The relationship between mobile social media use and academic performance in university students

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Abstract
This study examined the relationship between social media use and academic performance. Self-administered questionnaires were distributed to a sample of university students in Kuwait. Results show that heavy mobile social media usage is positively related to lower GPA. The strong linear relationship suggests the more students use social media the lower their grades will be. Results also show participants were aware social media usage is lowering their grades, yet they continue to use them heavily regardless. Future research should consider the context in which social media are used. It should also explore other ways in which to measure social media use in addition to self-reports.
Keywords: Social media, academic performance, Kuwait, mobile phones.

1. Introduction

The use of mobile phones among young adults has reached saturation levels. Almost all college students in developed and many developing countries own a mobile phone. Most of these devices are "smart" meaning they are much more than just telephones or texting devices. The traditional distinction between computers and telephones has all but disappeared. For example, in the United States, a court of appeals has ruled that smart phones, from a legal viewpoint, are essentially computers (United States vs. Kramer, 2011). In terms of the services they provide, mobile phones perform many of the same functions as an Internet connected desktop computer, and in some instances even more. For example, the visual blogging application Instagram allows users to post images from a handheld device such as a mobile phone or a tablet, but not on a conventional personal computer.

Today's mobile phones use a remarkable collection of software driven applications such as video conferencing, micro-blogging, watch and share videos, social networking and playing video games. In contrast to the conventional view of the computer, the mobile nature of the smart phone allows these services to be utilized anytime anywhere. In light of the fact that smart phones are within easy reach of nearly everyone, it is worth taking into consideration what influence they may have on the users' attitudes and behavioral outcomes. It may be that mobile phone use has consequences for human behavior which reaches far beyond the area of communication. For instance, research by Lepp et al. (2013) discovered that mobile phone use was negatively related to an objective measure of physical fitness among a sample of typical university students. This finding suggests that high mobile phone users were less fit than low mobile phone users. The implication here is that mobile phone use occurs at the expense of performing physical activity, causing high users to be more sedentary compared to low users. Furthermore, the same study found that mobile phone use may negatively affect a students' academic performance as many of them tend to use their mobile phone during class time or while studying.

2. Literature review

Research on mobile phone use and academic achievement is limited and methods vary considerably from one study to another. However, the data suggest that a relationship exists. Jocabsen and Forste (2011) found a negative relationship between the use of various media, including mobile phones, and self-reported GPA among first year university students in the United States. In Taiwan, Yen at al. (2009) identified an association between mobile phone use and respondents' self-report of whether or not they have allowed mobile phone use to interfere with "important social, academic and recreational activities" during the previous year (p. 866). Similarly, Hong et al. (2012) reported that daily use of mobile phones is correlated with a self-reported measure of academic difficulty among a sample of Taiwanese university students. Finally, in Spain Sanchez-Martinez and Otero (2009) in a survey of Spanish high school students found a correlation between "intensive" mobile phone use and school failure. School failure was defined as having repeated the previous year grade level or failing four or more courses during the previous academic year. Although these studies relied on self-reported measures they do show consistent negative relationships between mobile phone use and academic achievement.

More than a few researchers have singled out multi-tasking to account for the negative correlation between mobile phone use and academic achievement (Jacobsen & Forste, 2011; Junco & Cotton, 2011; Rosen et al., 2013; Wood et al., 2012). Jacobsen & Forste (2011) found that over 60% of college students in their study used mobile devices while in class, studying or doing homework. Similarly, Sanchez and Otero (2009) reported that despite the fact that mobile phone use was prohibited in the classroom, half of the students in their study reported bringing their mobile device to school and keeping it on during class. In their research specifically designed to study multi-tasking and academic performance, Junco and Cotton (2011) looked at large samples of university students and discovered that sending text messages and using Facebook while studying or doing homework were commonplace. Furthermore, this behavior interfered with schoolwork and was negatively related to overall college GPA (Junco & Cotton, 2012). Wood et al. (2012) looked at the effect of multi-tasking with several media technologies (texting, e-mail, MSN messaging, Facebook) on real-time learning. Participants were randomly assigned to different conditions (multi-tasking with one of the four technologies or no multitasking) while taking place in classroom learning activities. After they completed the learning tasks, the students were given a 15-item multiple choice test to evaluate learning. Results indicated that multi-tasking with any of the four technologies has a negative effect on learning.

