

# **Perceptions of Saudi Male and Female Postgraduate Students Regarding the Impact of Social Networking Sites and Apps on their Academic Life**

## **A Study of Umm Al-Qura University – Makkah**

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**Abstract**—This paper outlines a study exploring the perceptions of Saudi male and female postgraduate students regarding the impact of using Social Networking Sites and Apps (SNSAs) on their academic engagement and academic relationships. While research on SNSA use within the higher education environment does exist, mixed gender research has often presented challenges in Saudi Arabia, due to the educational segregation. A mixed methods approach was used to collect data through surveys, individual interviews and focus groups involving 313 male and 293 female postgraduate students at Umm Al-Qura University (UQU) in Makkah. Findings illustrated that both males and females engaged with SNSAs at a moderate level of use for academic purposes, and they perceived more positive than negative impacts associated with the academic use of SNSAs. Correlational analysis demonstrated a large positive correlation between academic engagement and academic relationships. Gender differences were not extensive however, the quantitative analysis highlighted more prominent involvement with SNSAs by females which is interesting, in light of social restrictions experienced by females in Saudi society.

**Keywords**—social networking sites and apps, academic engagement, academic relationships, postgraduate.

## **1 Introduction**

Saudi Arabia provides an unusual setting for technological research in education, as while it is relatively advanced in terms of technological capacity [1], there are social limitations due to the gender based educational segregation [2, 3].

Research into the use of Social Networking Sites and Apps (SNSAs) by Saudi university students reveals some interesting patterns. For instance, a study by Al-Zouman [4] with 200 male and female university students found that 80% used SNSAs for up

to two hours a day, with no significant gender differences, attributed to equal access and contact. The results also showed that YouTube was used by 70% of participants, followed by Twitter at 47%, with the majority using social media networks in the home (89%), with only 13-15% using it at the university. For activities and methods of use of SNSAs, the majority of respondents (84%) did not create new content but recycled and republished already existing information [4]. Sourcing additional information and details of events were reported as main motivators for using SNSAs, followed by filling spare time, freedom of speech and informing others of beliefs and opinions. The results also indicated a high level of satisfaction with the speed of news transfer and information, while freedom to express opinions was particularly valued by females [4].

In 2014, Al-Turki [5] with 400 (160 males, 240 females) undergraduate students exploring motivations for using Twitter and its impact on the learning process. The results indicated that the useful features of Twitter motivated students to use it for academic learning. There was also a positive correlation between the academic benefits of Twitter and its level of use by students.

Some Saudi studies were conducted with only male or female participants. For example, Alshaya and Btish [6] conducted a study about the actual use of SNSAs among a sample of female undergraduate students in the Princess Nora University in Riyadh and King Khalid University in Abha, which found a high level of engagement with YouTube, Twitter and Instagram. Another Saudi study conducted by Matouk [7] at the site of the current study, Umm Al-Qura University (UQU) in Makkah, investigated trends in the use of SNSAs with 448 male undergraduate students in the Department of Information Science. He found the majority of participants (94%) use SNSAs such as YouTube, Twitter and Facebook, to communicate with friends (80%) or for entertainment (65%), with smartphones the main access tool. While informative, none of these studies have directly compared use and motivations of both genders in relation to SNSAs.

In terms of different implementations of use of SNSAs within the educational environment of UQU, the university, colleges, staff, lecturers and students use Twitter quite extensively. As per the latest figures available on the UQU Twitter website [8], which was established in 2009, the number of followers was 206,000 and there were 5,202 tweets [8]. The situation with Facebook is similar, with many pages created specifically for the university, staff, college members, and students. On UQU's main Facebook page [9], there were 23,747 users who 'liked' and subscribed to this page, while the number of members was 23,479 [9].

In 2012, the Department of Islamic Education in the Education College established a YouTube channel called 'Khaleelroom' as a part of Dr. Khaleel Alhadri's Room of Educational Knowledge (KAREK), which is designed as a chat room that allows communication between academics and students for academic purposes. Over a twelve month period, the YouTube channel of Khaleelroom had attracted 14,016 viewers not just from Saudi Arabia but also from Algeria, Egypt and the United Kingdom [10], who spent 54,085 minutes viewing recorded videos. In terms of gender, slightly more females (52.5%) than males (47.5%) viewed the videos [10].

In terms of the use of SNSAs by university students in the KSA and UQU, there is not a great deal of information beyond that already presented. Yet an understanding of how these sites and apps are utilized academically might provide greater opportunities to facilitate communication and interaction between students and college members and might reveal differences based on the gender of university students. As the number of users on SNSAs continually increases and the popularity of these sites and apps grows among postgraduate students, it is important to determine more formally the impact of these sites and apps on the academic lives of students by looking at the literature that has examined this aspect in other countries.

## **2 Literature review**

SNSAs have played a crucial role in changing the relationship between students and lecturers, and have affected the academic engagement of students within their universities [11]. SNSAs help create virtual communities where students can communicate, build, and maintain ongoing relationships with their peers or lecturers [12]. Currently, many educators are beginning to use SNSAs within their courses to create virtual environments for communication with their students [13]. From this perspective, many studies identify the impact of using SNSAs on academic engagement and relationships of students.

