



Impact of social media usage on students academic performance in Saudi Arabia



Esam Alwagait^a, Basit Shahzad^{a,*}, Sophia Alim^b

^a College of Computer & Information Sciences, King Saud University, Riyadh, Saudi Arabia

^b Independent Researchers, UK

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ABSTRACT

Social media is a popular method for communication amongst university students in Saudi Arabia. However excessive social media use can raise questions about whether academic performance is affected. This research explores this question by conducting a survey on university students in Saudi Arabia in regards to social media usage and their academic performance. The survey also explored which social network is the most popular amongst Saudi students, what students thought about their social media usage and factors besides social media usage which negatively affect academic performance.

The survey received 108 responses and descriptive statistics including normality tests i.e. scatter plots were used to examine the relationship between the average number of hours students spent of social media a week and GPA scores of the students. The results demonstrated that there was no linear relationship between social media usage in a week and GPA score. Students highlighted that besides social media use, time management is a factor which affects students' studies negatively.

The findings of the paper can be used to propose the effective plans for improving the academic performance of the students in such a way that a balance in the leisure, information exchange and academic performance can be maintained.

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1. Introduction

The use of social media plays a variety of roles in education as highlighted by Al-Khalifa and Garcia (2013), which include providing a media to share ideas as well as allowing students to build their own communities to collaborate with each other, facilitating the art of learning and reaching out to the students in order to understand and teach them at the same time. Studies such as Junco, Heiberger, and Loken (2011), Tariq, Mehboob, Khan, and Ullah (2012), Sampson, Lytras, Wagner, and Diaz, 2004, García-Peñalvo, Colomo-Palacios, and Lytras, 2012 and Camilia, Ibrahim, and Dalhatu (2013) have explored the effects of social media use on students' academic performance, ability to engage and the effect on their lives, in countries such as USA, Pakistan and Nigeria.

Junco et al. (2011) research explored the impact of Twitter usage for educational purposes on college student engagement and learning in the USA. Results indicated that Twitter can engage students by being used as an educational tool and to facilitate a more active role, in which teaching staff can participate. Tariq

et al. (2012) focused on the impact of social media, on the education of Pakistani students as well as the impact on their lives. The research concluded that the use of social media by teenagers and children could ruin their lives as well as have a bad impact on their education. Social media diverts the attention and concentration of students towards activities which are not educational and time wasting such as chatting on non educational topics.

Camilia et al. (2013) looked into the role of social media in Nigerian students' studies by distributing a survey. The study found that the frequent use of social media by students had no effect on their studies. In contrast to Kaplan and Haenlein (2010), WiredSaftey (2009), Tariq et al. (2012), concentrated on university students in Saudi Arabia. The aim is to explore the relationship between the use of social media by Saudi Arabia university students and their academic performance. Our research study involves distributing an online survey to students to ascertain information on their social media usage and GPA scores. Also their views on the effect of social media on their academic performance are collected. Al-Mudimigh, Ullah, and Shahzad (2010) demonstrated that how the university portals are developed, the examples are (Al-Ohali, Al-Oraji, & Shahzad, 2011; Shahzad & Alwagait, 2013; Alwagait & Shahzad, 2014).

* Corresponding author.

E-mail addresses: alwagait@ksu.edu.sa (E. Alwagait), Basit.shahzad@gmail.com (B. Shahzad), sophiaalim66@gmail.com (S. Alim).

A previous study by Ketari and Khanum (2013) explored the relationship between social media usage and academic performance in Saudi Arabia, through the distribution of a self-administered survey. The study focused on Facebook as the social media platform and utilised the survey to ascertain from the participants, their thoughts on the effect of Facebook use on their academic performance.

Our research differs from Curtis (2011), i.e. the survey covers a variety of social media such as Facebook and Twitter. The evaluation of the outcome of the study, are based on several parameters: the recommended number of hours to be used on the social media based on the information retrieved from the students, the percent change in social media connectivity between 2012 and 2014, the most popular social media platform among the Saudi students as well as the relationship between academic performance and social connectivity.

The structure of the paper is as follows. Section 2 explores the foundations of social media through Web 2.0 as well as the risks that social media brings. Section 3 describes our methodology regarding the online survey. Section 4 discusses the findings and Section 5 concludes the paper.