More recently, Rosen et al. (2013) studied the behavior of middle school, high school and college students and observed that participants were distracted by media like Facebook and texting in less than 6 minutes after the start of a studying session. In addition, measurements of daily Facebook use and texting behavior were strong predictors of off-task behavior during study periods. More importantly, all of the media related technologies associated with increases in multi-tasking and decrease in academic achievement is now commonly accessed with a single Internet enabled mobile phone.

In light of the existing research, there is cause to believe that mobile phone use and academic achievement may be related. In addition, as a result of the mobile phone's increasing functionality, there is a reason to consider other uses besides telephone calls and text message exchange such as Web browsing and social media applications. Therefore, the three main research hypotheses have to do with the relationship between mobile phone use to access social media, academic performance, and attribution of academic performance due to mobile media usage. In essence, this research is envisioning a triangular relationship among the three main concepts with two causal lines and one which represents a two-way correlation. This model is represented in figure 1.

Figure 1. The relationship between Time Spent Using Social Media, Attribution of Failure and Grade Point Average (GPA)
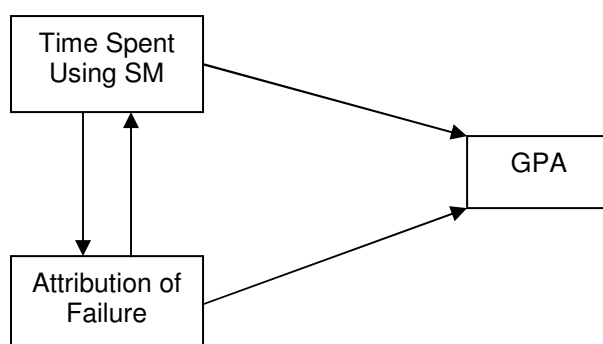
Given the aforementioned, this study seeks to shed light on the relationship between social media use and academic performance. More specifically, it will test three hypotheses related to time spent using social media and academic performance. Using survey data, this study will attempt to answer questions about the relationship between mobile social media use and academic performance formulated in the following hypotheses.

3. Research hypotheses

(H1). Time spent using mobile social media use will be a negative predictor of self-reported GPA.

(H2) Attribution of failure to social media will be a negative predictor of self-reported GPA.

(H3) Time spent using mobile social media will have a positive relationship with the personal attribution of the cause of academic performance.

4. Method

4.1 Sample

A self-administered survey questionnaire was used for this study. Because young people constitute the core users of social media, the data were collected from a sample of purposively selected college students. College students enrolled in coursework in mass communication at a large state university in Kuwait were asked to participate in this study. The questionnaires were distributed over a period of three months starting in March 2014. The total sample size was 308. Arabic was the language used in the questionnaire.

Students were assured of anonymity and confidentiality, and participation was voluntary. The age of the participants ranged from 18 to 31 with 93% ranging between 18 to 25 years of age. The mean age of the participants in the study was 21.87 years. The participants were 102 (34%) male and 198 (66%) female. This gender distribution reflects the enrollment profile of the university student body which is 70% female. Finally, since this is a state university, the overwhelming majority were Kuwaiti nationals by law so there was no need to record nationality. The self-administered questionnaires were distributed during regularly scheduled class sessions. The instrument consisted of both Likert scale questions used to measure the individual's perceptions, attitudes and behaviors as well as demographic questions and questions about media use patterns.

4.2 Measures

• *GPA*

Participants were asked to report their cumulative GPA as of the day they filled out the questionnaire. The maximum is 4.0.

• *Personal Attribution of the Cause of Academic Performance*

In addition to self-reporting their GPA, participants were asked if they thought social media use was adversely affecting their school work. They were asked to report how much they agree or disagree with the following statement with five choices ranging from "strongly agree" to "strongly disagree." "My university grades have deteriorated because of my continuous use of social media."

• *Hours Spent Using Social Media per Day*

Respondents were asked a single question about the total number of hours spent using social media daily on an eight point scale: (1) less than two hours, (2) from two to 4 hours, (3) from 4 to 6 hours, (4) from 6 to eight hours, (5) from eight to 10 hours, (6) from 10 to 12 hours, (7) from 12 to 14 hours, (8) more than 14 hours.