An American study by Brady, Holcomb [11], highlighted the benefits of using SNSAs in education. These authors surveyed graduate students enrolled in distance education courses and found a positive relationship between using SNSAs and academic engagement, represented by a high rate of communication and deeper levels of reflection among students. However, SNSAs were not effective in providing a sense of social presence within the online community, due to the lack of experience in dealing with these new technologies. This indicates a need for training and support for SNSAs to be used in educational settings for both students and lecturers [11].

Another study conducted in Australia by Wise, Skues [14], examined Facebook usage in order to define the quality of student engagement for a first-year psychology student cohort from a metropolitan Melbourne university. This study indicated that while most students were using Facebook mainly as a means to facilitate social interaction, some believed that SNSAs could be a medium for promoting academic engagement [14].

These results are consistent with the findings of a study by Stollak, Vandenberg [15], who examined grade differences among students at a liberal arts college in the USA, in order to define the impact of using social media on academic engagement. They found that SNSAs had a negative impact on students' grades, especially in relation to Facebook, although there were many variables that changed the level of this impact from one student to another. For example, juniors tended to use SNSAs for building social connections while seniors used them to find jobs, and for discussions relating to their fields of study [15].

This discussion illustrates the mixed research results in relation to the use of SNSAs and the impact on the academic life of university students, both in terms of academic engagement and relationships, as discussed in the following sections.

## **2.1 SNSAs Use in Relation to Students' Academic Engagement**

Recently, researchers have focused specifically on the relationship between student engagement and using SNSAs, which have been integrated into the learning process with the intention of engaging this new technology in the educational environment [16-18]. According to Selwyn [19], SNSAs have become prominent, particularly in university settings, due to the evolution of social software, which enhances connectivity. SNSAs allow students “to enter new networks of collaborative learning, often based around interests and affinities not catered for in their immediate educational environment” [19]. This, in turn, galvanizes students to invest their time and energy to build a virtual community around shared knowledge and interests [20].

SNSAs have been found to foster collaborative learning and encourage active users in similar environments, such as schools and universities, through investing in the communal qualities of official education technology, allowing peer feedback, and connecting social context [20, 21]. From this point of view, educationalists have explored the possibilities of using SNSAs to support traditional interactions and conversations and to offer forums for easy and positive networking between learners and educators [22, 23]. Research by Arnold and Paulus [24] found SNSAs were effective information repositories, with the associated blogs and discussion forums promoting review and reflection. Bugeja [25] reported that SNSAs provided informal learning channels that may re-engage individuals and promote their critical thinking, while Selwyn [19] found they supported formal educational objectives through exchanges between students. Ziegler [26] suggested SNSAs “motivate students as engaged learners rather than learners who are primarily passive observers of the educational process” [26].

In a study conducted by Roblyer, McDaniel [27] with 62 higher education academics and 120 students in a Southern university in the USA, findings indicated that SNSAs were used effectively to support classroom work. However, concerns have been raised about the effects of learners using social media in educational environments, including alienation, disconnection, and disengagement, or on their learning skills and literacies [28]. These fears could also lead to limitations of the current generation to learn, as they use this technology for independent critical thought [19, 26]; this technology could also distract students from their studies [29]. Therefore, SNSAs remain a controversial tool regarding their role in the educational landscape, especially in the western world as discussed.

In non-Western countries, the role of SNSAs as tools in academic environments has not been sufficiently explored. However, a study by Ghazali and Lamy [30], which examined Algerian undergraduate and postgraduate students reliance on the use of SNSAs for academic information, found that 97% used SNSAs as a reference for both general and academic knowledge.

Overall, there is evidence of the positive impact of use of SNSAs on student engagement and learning outcomes, particularly in relation to network establishment and supporting collaborative learning among students. SNSAs have been identified as a tool that supports formal and informal learning, both in and out of the classroom. However, concerns remain regarding the potential for distraction, thereby limiting rather than enhancing academic engagement. While these results have been quite widely investigated, and reported in Western literature, they have not been sufficiently explored in non-Western studies.

## **2.2 SNSAs Use in Relation to Students' Academic Relationships**

Most university students now use some form of SNSAs with current research focusing on investigating the opportunities SNSAs offer for building networks of friendship and knowledge. However, these also involve concomitant security and privacy considerations [31-34]. With SNSAs becoming more integrated into the lives of postgraduate students in particular, it is more common that functional relationships are established with lecturers/supervisors. In this way educators can become involved in students' academic lives through invitations and reminders about events and meetings [35]. The quality of university students' lives is pivotal for their social interactions, in which relationships are made, maintained and evolve [36]. Students usually have a group of close friends, who in turn have similar groups that do not necessarily overlap, but there can be acquaintances or peripherals among them [37]. Applying this concept of friendship to online networks brings people closer, particularly through the use of SNSAs, where this process is practically facilitated [38]. The existence of SNSAs supports and offers an open environment that enhances academic relationships with more opportunities for transformative learning to support productive knowledge construction where identities and minds meet, within the frame of knowledge acquisition and identity formation [39].