2. Related work

Social media is defined by Kaplan and Haenlein (2010) as “*internet based applications that allow the creation and exchange of content which is user generated*”. Social media allows users as well as communities to create, collaborate and edit user content. Key features of Web 2.0 included providing a rich user experience, where users interact with the data which is dynamically created from users’ input, users act as contributors to a site through reviews as well as comments and allowing users to classify and find information through the art of tagging. Features of Web 2.0 have formed a solid foundation for social media as highlighted by Kaplan and Haenlein (2010) and the reverse of the relationship is noted by Hendler and Golbeck (2008). Social media exists in a variety of forms, which are presented in Table 1 below.

Table 1 has illustrated the various forms of social media users can use to communicate and interact with other users, whether they are friends, work colleagues or strangers. The popularity of social media illustrated by statistics (Curtis, 2011) in 2013 such as Facebook had 1.1 billion users, Twitter had 500 million users registered on its site, Flickr had stored 8 billion photos as well as having 87 million users and LinkedIn had 225 million users, whilst MySpace had 25 million users, has highlighted the success of Web 2.0.

2.1. Social media usage and risks

Studies conducted in the USA (Salter & Junco, 2007; Subrahmanyam, Reich, Waechter, & Espinoza, 2008) have found

that that social media connectivity has become an integral part of the students. Subrahmanyam et al. (2008) study which took place in a Los Angeles university identified that 94% of first year college students use social media more specifically SNS.

Although the popularity of Facebook is overwhelming, Saudi Arabia contains a high number of Twitter users, which drives the use of the 140 (McFedries, 2007) character magic. This data can be used to analyse behaviour. Grosseck and Holotescu (2011) is an advocate of using Twitter for education activities such as research as it eases the analysis of information. Al-Khalifa (2008) has identified that 58% of the students in his research showed positivism for using Twitter for academic purposes while 37% had resistance in using Twitter for academic purposes.

The use of social media has a variety of disadvantages especially for students. Some of those disadvantages include cyber bullying, personal data leakage, recruitment for jobs and time wasting. Cyberbullying is the act of bullying a person through the use of electronic communication, by sending message which are threatening or intimidating (Dictionary, 2014). Direct attacks of cyber bullying involve sending messages to the person directly via means such as text message, instant messaging, SNS, blogs, creating websites to tease or hurt the person, stealing passwords for accounts such as email as well as social media accounts to pose as the person in order to hurt other people, sending malicious code (Viruses and Malware), sending pictures via email or mobile phones and interactive gaming i.e. Playstation network (WiredSafety, 2009).

Cyberbullying via the use of social media occurs in universities, as highlighted by Walker, Sockman, and Koehn (2011) and Zhang, Land, and Dick, 2010. Zhang et al. (2010) research which surveyed 134 university students, found that 62% of the students had experienced cyber bullying and 40% of the students had taken part in cyber bullying themselves. Cyber bullying amongst university students led to tragic consequences in 2010. A student called Tyler Clementi, who was a freshman at Rutgers University committed suicide over the broadcasting of an intimate encounter via a web camera over Twitter. The camera had been set up by Tyler’s roommate (Pilkington, 2010). This tragedy highlighted the power of social media and the psychological impact it can have.

Some university students have grown up in a generation, where technology has grown significantly and the use of the internet and social media is part of their daily lives. A study carried out by Harvard University (Tamir & Mitchell, 2012), showed disclosing personal information, activates the part of the brain which signifies pleasure. Other activities which activate this part of the brain include receiving money and enjoying good food. Consequently, this leads to social media being addictive and time wasting because other tasks are put to one side.

The use of social media involves displaying personal details via user profiles. Posting personal information on a user profile which

Table 1
Forms of social media adapted from Grahl (2012).