5. Results

5.1 Key descriptive statistics of social media use patterns of the sample

Before we get to the research questions I will present some descriptive statistics about social media use patterns so we may have a better understanding of the general parameters of the sample we are analyzing. This will help us to draw a better picture of social media landscape among young users in Kuwait.

5.2 Social medium used the most

When asked if they used social media 99.7% of the participants said yes. They were then asked about the social media app they used the most. In a separate question they were asked to choose which social media they used and they could choose all that apply. In this question, however, they were asked to choose only one from the ones they listed. WhatsApp is the leader by far (49.7%), followed by Instagram (27%), Twitter (14%) and finally Blackberry Messenger (6%).

5.3 Type of device used the most to access social media

Participants were asked to choose one device only among a choice of three; mobile phone, laptop or tablet. Results show the mobile phone to be the overwhelming choice for accessing social media (97.7%). It is worth noting that all "intelligent" mobile phones such as the iPhone and Samsung Galaxy come with "Internet access anywhere" packages through mobile providers in Kuwait.

5.4 Using social media while driving

In addition to the clear danger it represents, using mobile phone while driving is also a violation of traffic laws in Kuwait. Nonetheless, this variable could serve as a useful indicator of heavy reliance on social media. Participants were asked if they use social media while driving. The answer was a simple yes or no. Results show that 65.3% admitted to using social media while driving. It is worth noting that the driving age in Kuwait is 18 years and from personal observation, and judging by the traffic congestion around campus, almost all university students drive to school.

6. Main research hypotheses

6.1 H1: regression analysis. GPA on time spent using social media

H1 Hypothesized that time spent using mobile social media will lead to lower GPA. To test this hypothesis linear regression was utilized. The self-reported GPA was regressed on time spent using social media. As table 1 shows, time spent using social media is a strong negative predictor of GPA ($\beta = -.264$, $p<.001$). This means students who spend more time using social media will have lower GPA than their counterparts who use social media less. Therefore, H1 is supported and we can reject the null hypothesis. The simple regression equation for this hypothesis is as follows:

$\hat{y} = b_0 + b_1 x$

Where $b_0 = y - b_1 * x$

And $b_1 = \Sigma [(x_i - x)(y_i - y)] / \Sigma [(x_i - x)^2]$

Whereby x is the independent variable "time spent using social media" and y is the dependent variable "GPA."

Table 1. Regressing GPA on Time Spent Using Social Media

Variable	B	SE B	β	T
Time Spent	-.057	.012	-.264**	-4.716

Note: R=.264, R²=.069, F=22.24, df=1, **p<.001, n=308

6.2 H2: regression analysis. GPA on attribution of academic failure

H2 hypothesized that attribution of academic failure to social media use will be negatively related to GPA. To test this hypothesis linear regression was again utilized. GPA was regressed on the response to the statement "My university grades have deteriorated because of my continuous use of social media." As table 2 shows the attribution of failure is a negative predictor of GPA ((β = -.072, $p<.005$). This means students who attribute their failure to social media are more likely than others to have a lower GPA. The simple regression model for this hypothesis is as follows:

$\hat{y} = b_0 + b_1 x$

Where $b_0 = y - b_1 * x$

And $b_1 = \Sigma [(x_i - x)(y_i - y)] / \Sigma [(x_i - x)^2]$

Whereby x is the independent variable "Attribution of failure" and y is the dependent variable "GPA."

Table 2. Regressing GPA on attribution of academic failure to using Social Media

Variable	B	SE B	β	T
Attribution of failure	-.072	.023	-.175**	-4.716

*Note: R=.264, R²=.069, F=22.24, df=1, **p<.001, n=308*

6.3 H3 – correlation between time spent using social media and attribution of academic failure

H3 maintained that time spent using social media will be positively related to assessment that social media use is causing s student's performance to deteriorate. Table 3 shows the bivariate correlation between time spent using social media and attribution of failure due to social media use. A significant positive correlation exists between the two variables in question (.175 $p<.01$). This indicates that those who agree that social media are causing their grades to deteriorate are also spending a lot of time using social media. This means the student is aware that social media usage is damaging their academic performance yet they continue to use it heavily. The reason correlation was used here instead of regression is because there is no assumption of causality between the two variables, only association. Pearson's correlation coefficient *(r)* for this hypothesis is as follows:

$r = [1 / (n - 1)] * \Sigma \{ [(x_i - x) / s_x] * [(y_i - y) / s_y] \}$

Whereby x is "GPA" and y is "Attribution of failure."