Ling [40] suggests that supporting offline connections and personal ties of students is one of the purposes of SNSAs, which can change rapidly in online communities, according to the targets of networks and individuals within them, and the structure of communication [31, 41]. The online communities support students' development via active interaction and opportunities for collaborating with others from different backgrounds to serve as a reference group [36, 42]. This reflects the role of SNSAs in supporting collaborative networking and enhancing interactions that support the power of relationships when academic support is provided [36]. In contrast, Lederer [43] found that SNSAs discouraged direct communication (face-to-face) among students, such that, "some educators are concerned that, while real-time digital streams may create a safe harbor for students who are uncomfortable expressing themselves, students are missing valuable lessons in real-life social skills" [43].

In a USA study conducted by Hewitt and Forte [44], two-thirds of the participating students were comfortable in terms of their relationships with their lecturers/tutors on Facebook, and believed that it was an alternative channel for communication and a better way to get to know their professors. However, the other third of the student sample raised concerns about privacy issues and identity management, and believed

that academics should not be on Facebook [44]. Similarly in another USA review of SNSAs use in academia and pharmacy education, Cain [45] acknowledged concerns related to privacy and physical safety through excessive personal information being displayed, yet found that SNSAs were useful in enabling student connectedness, maintaining relationships, and supporting belongingness on campus.

In terms of non-Western literature, a few studies have explored the use of SNSAs in relation to academic relationships. In Algeria, Belarbi [46] surveyed postgraduate students to examine the role of SNSAs (e.g. Facebook) in increasing interactions within the university environment. The results showed that the students were motivated to develop academic relationships, which were not welcome by their lecturers due to privacy issues and informality. Another Algerian study by Nawal [47] with 76 undergraduate students found that SNSAs (Facebook) primarily helped students develop relationships for the purposes of friendship, studying, and academic research.

In summation, a number of studies have supported the crucial role that SNSAs play in fostering online networks of students and in assisting them in maintaining their academic relationships. However, other studies raised concerns regarding ramifications of using SNSAs in terms of privacy, identity management and discouragement of face-to-face communication. These results reflect the importance of understanding how students use SNSAs to build their relationships and organize their online social networks to support their academic lives, especially in Non-Western contexts where little research exists.

### **2.3 Research Question**

In light of the identified gaps in the literature and the significance of an investigation into how students in non-Western contexts are engaging with and being influenced by SNSAs usage, the following research question underpinned the study:

How do Saudi male and female postgraduate students perceive the impact of engagement with SNSAs in terms of their a) academic engagement and b) academic relationships?

## **3 Methodology**

### **3.1 Sample**

Altogether 606 postgraduate students participated in this study - 313 males and 293 females. The majority (97.5%) were under 40 years of age and from a number of discipline backgrounds at UQU in Makkah, within the Education College which was chosen due to the high number of students in higher degrees [48]. The students were studying in two campuses according to gender - Al-Zahir campus for female students and Al-'Abdiyah campus for male students.

### **3.2 Procedure**

A concurrent nested triangulation mixed method design of Onwuegbuzie and Collins [49] was adopted for the data collection in this study. To obtain a representative sample in both campuses of UQU, 927 hard copies of the survey (480 copies for males and 447 copies for females) were distributed to postgraduate students in 26 classes during the first and second semesters of 2013/2014. A total of 606 valid surveys were returned, representing a 65% response rate. This high response rate would appear to be reflective of the interest of participants in how this form of technology (SNSAs) integrated into their academic life. The qualitative sample represented a subset of the quantitative sample with 61 students (28 male and 33 female) participating in individual interviews and focus group discussions. Seven individual and four focus group interviews were conducted for each gender, resulting in over 17 hours of recorded discussion. The interviews were conducted face-to-face for male participants and through the KAREK for the female students. As the interviewer was male, the KARAK, which was described in the introduction, enabled interaction within the confines of the segregated learning environment within Saudi Arabia.

### **3.3 Instrument**

The survey contained questions for gauging the intensity of SNSAs use and two subscales to measure academic engagement and academic relationships.

**Academic Engagement Subscale.** Seven items based on a scale created by Gómez, Roses [50] were developed to measure the frequency of use of SNSAs for academic purposes on a weekly basis, via a five-point Likert scale with anchors ranging from 1 (Never) to 5 (Always). Respondents were asked about the frequency of using SNSAs to help them resolve academic queries related to the content of their subjects or exams, to obtain information and updates, and to facilitate assignment completion.

**Academic Relationships Subscale.** This seven item subscale was also based on the scale developed by Gómez, Roses [50], and designed on a five-point Likert scale with anchors ranging from 1 (Never) to 5 (Always) to measure the frequency of student use of SNSAs on a weekly basis. The content of this subscale explored the role of SNSAs in aiding academic relationships with others in the following academic aspects: resolving academic problems, obtaining information about university activities, organizing extracurricular activities with peers or staff, obtaining recommendations from lecturers on academic sources, contacting experts, consulting lecturers and participating in academic group discussions with peers and staff related to the curriculum.