Forms of social media	Description
Social networking sites (SNS)	Services in which users set up a profile in order to establish a connection with friends or other users, who have similar backgrounds or interests. The profile contains a users’ personal information. SNS provide various ways for users to interact with one another. Examples of SNS include Facebook and LinkedIn
Bookmarking sites	Services which allow users to save search and organise links to various internet resources and websites. Some services will allow the tagging of links in order for them to be shared easily as well as being searched for. Examples of bookmarking sites include del.icio
Micro blogging sites	Services which combines SNS and blogging but the messages exchanged are limited in terms of size. Users have to subscribe to the services. Examples of micro blogging sites include Twitter
Media sharing sites	Services which allow users to upload and share media such as videos and photos as well as allowing users to comment and tag media. Examples of media sharing services include YouTube and Flickr
Social news sites	Services that allows other users to vote on news articles and links to external articles, which are posted by users. The news articles that get the most votes are displayed more prominently on the site. Examples of social news sites include Digg and Reddit
Blogs and forums	Blogs are like online diaries of thoughts, which give other users the opportunity to post comments on the blog postings. Forums allow registered users to have conversations with other users by post messages. Examples of blogging sites include Wordpress

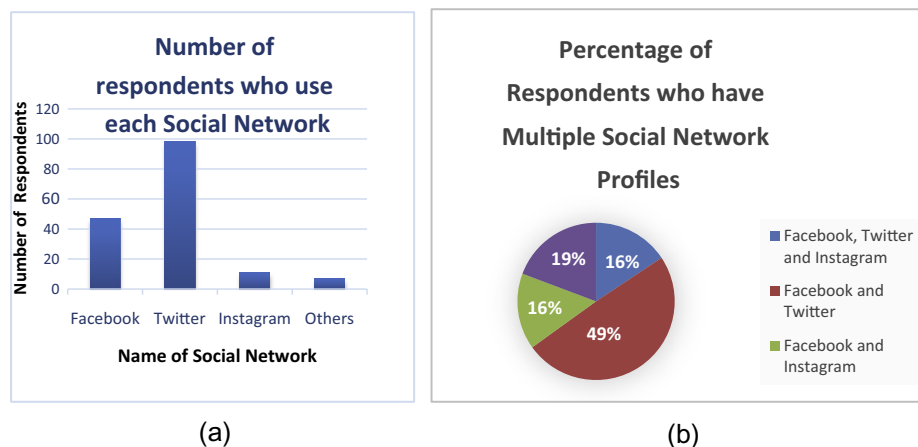


Fig. 1. (a) Number of respondents on each social network. (b) Percentage of respondents having profiles on multiple social networks.

has tight security setting does not guarantee privacy. Friends and third party applications granted access to the profile information by the user, may leak the information. The greater the amount of personal information posted on a profile, the increased risk of social engineering attacks to a user and their network of friends. Attacks include phishing, identity theft and re-identification of information. Personal information can be of value to business competitors, hackers and predators who analyse social media sites looking for personal information to design attacks (FBI, 2013; Lytras et al., 2013).

Personal information can also be valuable to employers. Many students work during and after attending university. When employers are looking for candidates to recruit, user profiles provide a useful source of information. However there are items of personal details which can cause concern for potential employers. An example being any reference to alcohol or drug use and information that demonstrates that the user is linked to criminal activity (Havenstein, 2008). Also the use of user profiles by current employees can cause headaches for a company. One example was a nurse who had just return from a stressful and long shift at a hospital, updated her Facebook status. Unfortunately the status disclosed confidential medical information and this created liability for the hospital that was employing the nurse. This scenario illustrated how no comments or thoughts are secret when published on a user profile and the importance of separating your work and social life (Cox & Rethman, 2011).

3. Methodology

Our research methodology focuses on several areas. We asked students about their opinions on other factors which affect their academic performance and how many hours should be spent on social media per week in order for their not to be a negative academic performance. This study follows a quantitative methodology for the collection of data from university students in Saudi Arabia.

The aim of the survey is to address the following research questions

R1 – Which social network is the most popular among Saudi students?

R2 – What has been the percent change in the students' social network usage over the past two academic years i.e. 2012–2013 and 2013–2014?

R3 – How the GPA's of the students have changed over time (the results of previous semesters)?

R4 – To test our hypothesis that an increase in use of social networks decreases the academic performance of the students?

The survey, when created online, provides a link that can be forwarded to respondents. Sending the link by email can target a large gathering in a small amount of time and does not involve any considerable cost. Sending the link by messengers such as Google talk and Skype is also very common and like email has no considerable cost. The survey was administered using Survey Monkey and was open from February 2014 to April 2014. The link was distributed to the students via email and a central notice board.

