	✓	✓	✓	x	x	x	x	x	x	x	x	x	x	✓	✓	✓	✓	✓	✓	✓	x	x	x	x	✓	x	x	x	x	x	x	x	x	x	✓	x

The Implementation of a University 2.0 Model	( <u>Consoli 2013</u> )	✓	✓	✗	✓	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✓	✗	
Improvement Quality of LMS Through Application of Social Networking Sites	( <u>Musbahiti and Muhammad 2013</u> )	✗	✗	✗	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	
Modeling educational usage of Facebook	( <u>Mazman and Usuel 2010</u> )	✗	✗	✗	✗	✗	✓	✗	✗	✗	✓	✓	✗	✗	✗	✗	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	
A conceptual framework for the Adoption of Social Network Technologies (SNTs) in Teaching -case of Ghana	( <u>Arthur, Adu-Manu, and Yeboah 2013</u> )	✓	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✓	✓	✓	✓	✗	✗	✓	✓	✗	✓	✓	✓	✓	✓	✗	✗	✓	✓	✗	✗	✓	✗	✗	✓	✗
A conceptual framework for e-learning in developing countries: A critical review of research challenges	( <u>Andersson and Grönlund 2009</u> )	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	
Stakeholder Perceptions of ICT Usage across Management Institutes	( <u>Goyal, Purohit, and Bhagat 2013</u> )	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✓	✗	✗	✗	✓	✗	✗	✓	✓	✗	✗	✗	✓	✓	✓