**Validity and reliability.** To ensure that the measurements of academic engagement and relationships were valid, the subscales were evaluated by conducting a factor analysis (principal component analysis or PCA). Prior to the factor analysis, both the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (value should be 0.6 and above) and Barlett's Test of Sphericity (BTS) (the value should be significant at 0.5 or smaller) were applied to ensure the sufficiency of the data for factor analysis

[51]. The KMO value exceeded 0.6 (.851 for the academic engagement subscale, and .863 for the academic relationships subscale) and the Bartlett’s test results were significant ( $p = .000$ ), so the data supported the use of factor analysis. The number of factors was determined with Kaiser Criterion (KC) (eigenvalue rule), in which only factors with an eigenvalue of 1.0 or more are retained [51]. After factor analysis, only one factor emerged for each subscale with 3.84 of eigenvalue for the academic engagement subscale, and 3.76 for the academic relationships subscale. Reliability was assessed with Cronbach’s alpha for the items of the subscale showing an acceptable level of reliability of 0.86 for each subscale.

## 4 Findings

Survey data were analyzed in SPSS while qualitative data were transcribed into textual data, and thematically analyzed [52] to develop the main themes and sub-themes described in the following sections.

### 4.1 Intensity of SNSAs Use

Due to the dearth of studies relating to the intensity of SNSAs use by UQU post-graduate students, two questions on the survey focused on the time spent daily using SNSAs and the level of involvement in friends’ accounts. The results of these questions are outlined in Table 1.

**Table 1.** Intensity of SNSAs Use

	%	Mean	St. Dev.
<b>Q1: Amount of Time Spent Using SNSAs on an Average Day</b>		<b>3.29</b>	<b>1.37</b>
30 minutes or less	13.5		
Between 30 minutes and 1 hour	15.2		
Between 1 and 2 hours	26.1		
Between 2 and 3 hours	18.3		
More than 3 hours	26.6		
<b>Q2: Level of Involvement in Friends’ Accounts on SNSAs</b>		<b>3.15</b>	<b>1.29</b>
Rarely visit	13.4		
Only read comments	17.8		
Read posts and comments	26.2		
Read posts and comments and then respond	24.4		
Read posts/comments, respond, and introduce new topics	17.7		

While a Likert scale was not used in the survey to rank the responses to the two questions assessing the intensity of SNSAs use, it was determined as suitable to calculate an overall mean score for each, as discrete categories were involved. Therefore, to help provide consistency in the interpretation of the intensity of use, the following

mean ranges were used to describe what a low, moderate or high level of intensity was:

- Mean below 2.5 represents Low intensity
- Mean between 2.6 and 3.9 represents Moderate intensity
- Mean above 4 represents High intensity

The mean scores for the first question ( $M=3.29, SD=1.37$ ) and the second question ( $M= 3.15, SD=1.29$ ) indicated a moderate level of intensity overall. Looking at the particulars in the first question, a high proportion of participants (73%) spent up to 3 hours a day using SNSAs, while it was clear in the second question that more than two thirds (69%) of participants indicated a fairly high level of involvement, which includes visiting and reading comments on their friends’ accounts and then responding to them through SNSAs.

#### 4.2 Perceptions of the Impact of SNSAs from the Survey

Participants’ perceptions regarding their level of academic engagement and relationships are presented in Tables 2 and 3. For the purposes of determining whether engagement could be described as low, medium or high the following descriptors were adopted within all the subscales on the survey that used the same frequency scale of 1 (Never) to 5 (Always):

- Mean below 2.5 represents Low level of engagement (LE)
- Mean between 2.6 – 3.9 represents Moderate level of engagement (ME)
- Mean above 4 represents High level of engagement (HE)

**Table 2.** Mean Responses on the Level of Engagement on SNSAs on a Weekly Basis for the Propose of Academic Engagement

	Mean	St. Dev.
<i>How often do you use SNSAs to engage in the following academic activities?</i>	<b>3.36</b>	<b>.92</b>
1. Resolving queries about content	2.79	1.17
2. Resolving queries about exams	3.15	1.19
3. Finding out what was missed while absent	3.56	1.34
4. Cooperating in assignment completion	3.75	1.24
5. Knowledge of the latest progress in class	3.54	1.26
6. Exchanging lecture notes	3.37	1.25
7. Exchanging information sources	3.37	1.20

In Table 2, the results indicate that the means of all the items relating to academic engagement were interpreted as representing a moderate level of engagement (ME). The activities relate to the role of SNSAs in engaging students academically both inside and outside the classroom. For example, cooperating with other students to complete assignments had the highest mean score ( $M=3.75, SD=1.24$ ), followed by finding out what had been covered in lectures while absent ( $M=3.56, SD=1.34$ ) and remaining updated ( $M=3.54, SD=1.26$ ).

The results in Table 3 illustrate that the responses relating to academic relationships ranged from  $M=2.40$  to  $M=2.85$ , on average. The mean overall score was 2.66,

and the standard deviation was 0.92, which indicates a low to moderate (LE/ME) level of engagement with SNSAs by students in relation to the areas considered within the construct of academic relationships.