In terms of ethical issues, an ethical statement was placed at the beginning of the survey. The statement contained information about the study as well as contact details and how participants could leave the study. Informed consent was granted if the participant clicked on next. The data generated by the responses was kept confidential. The first set of questions collected age and educational details e.g. course name and semester number. These details were only collected for statistical purposes. This paper mainly focuses on numeric and qualitative data. The data was stored in a password protected environment.

4. Results

The data was retrieved from 108 students over a period of three months. The students' responses are evaluated against the following parameters.

- a. Which social network is the most popular among Saudi students?

Fig. 1(a) demonstrates the number of respondents' profiles on different social networks. Twitter is the most popular followed by the Facebook then Instagram and other social networks e.g. LinkedIn, path and ask.fm. Out of the 108 respondents, 90% of respondents have Twitter profiles while 44% have Facebook profiles. The results show that Twitter is almost twice as popular as Facebook amongst Saudi students, while being 35% more popular than all other networks collectively. The findings are in par with Kanal's (T. 2, 2014) findings.

Only 16% of respondents in this study have their profiles on all three social networks (Facebook, Twitter and Instagram) as illustrated in Fig. 1(b). This shows that 84% of respondents find one or two social networks sufficient for their needs. Respondents use emerging social networks as a support tool while heavily relying on mature tools like Facebook and Twitter. Almost half the respondents have profiles on Twitter and Facebook while 16% have profiles on Facebook and Instagram and 19% on Twitter and Instagram. Only three respondents have their profiles only on Instagram.

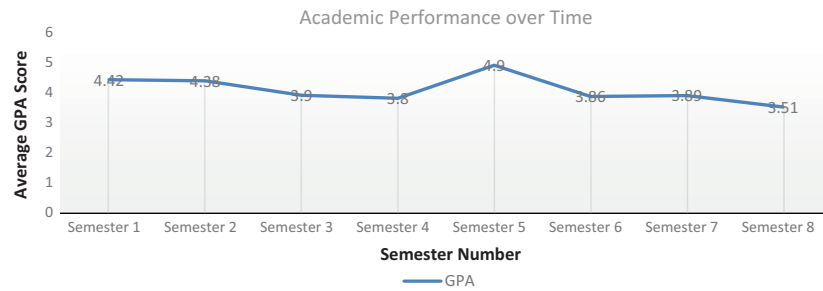


Fig. 2. Students' academic performance over time.

- b. What has been the percent change in social networks usage in the past two years (2012–2014)?

The total number of hours spent on social networks by 108 respondents (per week) was 2741 h in the 2012 academic year, averaging 25.37 h per week while social network usage in the 2013 academic year was 2835 h averaging 26.74 h per week. The increase is highlighted by 77% of the respondent who stated that they used social networks more in the 2013 academic year than in previous years. The percentage change in the past two years is a 3.4% increase in usage from 2012 academic year to the 2013 academic year.

- c. How the GPA's of the students have emerged over time (the results of previous semesters)

The students provided data about their academic performance for the academic years 2010–2013, i.e. eight semesters, in which they attended college. Two semesters make up one academic year e.g. semester 1 and 2 would be the 2010 academic year. The average GPA of the students for each semester is presented in Fig. 2.

The average GPA score fluctuates but peaks in semester 5 which is in the 2012 academic year.

- d. Does the increase in use of social networks decrease the academic performance of students?

The average GPA scores over the semesters and hours per week used for social media were taken into account, to investigate the relationship between the two variables. Thirteen cases, in which GPA scores or hours were not present, were removed. This left 95 cases to use for the analysis.

In terms of the relationship between the two variables, as illustrated in Fig. 3, the correlation between the two variables is very weak, with $R^2 = 0.049$. There is no relationship present but some of the results are clustered together. This indicates that the stu-

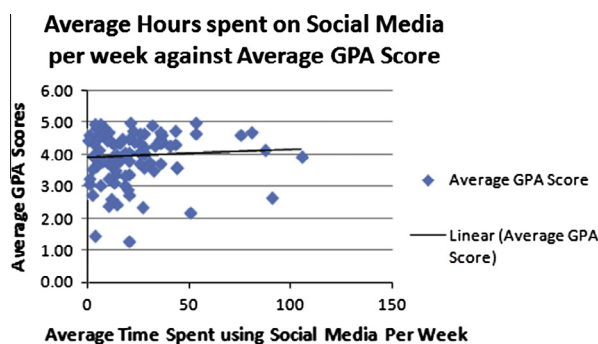


Fig. 3. Social media usage against average GPA score.

dents' behaviour in regards to social media usage is a factor in the relationship between the two variables. The lack of relationship agrees with Camilia (Tariq et al., 2012) findings that the frequent use of social media has no effect on their studies.

