

CELL PHONE USE AND GRADE POINT AVERAGE AMONG UNDERGRADUATE UNIVERSITY STUDENTS

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The present study examined whether cell phone use frequency is correlated with academic performance as measured by grade point average among undergraduate university students. Participants completed a survey about their cell phone use and also reported their grade point average. Results revealed that text messaging frequency was negatively correlated with grade point average and variables such as academic level while cell phone call frequency was not. The results of this study suggest that the more an individual sends or receives text messages, the lower his or her grade point average typically is. Surprisingly, individuals with higher grade point averages are more comfortable text messaging in class. No significant results were found in regards to individuals placing phone calls on cell phones.

Key words: Cell Phone Use Frequency, Text Messages, Cell Phone Calls, Grade Point Average (GPA)

Introduction

Since the commercialization of cellular phone technology by Motorola in the early 1980s, the use of this communication device has rapidly increased. Studies on the impact of using a cell phone while driving or simultaneously engaging in other motor activities of a similar nature are common (Strayer, Drews, & Johnston, 2003; Drews, Pasupathi, & Strayer, 2008; Charlton, 2009; Hyman, Boss, Wise, McKenzie, & Caggiano, 2010), but research investigating the influence of cell phone use in other domains is surprisingly sparse. One area of particular interest which seems underrepresented in the literature regarding cell phone use is the impact of this communication device in academic settings. Because teens aged 13-17 and young adults aged 18-24 are overwhelmingly the most prolific groups of cell phone users

(NielsenWire, 2010), it is plausible that their level of cell phone use may have a significant effect on their academic performance.

An analysis of data gathered recently by the Nielsen Company revealed that young adults aged 14-18 exchange an average of 1,630 text messages per month, or approximately 54 messages per day (NielsenWire, 2010). Additionally, in regards to cell phone use in educational settings, the Pew Research Center found that in spite of the fact that many schools prohibit the use of cell phones, 65% of students who attend schools that ban cell phones still bring them every day and 43% of students reported that they text message in class at least once per day (Pew Internet, 2010). These findings led us to question whether or not a student's overall frequency of cell phone use impacts his or her overall academic

performance, as measured by a student's grade point average (GPA).

Past research has suggested that cell phone use frequency may have a negative effect on academic performance (Ellis, Daniels, & Jauregui, 2010; Sánchez-Martínez & Otero, 2009). For instance, one study found that frequent cell phone use was related to school failure among high school students (Sánchez-Martínez & Otero, 2009). In another study, an experiment was conducted in a university class to reveal that text messaging on cell phones during class causes lower academic test scores among undergraduate students (Ellis, Daniels, & Jauregui, 2010). Finally, a study by End, Worthman, Mathews, & Wetterau (2010) found that students who experience a cell phone intrusion are often unable to identify the lecture material discussed during the disruption and suggested that these intrusions could potentially impair the learning process.

Although these studies provide important insights, the present study examined how frequency of cell phone use is related to overall academic performance as measured by grade point average (GPA) among undergraduate university students. Based on previous findings examining cell phone use and academic performance mentioned above, we hypothesized that cell phone use frequency and the degree of comfort using cell phones in class would be negatively correlated with academic performance.

Method

Participants

A total of 118 undergraduate university students (38 men, 80 women) participated in the study in exchange for partial course credit. The mean age of the sample was 20.01 years of age, with an age range of 18-39 years.

Survey Material and Procedure

Participants reported to a lab and were asked to sign a participant consent form. They were then asked to complete an anonymous survey consisting of a variety of questions regarding cell phone use, academic standing, and demographic information. For the questions regarding academic year and GPA, participants were asked to circle one of four options. For academic year, the options were Freshman, Sophomore, Junior, & Senior. The responses were coded from 1-4: Freshmen to Seniors. For GPA the options were 0-1.99, 2.00-2.99, 3.00-3.49, 3.50-4.00. The responses were coded from 1-4 ranging from the lowest to highest GPA category. Participants were asked to estimate a number by filling in a blank for questions regarding the average number of cell phone calls and text messages made/sent and received as well as the average number of times their cell phone is checked for messages and the average number of people called or texted in a day. We asked participants to exclude text messages that are considered to be spam and cell-phone calls that are not connected from all of their estimates. Participants were also asked whether they feel comfortable text mes-

Table 1. Descriptives and correlations

| Variable | Mean | SD | Correlations with | | |
|--|--------|--------|-------------------|---------|--------|
| | | | Age | AcaYear | GPA |
| Average number of people text messaged per day | 7.04 | 5.89 | -.203* | -.167 | -.018 |
| Average number of text messages sent per day | 102.89 | 141.06 | -.219* | -.263** | -.211* |
| Average number of text messages received per day | 112.59 | 211.58 | -.091 | -.209* | -.212* |
| Average number of people spoken to on cell phone per day | 3.45 | 2.27 | -.108 | .013 | -.160 |
| Average number of calls made per day | 4.17 | 3.55 | -.110 | -.062 | -.056 |
| Average number of calls received per day | 3.90 | 3.86 | -.091 | -.074 | -.115 |
| Average number of times the cell phone is checked | 60.14 | 85.98 | -.188 | -.203* | -.045 |
| Comfort text messaging in class | 1.42 | .50 | .150 | -.032 | .258** |

N = 118

* $p < 0.05$

** $p < 0.01$

saging in class. The response format for this question was simply yes or no and coded as 1 and 0, respectively. After completing the survey, participants were debriefed and thanked for their participation.