Overall, the survey results indicated that participants perceived their level of weekly engagement with SNSAs as mainly moderate in relation to the 14 areas covered by the two scales relating to academic engagement and academic relationships.

As a part of understanding the nature of using SNSAs academically, the Pearson correlation coefficient (PCC) test was used in order to explore the correlation between the academic engagement and relationships scales. According to the guidelines of Cohen [53], who suggests that a PCC value ( $r$ ) from .10 to .29 indicates a small correlation, an ( $r$ ) from .30 to .49 indicates a medium correlation and an ( $r$ ) from .50 to 1.0 indicates a large correlation, the result indicated to existence of large positive correlation between the academic engagement and academic relationships scales ( $r = .54$ ) as presented in Table 4.

**Table 3.** Mean Responses on the Level of Engagement on SNSAs on a Weekly Basis for the Propose of Academic Relationships

	Mean	St. Dev.
<i>On a weekly basis, how often do you use SNSAs to aid in the following academic tasks?</i>	2.66	.92
1. Resolving university life problems	2.85	1.30
2. Finding out about university activities	2.75	1.24
3. Organizing extracurricular activities	2.40	1.25
4. Obtaining advice on books	2.61	1.25
5. Contacting experts	2.46	1.21
6. Consulting lecturers	2.69	1.28
7. Participating in academic group discussions	2.84	1.32

**Table 4.** Pearson Correlations between the Academic Measures of Using SNSAs

No.	Measure		1	2
1	Academic engagement scale	Pearson Correlation		.540**
		Sig. (2-tailed)		.000
2	Academic relationships scale	Pearson Correlation	.540**	
		Sig. (2-tailed)	.000	

\*\* . Correlation is significant at the 0.01 level (2-tailed).

### 4.3 Gender Differences

An independent samples t-test was conducted and the differences in means for each item within the academic engagement and relationships scales between males and females are presented in Tables 5 and 6.

The results in Table 5 showed a statistically significant difference in the overall mean score of males ( $M=3.26$ ,  $SD=58.9$ ) and females [ $(M=3.46$ ,  $SD=.865$ ;  $t(602.7) = -2.73$ ,  $p=.01$ ]. While the effect size, which was calculated with the use of Eta-

**Table 5.** Gender Comparison: Academic Engagement scale

	Variable	Male Mean	St. Dev.	Female Mean	St. Dev.	
1	Resolving queries about content	2.76	1.186	2.82	1.150	
2	Resolving queries about exams	3.10	1.203	3.20	1.180	
3	Finding out what was missed while absent	3.47	1.389	3.66	1.283	
4	Cooperating in assignment completion	3.57	1.259	3.96	1.178	
5	Knowledge of the latest progress in class	3.44	1.331	3.65	1.168	
6	Exchanging lecture notes	3.29	1.260	3.45	1.233	
7	Exchanging information sources	3.21	1.259	3.54	1.119	
	Overall	3.26	.958	3.46	.865	
Overview Result				t-test for Equality of Means		
Gender	N	Mean	St. Dev.	t	df	Sig. (2-tailed)
Male	313	3.26	.958	-2.73	602.7	.007
Female	293	3.46	.856			

**Table 6.** Gender Comparison: Academic Relationships scale

	Variable	Male Mean	St. Dev.	Female Mean	St. Dev.	
1	Resolving university life problems	2.74	1.339	2.97	1.263	
2	Finding out about university activities	2.51	1.240	3.01	1.180	
3	Organizing extracurricular activities	2.17	1.218	2.66	1.243	
4	Obtaining advice on books	2.53	1.275	2.69	1.223	
5	Contacting experts	2.30	1.219	2.64	1.165	
6	Consulting lecturers	2.44	1.318	2.96	1.192	
7	Participating in academic group discussions	2.60	1.306	3.10	1.291	
	Overall	2.47	.935	3.86	.868	
Overview Result				t-test for Equality of Means		
Gender	N	Mean	St. Dev.	t	df	Sig. (2-tailed)
Male	313	2.47	.935	-5.36	603.95	.000
Female	293	3.86	.868			

squared ( $n^2$ ), as proposed by Cohen [53], indicates that the magnitude of the difference in the mean was small ( $n^2=.012$ ). The Crosstable for the items of scale, results showed that females used SNSAs in relation to supporting their academic engagement more than males, with the differences particularly for cooperating in assignments and exchanging information sources.

In Table 6, the results for the academic relationships scale showed a statistically significant difference in mean scores for males ( $M=2.47$ ,  $SD=.935$ ) and females [ $M=3.86$ ,  $SD=.868$ ;  $t(604) = -5.36$ ,  $p=.00$ ]. While the effect size of the difference in the academic relationships scale was small ( $n^2 = .045$ ), females definitely indicated a higher level of utilization of SNSAs for assisting with their academic relationships than did their male counterparts. Through the Crosstable in the items of scale, the differences were particularly noticeable in relation to consulting lecturers, obtaining information in relation to university activities and participating in academic group discussion.