Extreme cases for both variables were highlighted and are presented in Fig. 4.

The extreme values highlight the excessive use of social media by some participants. The extreme values do not highlight cases that would fit our hypothesis, which states that high social media usage leads to low academic performance i.e. low average GPA scores.

Presented below is a statistical analysis of each variable (social media usage per week and average GPA score) in detail. Turkey's (Walker et al., 2011) boxplot was used to visualise the variables in order to investigate the spread of data and highlight any outliers.

4.1. Social media usage

As illustrated in the boxplot in Fig. 5, there is a positive skew (1.85) in the distribution of values. This is shown by the mean (22.45) being larger than the median (18) and the median being closer to the left hand side of the box. The standard deviation (SD) of 20.54 shows a large spread of values.

The median is closer to the first quartile than the third quartile. This indicates that students generally over the week do not use social media excessively. There are a few exceptional cases where there is excessive use of social media and this is illustrated by the outliers and extreme outlier values (105, 90, 87, 80, and 75). The outliers are $1.5 \times$ interquartile range (IQR) above or below the upper and lower quartile. The IQR is the difference between the third and first quartile. In the case of this distribution, the values have to be above 55.5 or lower than -17 to be classed as an outlier.

	Case Number	Value
Average_Number_of_Hours_Spent_on_Social_Media	Highest	1 92 105
		2 91 90
		3 90 87
		4 89 80
		5 88 75
	Lowest	1 1 1
		2 2 1
		3 3 1
		4 4 2
		5 5 2
Average_GPA_Score	Highest	1 87 5.0
		2 55 5.0
		3 20 5.0
		4 11 5.0
		5 70 4.9
	Lowest	1 49 1.3
		2 9 1.5
		3 85 2.2
		4 63 2.4
		5 27 2.4

Fig. 4. Extreme values for social media usage and average GPA score.

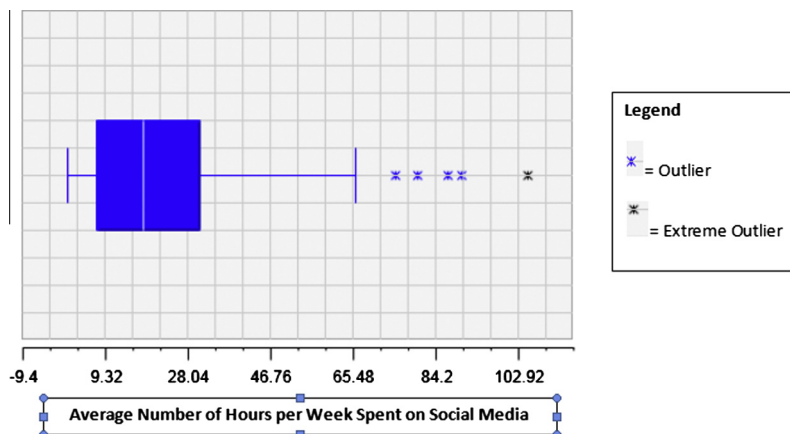


Fig. 5. Boxplot of social media usage.

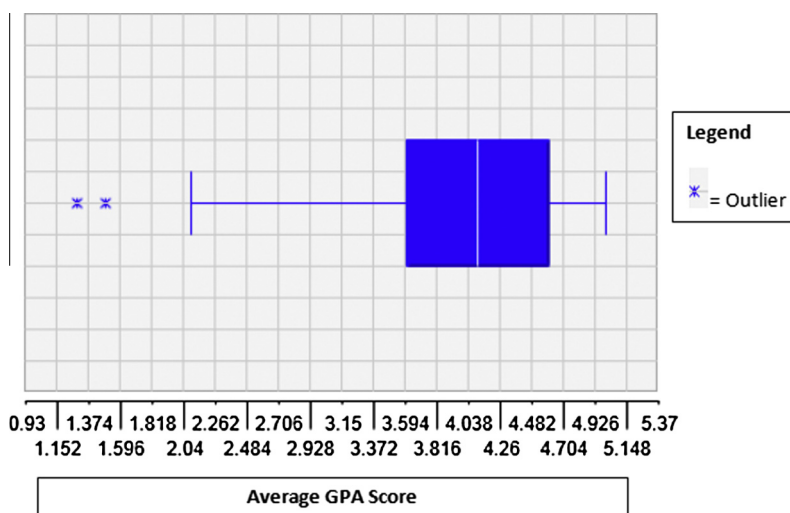


Fig. 6. Boxplot of average GPA score.