Table 3. Correlation between attribution of academic failure and time spent using social media

	Time spent using social media
Attribution of academic failure	**.175**

***p<.01, n=308*

7. Discussion

The purpose of this study was to ascertain the impact of social media usage on a students' academic performance as measured by self-reported GPA. The results indicate that time spent using social media was a strong negative predictor of GPA. What this tells us is time spent using social media comes at the expense of activities that could enhance a student's academic performance. In other words, social media use impedes academic performance in a powerful way. The strong linear relationship indicates that the more time a student spends using mobile social media, the lower their GPA will be. This could take shape in a variety of ways. For example, because social media are mobile, they can be accessed anytime, anywhere including the classroom.

While this research did not examine the context of mobile media use, several studies showed social media use occurs in the classroom far more frequently than expected (e.g. Sanchez-Martinez & Otero, 2009; Yen et al., 2009; Jacobsen & Forste, 2011; Rosen et al, 2013). It is then not surprising that academic performance is impeded because learning tasks in the classroom are not given full attention.

A second hypothesis examining the attribution of academic failure and GPA shows that students who blame social media for academic failure are more likely to have a lower GPA compared to others. This means students are fully aware of the academic consequences of spending a lot of time using social media and it shows in their self-reported GPA. Mobile social media users are cognizant of the fact that their use of social media, especially if used during class or during time devoted to study, will adversely affect their academic performance, yet they continue to use it heavily regardless. This pattern indicates that mobile social media may very well have addictive attributes similar to those found in other addictions such as smoking and the use of controlled substances.

A third hypothesis looked at the relationship between the two main independent variables, "time spent using social media" and "attribution of failure to social media." The correlation between the two variables is statistically significant indicating that those who spend a lot of time using social media are more likely than others to attribute academic failure to it. This means students are not only spending inordinate amount of time using social media, but they also blame it for their academic underachievement. This offers support to the second hypothesis and provides further reason to suspect that mobile social media use has addictive attributes. The nature of the technology allows for addict-like behavior. First, it's available anytime anywhere. Second, the technology can be used unobtrusively helping users to access it in inappropriate times like during class sessions without being caught. For example, it is impossible have a voice phone conversation in a classroom without being noticed. However, it is possible for someone in a large classroom to carry out an extended chat session on "Whatsapp" using the mute button without being caught.

8. Limitations

There are several limitations that might influence the generalizability of these findings. First, the cross-sectional data employed in this study do not warrant a claim of any causal relationships between the independent and dependent variables. Moreover, the sample which had female to male ratio of 2:1 could skew the results by showing more variance in the former compared to the latter. In fact, all results which showed gender differences were in favor of females. Perhaps a quota sample with equal numbers of males and females should have been used to insure that we don't get gender differences because of the uneven distribution.

Second, the definition of some constructs might limit the scope of the study. The main independent variables were based on self-reports. For example, the variable "time spent using social media" was measured by asking participants how much time they spend using social media on a typical day. Even though this question measures usage time accurately, uncertainty remains as to whether users are active all the time they are logged on to a specific application. Heavy and light users can be better analyzed in future studies by inquiring how many messages are sent or received each day.

Third, the definition of typical social media use provided a viable empirical portrait to examine the research questions, but might not precisely reflect the complexity of an individual's use patterns. It is probable that each individual uses several social media functions (e.g. Chat, post pictures, audio or video) each day. Researchers would benefit from developing tools for capturing the complexity of social media and user patterns.

Fourth, the context of social media use needs to be taken into consideration when examining the effect on academic performance. There is a significant difference between using social media in one's spare time compared to in the classroom. The latter will clearly interfere with learning activities and will therefore have a strong impact on academic performance. Future studies need to account for the context of social media use not just the amount of time spent using them.

Finally, the fact that data collected for this study of social media use was limited to college students should be taken into consideration. Investigating only college students' social media usage might not completely explain the electronic social networking behavior in general. Future researchers are also strongly encouraged to attempt to replicate these findings by analyzing users of different social media platforms (e.g. Twitter, Instagram…etc.) separately to account for the different features they provide.

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