#### 4.4 Perceptions of the Role of SNSAs from the Open-Ended Survey Question

The goal of the open-ended question was to investigate how participants perceived the role of SNSAs in assisting them to improve their academic research. By using thematic analysis, two main themes emerged as outlined in Table 7.

**Table 7.** Role of SNSAs in Academic Research

Themes	Sub-themes	Frequency of mention			
		Males		Females	
		N	%	N	%
Communicating with researchers	- Seeking academic experts' assistance	49	22.3	50	31.5
	- Finding researchers in similar fields	22	10	20	12.6
	- Exchanging opinions re academic research	17	7.7	29	18.2
	- Conducting academic research	4	1.8	13	8.2
Total		<b>92</b>	<b>41.8</b>	<b>112</b>	<b>70.5</b>
Obtaining academic resources	- Obtaining academic information and statistics	90	40.9	65	40.9
	- Accessing academic references for research	22	10	40	25.2
Total		<b>112</b>	<b>50.9</b>	<b>105</b>	<b>66.1</b>

#### 4.5 Perceptions of the Impact of SNSAs from the Interviews and Focus Groups

Analysis of interview data resulted in the emergence of three main themes representing benefits and two themes representing limitations of using SNSAs, as outlined in Tables 8 and 9.

**Table 8.** Themes relating to SNSAs and Academic Engagement

Themes	Sub-themes	Frequency of mention	
		Male	Female
<b>Benefits</b>			
Completing academic assignments and research	Correspondence between members	18	8
	Exchanging information resources	9	10
	Managing academic workshops	1	3
	Watching academic lectures and seminars	-	5
Keeping up to date with latest progress in the disciplines	Learning of new research proposals and methods	7	12
	Accessing dates of upcoming courses and events	4	7
	Obtaining new sources of discipline related information	5	4
Organizing academic activities	Posting invitations for activities	14	6
	Organizing forums and regular meetings	3	-
	Knowing attendee numbers for events	4	-
	Communicating with trainers/receiving PD packages	2	-
<b>Limitations</b>			
Capabilities of SNSAs	Excessive speed for disseminating information	2	-
	Lack of credibility of invitations and overlap in times	3	-
	Lack of enough space for sending information	-	2
Competency of users	Lack of academics' experience in using SNSAs	1	1
	Lack of ability to attend the venues of activities	1	1

**Table 9.** Themes relating to SNSAs and Academic Relationships

Themes	Sub-themes	Frequency of mention	
		Male	Female
<b>Benefits</b>			
Communicating socially with classmates and academics	Strengthening former and current relationships	6	6
	Understanding social aspects of personalities	2	1
	Building social relationships outside university	11	5
	Communicating simultaneously with a large group	3	-
Building international academic relationships	Contacting researchers in different countries	9	16
	Obtaining biographies of researchers	1	1
	Knowing previous graduates	-	3
	Discovering and accessing eminent experts	-	2
Benefiting from relationships with academic users	Conducting direct consultations	2	3
	Following up on academic researchers' accounts	2	-
	Engaging in academic discussion	1	2
<b>Limitations</b>			
Behavior of users	Lack of face-to-face meetings	2	-
	Decreasing attendance at the university	-	2
	Spending too much time	-	2
Competency of users	Lack of SNSAs use by some academics	2	-

## 5 Discussion

The main purpose of this study was to explore perceptions of postgraduate students in Saudi Arabia about the impact of SNSAs use on their academic engagement and relationships. Survey data illustrated a medium level of SNSAs use for purposes of academic engagement and relationships, while the interview data revealed elevated levels of SNSAs use for both academic domains.

### 5.1 Impact of SNSAs Use on Academic Engagement

In both the individual and focus group interviews, participants outlined a range of academic practices related to SNSAs, which they felt contributed to their academic engagement. Three main themes emerged which supported survey findings. The first theme pertained to the opportunities provided by SNSAs to support cooperation in completing academic assignments and research. Participants found SNSAs assisted in the exchange of academic information and lecture notes with classmates, either individually or via chat groups, and through being able to seek assistance from specialists, such as lecturers, statisticians, and international researchers. The access to specialists also provided help with assignments, especially viewing videos of seminars. This supports survey results, where using SNSAs to cooperate in completing an assignment was the most frequent activity ( $M=3.75$ ,  $SD=1.24$ ) reported on the academic engagement scale, followed by exchanging lecture notes ( $M=3.37$ ,  $SD=1.25$ ). The activity with the lowest frequency was using SNSAs to resolve queries about content ( $M=2.79$ ,  $SD=1.17$ ) and exams ( $M=3.15$ ,  $SD=1.19$ ). However, this could be attributed

to the limited use of textbooks and exams at the postgraduate level. In the open-ended question on the survey, participants highlighted the value of being able to access academic statistics and references to support research on SNSAs, which were also used to disseminate questionnaires more widely.

Previous studies [19, 27] confirm the role of SNSAs in academic activities related to university, but mainly at an undergraduate level. In the current study, participants highlighted activities related to academic research and pertaining more specifically to postgraduate students such as finding references and disseminating surveys. The results of the current study thus reveal research benefits through use of SNSAs.