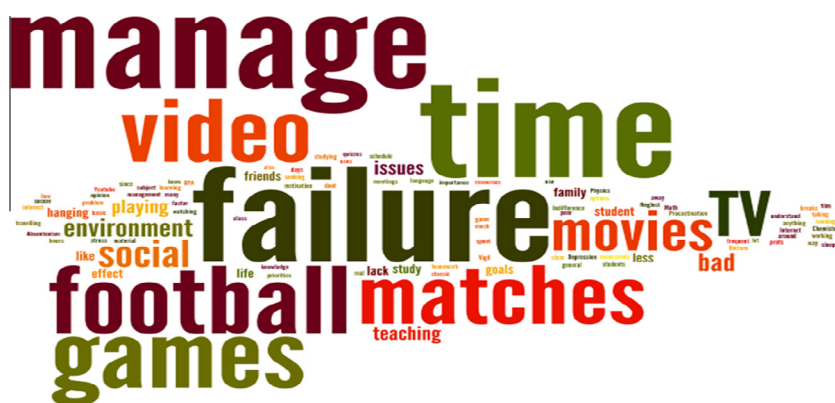


Fig. 7. Reasons for decrease in student's academic performance due to Social Network usage.

On the survey, the participants were specifically asked if academic performance is affected by the excessive social networks usage. The majority of the respondents, i.e. about 60% stated that excessive use does affect academic performance. The participants were also asked in the survey about the number

of hours they thought were reasonable to use social media in a week without affecting academic performance. The average number of hours was 10.2. This indicates that 68% of students spent above the average number of hours on social media.

4.2. Average GPA score

In Saudi Arabia, the GPA score scale runs from 0.00 which is the minimum to 5.00 which is the maximum score. This is contrast to the GPA scoring system in the USA where 4.00 is the maximum score.

In comparison to the social media usage distribution, the average GPA scores displayed a slight negative skew (−1.10) as illustrated in Fig. 6. The mean of the average GPA score for the distribution was 3.97 which was smaller than the median of 4.10. The interesting finding is that there is only a small difference between the two, which indicates that the GPA scores follow a nearly normal distribution. The SD was only 0.79, indicating a small spread of values. A negative skew suggests that most of the GPA scores are high but there are few low scores which are illustrated by the outliers in Fig. 6. The outlier values are 1.30 and 1.50. The outliers were due to students being present for 3 semesters and the GPA scores being unknown for two semesters therefore the students had entered 0. This reduced the average GPA score. To be classed as an outlier in this distribution, the average GPA scores had to be above 6.10 or below 2.10.

The survey participants were also asked in the survey to identify other reasons that affect their studies apart from the excessive social networks usage. The responses indicated that students felt strongly when it comes to time management. More than 25% of the respondents had issues with time management. 11% of students argued that the football matches have affected their studies negatively, while some respondents gave social and environmental issues. The word cloud for the issues that affect students' academic performance apart from the excessive usage of the social networks is presented in Fig. 7.

5. Conclusions

It can be concluded that the hypothesis “*The increase in use of social networks decreases the academic performance of the students*” is not satisfied by the findings of this study. Examining the variables social media and GPA scores separately, it was found that social media usage on a weekly basis displayed a positive skew where most students do not use social media excessively. There are a few exceptional cases where students showed excessive use of social media. On the other hand, average GPA scores displayed a small negative skew in the distribution. Scores were high with a few small scores.

Twitter and Facebook are among the most popular social networks where the students spend most of their time. Students in this study felt that time management and football were factors that contributed towards negative academic performance besides excessive social media use. This study has explored the relationship between social media usage and GPA score in a Saudi Arabian university and provided a basis for future work on social media usage in Saudi Arabia.

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