Results

The means, standard deviations, and correlations regarding all of the variables examined are presented in Table 1. These results revealed negative correlations between GPA and the number of texts an individual sends, $r(112) = -.211$, $p = .026$ as well as GPA and the number of texts an individual receives, $r(111) = -.212$, $p = .025$. Contrary to our expectations, GPA was positively correlated with being comfortable text messaging in class, $r(118) = .258$, $p = .005$. Furthermore, academic year was negatively correlated with the number of

text messages sent, $r(112) = -.263$, $p = .005$, the number of texts received, $r(117) = -.209$, $p = .028$, and the average number of times per day an individual checks his or her cell phone for text messages, $r(102) = -.203$, $p = .041$. In addition, the variable of age was negatively correlated with the average number of people an individual text messages per day, $r(113) = -.203$, $p = .031$. Age was also negatively correlated with the number of text messages sent per day, $r(112) = -.219$, $p = .020$. We also examined the average number of phone calls participants make or receive and the average number of different people participants call in an average day. These variables did not significantly correlate with GPA, academic year, or age. Finally *t*-tests examining gender differences on all variables revealed no significant effects.

Discussion

Correlations

As is evident from the results reported above, some of these findings support our hypothesis stating that cell phone use frequency may be negatively correlated with academic performance, while others did not. For example, the negative correlation that was observed between age and academic year and the number of text messages that were sent, received, and the number of times he or she checked the phone for messages was unsurprising, given that individuals in the 18-24 year age group who comprised most of our population have been found to send or receive the second highest number of text messages per month, second only to individuals in the 13-17 year age group (NielsenWire, 2010).

GPA was negatively correlated with the number of text messages that were sent and received. This result was also unsurprising given that past research has found that a high frequency of cell phone use is correlated with lower academic test scores (Ellis & Jauregui, 2010), an inability to remember disrupted lecture material (End, Worthman, Mathews, & Wetterau, 2010), and school failure (Sánchez-Martínez & Otero, 2009). Additionally, the association between lower grade point averages and sending or receiving a higher number of text messages can be explained by the fact that compared to individuals with lower GPAs, those with higher GPAs are more likely to spend more time on academics and therefore they may have less time to send and receive text messages. Higher GPA could also be influenced by the fact

that not being constantly preoccupied with a cell phone allows the individual to have more time to reflect on information presented to him or her throughout the day, make meaningful associations between what they are learning and their own experiences, and participate in more advanced communication with others about academic material than what is typically communicated through text messages. Individuals with higher GPAs may also be more acutely aware of their own cognitive limitations, acknowledging the fact that sending text messages or having a ringing cell phone interrupts their concentration and thus, may turn their phones off when studying.

As a result of findings from past research and our own assumptions, we were surprised to find that GPA was positively correlated with comfort text messaging in class. It seems as though the higher the GPA that an individual has, the more comfortable he or she feels sending or receiving text messages in the classroom. This could potentially be explained by the fact that individuals with higher GPAs may be more comfortable with their own ability to learn the material outside of class and thus, paying attention to the material presented in class may not be viewed as essential to achieving a high grade in the course. Additionally, because part of receiving a good grade is understanding what a particular instructor is requiring for each assignment, people with higher GPA's may be more sensitive to the needs and demands of the instructor. This type of sensitivity might also contribute to the student's ability to discriminate

between instructors and class circumstances that will or will not influence their grade if they use their cell phones.

Finally, in contrast to the significant correlations with text messaging, no correlations were observed between age, academic year, or GPA and the number of phone calls that were made, received, or the number of people an individual called. It is possible that there was not enough variation with the variables on phone calls to have significant correlations because the averages for these variables were much lower in comparison to the text-messaging variables. For example, the average number of cell phone calls made ($M=4.17$), received ($M=3.90$), and the number of people called ($M=3.45$) per day was very low compared to the number of text messages sent ($M=102.89$), received ($M=112.59$), and the number of people an individual communicates with via text messaging on average per day ($M=7.04$). This is unsurprising, as research by the Nielsen Company suggests that 78% of teens consider text messaging more convenient than making calls on their cell phones (NielsenWire, 2010) and less than a quarter of teens have made or received a call during class (Pew Internet, 2010).

Limitations and Conclusions

The present study which investigated the correlation between the frequency of cell phone use and overall academic performance demonstrated a number of significant findings. Most importantly, this study revealed that the more an individual text messages, the lower his or her GPA is likely to be. A multitude of speculations

can be made to explain these findings, and more in depth research needs to be conducted to analyze the validity of these conjectures.

Our study had a number of limitations that should be accounted for in future research on the topic. First, our study was correlational in nature and thus, causality between the variables cannot be determined. For example, there is no way of knowing whether doing poorly in school makes us devalue academics and utilize more recreational networking to protect our self-esteem, which would lead us to text message more or if there might be no causal relationship between academic and texting variables. If the latter was the case, a third variable, such as self control, might be causing the changes in both the academic and the texting variables. Additionally, our study did not take into account whether students who are more comfortable text messaging in class actually engage in this behavior or what factors contribute to their decision to text message or refrain from doing so. Furthermore, it would be interesting to investigate if the lower grade point averages of students who text message more frequently are lower as a result of texting in class, while studying, or because of some other unknown variable. Further research needs to be conducted to determine the more specific ways in which the high frequency use of cell phones or other technologies impacts the academic success of students.

It is our hope that the present research study will serve as an important contribution to the literature aimed at developing a more complete understanding of the

impact of cell phone use within academic settings. Perhaps this study will enable students to be more aware of the long term impacts of using a cell phone while in class or studying on their overall grade point averages. Furthermore, we believe that our research can help educators and school policy makers formulate well informed and appropriate decisions regarding the possession and use of these communication devices in the classroom.

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