The second theme involved the potential for staying abreast of the latest academic developments in disciplines and areas of research through following the latest academic news, finding out course and conference dates, and obtaining resources via SNSAs. These results show the role performed by SNSAs in enabling postgraduate students to keep up their academic engagements both inside and outside classes. Other studies in the West have confirmed the role of SNSAs inside class; for example, Selwyn [19], in the UK, and Pempek, Yermolayeva [54], in the USA, reported that students used SNSAs to find the location and scheduling of lectures and seminars. This indicates the nature of SNSAs, as revealed in the literature and confirmed by the current study, as academic information repositories, which deliver valuable information and help promote others' work [24].

The third theme related to the possibilities for organizing and preparing academic activities on SNSAs. Participants affirmed the use of SNSAs for distributing information relating to course content and conferences among their peers, which was perceived as valuable due to the speed and low cost. Participants also used SNSAs for organizing and listing invitations in a reminder list, finding out attendee numbers for specific events, and for receiving training packages. This reflects the strength of the positive relationship between sending invitations and preparing academic activities through SNSAs and the level of student engagement [55], and it highlights the role of SNSAs in stabilizing the university life of engaged students and reflecting their connectivity with the informal academic environment [56].

Participants discussed a number of limitations associated with the use of SNSAs in relation to academic engagement. Two main themes emerged in relation to the technical capabilities of SNSAs and the technical competence of users of the technology. Concerns were raised about the speed of the dissemination of information through SNSAs related to new academic courses, which effectively reduced the opportunity to enroll in these courses. Another concern related to the lack of credibility regarding invitations on SNSAs, with instances of overlap in the times of invitations. These concerns were also raised by Bkhosh [57], who reported that the speed of disseminating news by SNSAs makes controlling and following the content of this technology difficult, relative to traditional media such as newspapers.

Another barrier raised in this study was that SNSAs, such as Twitter, which was used by 21.9% of participants, has a limited capacity for spreading academic information and was not well understood or utilized by academics [27]. This contrasted with the findings in two other studies [5, 23] which found Twitter to be beneficial. Participants in the current study also discussed limitations of receiving invitations to

attend activities via SNSAs, which was not always possible due to distance or cost. Yet this could be considered an indication of the capacity of SNSAs, which also was reported by Salvania and Pabico [58] in a Philippines study, where events were sent to large number of readers in different places. Prior to this form of technology, people tended to be aware of events that were in their immediate locale which they were more likely to attend.

## 5.2 Gender Differences in SNSAs use related to Academic Engagement

Results for the academic engagement scale indicated the higher use of SNSAs by females, ( $M=3.46$ ,  $SD=0.87$ ), compared to males ( $M=3.26$ ,  $SD=0.95$ ). Similarly, female responses to the open-ended survey question about the role of SNSAs in academic research, reported more frequent use to locate academic references related to their research (25.2% of females, 10% of males), and as an avenue for distributing their research surveys (8.2% of females, 1.8% of males). In the interviews and focus groups, female participants also mentioned (5 times) use of SNSAs for watching academic seminars and lectures, whereas this was not mentioned by their male counterparts. In addition, females mentioned (12 times) use of SNSAs for obtaining information about the latest research proposals and methods, whereas males mentioned this less often (7 times). These findings concur with a Turkish study by Mazman and Usluel [59], which reported that female students used SNSAs for academic use more than male students.

However, the high use of SNSAs for supporting academic work by females in Saudi Arabia could be attributed to the restricted interaction between females and males in the academic environment because of legal and religious reasons [3]. Female participants revealed how SNSAs helped them to communicate with academics and researchers both locally and globally to support their academic research. This indicates the usefulness of SNSAs in providing postgraduate female students with greater privacy and convenience in overcoming some of the communication limitations associated with the segregation issues between males and females in the learning environment in Saudi Arabia [2]. Therefore, using SNSAs appears to be particularly useful for females, providing a means for bridging this gap in the connection between genders for academic purposes [60]. This concurs with the results of the ACSRC [61] in Saudi Arabia where females (36.9%) used the Internet slightly more than males (31.6%) for educational purposes, including distance learning and visiting websites of universities.

In contrast, male participants in the current study indicated during the interviews and focus groups (18 times) that they used SNSAs more than females (8 times) to exchange academic experiences with their peers. In addition, males mentioned more often (23 times) than females (6 times) use of SNSAs for organizing academic activities and events. These results concur with studies in Turkey [62], Malaysia [63], and Kuwait [64], which indicated that males did not use SNSAs as a tool for performing their academic tasks or homework directly as much as an avenue for academic communication, to support their academic work with their peers, faculty members and researchers. Given the importance of these findings, further research should investi-

gate these differences between the genders of academic use on SNSAs in different socio-cultural contexts.

### 5.3 The Impact of SNSAs use on Academic Relationships

Through the interviews and focus groups, participants described a wide range of experiences, with regard to the construction of academic relationships, indicating an overall positive perception of the impact of using SNSAs. Three main themes emerged from the analysis and were supported by survey findings. The first focused on developing local academic relationships with others socially on SNSAs and on maintaining these relationships and supporting them outside the university with previous and current classmates, researchers and academics, communicating with them in chat groups, and understanding their social personalities. In the survey, participants revealed that using SNSAs to participate in academic discussion groups was the second highest activity ( $M=2.84$ ,  $SD=1.32$ ). These positive results and experiences are consistent with other studies supporting SNSAs as positive peer-to-peer communication tools [54, 65].

The second theme focused on use of SNSAs to build international relationships. The academic relationships scale in the survey indicated that participants used SNSAs to contact experts ( $M=2.46$ ,  $SD=1.21$ ). Alghanmi [66] also found SNSAs beneficial for students to form academic relationships with international researchers. When minds and identities meet, geographical boundaries diminish and networks expand [39].

The third theme centered around benefiting from building academic relationships within the same disciplines on SNSAs through conducting direct consultations, following accounts of academic researchers and being involved in group discussions. Survey results indicated that participants used SNSAs to consult with lecturers ( $M=2.69$ ,  $SD=1.28$ ). Pempek, Yermolayeva [54] also found students used SNSAs to interact with professors and alumni to obtain assistance in their fields, while Asad, Al Mamun [36] found that active interaction on SNSAs between students and others from different backgrounds provided new reference groups.

Nonetheless, a number of limitations or challenges related to the development of academic relationships on SNSAs were raised by participants in the current study. Some emerged from the way in which SNSAs are used, which can limit direct meeting among students and the associated social skill development [43], reduce physical attendance at the university, and increase time spent socially on SNSAs. This was also found in an Algerian study by Sufian [67], which confirmed that overuse of SNSAs can result in diminishing direct meetings between students and loss of social ties. Another limitation was associated with a lack of use of SNSAs by some academics. This issue was also raised by Belarbi [46], who noted reticence on the part of academics to use SNSAs to build connections with students. Yet Hewitt and Forte [44] found that the majority of students believed that academics should not be using SNSAs due to privacy and identity management issues.

#### 5.4 Gender Differences in SNSAs use related to Academic Relationships

In the current study, the academic relationships scale on the survey showed the most significant difference between females ( $M=3.86$ ,  $SD=0.87$ ) and males ( $M=2.47$ ,  $SD=0.94$ ) regarding use of SNSAs. Female participants utilized SNSAs to participate in academic discussions ( $M=3.10$ ,  $SD=1.29$ ) more than male participants ( $M=2.60$ ,  $SD=1.31$ ), and to find out about university activities ( $M=3.01$ ,  $SD=1.18$ ) more than males ( $M=2.51$ ,  $SD=1.24$ ). Qualitative data supported these results, with 16 mentions by females relating to the use of SNSAs for building international relationships to communicate with researchers compared with 9 mentions by males. These results affirm those of Al-Shehri [68], which found that more than half of Saudi female participants enjoyed using SNSAs as communication tools to build their relationships for academic purposes with international friends, due to the lack of time and place restrictions.

In contrast, male participants in the current study mentioned (11 times) that they used SNSAs for developing local relationships socially with academics outside the university, compared with only 5 mentions by female participants. Hewitt and Forte [44] also found that male students tended to accept the existence of academics on SNSAs more than females, which was attributed to the perspective of male students viewing getting to know their lecturers/tutors as beneficial.

These results are broadly consistent with Belarbi's [46] finding that most students enjoyed joining other lecturers and researchers on SNSAs to receive academic support and information. This could be due to SNSAs enabling a more comfortable environment for communication away from the associated work pressures, and finding a space for discussion without social barriers [46]. In contrast, in the USA, Muscanell and Guadagno [69] found that males used SNSAs more for forming new relationships, while females used them more for maintaining relationships. However, in the current study males were not just using SNSAs to develop their relationships but also to benefit from these relationships in their research. The differences in the targets of constructing academic relationships on SNSAs in the Saudi context could be attributed to the segregation in learning environment, where female students face challenges in terms of being in contact with males outside their family [3].

## 6 Conclusion

Findings from the current study support SNSAs having a strong impact, evident from their influence on the academic engagement and relationships of students, although the level of SNSAs use was moderate in the aforementioned aspects. SNSAs enabled postgraduate students to stay abreast of current factors associated with their academic lives via connectivity with the academic outside world, allowed them to master their academic skills in the academic field by enriching their knowledge, and made it possible to limit difficulties caused by expense and distance through the renewable capacities of SNSAs. Participants did, however, raise concerns about the lack of knowledge and misuse of this technology. This indicates the importance of continuing research into determining the academic impact of SNSAs use by students, par-

ticularly since the present study provides new insights into the use of SNSAs in the Middle East. The large positive association between academic engagement and relationships confirmed the collaborative roles in improving the academic lives of students. Gender differences were mostly attributed to the cultural context of the Saudi community and indicated the capacity of SNSAs to adapt the conditions of users' lives associated with the background and views of their community, supporting the need for exploring the role of SNSAs in this regard within different regions of the world.

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