FEATURE

Cellphone Addiction and Academic Stress Among University Students in Thailand

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Abstract. *Two phenomena that are ubiquitous in universities today are cellphones and stress. The purpose of this study is to assess students' perceptions of cellphone addiction and academic stress. A survey was conducted among 243 students at a university in Thailand. Results revealed that there was no difference in cellphone addiction and academic stress for class and gender but there was a difference by major. Results also indicated a mild correlation between cellphone addiction and academic stress. This relationship between cellphone addiction and academic stress is moderated strongly by gender with the relationship being stronger among men than among women.*

Keywords: Cellphone addiction; academic stress; Thailand; University

Introduction

The cellphone is a ubiquitous item in the lives of most people. In the world today, there are approximately 6 billion cellphone subscriptions, which represent about 86% of the world's population (Assoicated Press, 2012). In Thailand alone, there are 90 million cellphone subscribers. Given that the population is between 60-70 million, the cellphone penetration in Thailand is about 132% (Office of the National Broadcasting and Telecommunications Commission, 2015). This means that many Thais own more than one cell phone. As such, there is now evidence that even one cell phone is not enough for some people.

Among university students in the United States, about 99.8% own a cellphone (Ziegler, 2010). In another survey, 51% of university students stated that they could not imagine living with their cellphone (Saad, 2015). Such dependency indicates symptoms of addiction. Furthermore, it has been found that 60% of university students admit that they are addicted to their cellphones (McAllister,

2011). Such self-proclaimed addiction to cellphones may have ramifications for universities. Universities are attempting to educate and train students and these students have suggested that they are not able to control their cellphone use. Students may be so distracted by their cellphone use that it could have a detrimental effect on their ability to cope with their academic responsibilities.

Along with the growth of cellphone use and indications of cell phone addiction among university students is an increase in stress (Kingkade, 2015; Novotney, 2014). Studies, jobs, finances, extracurricular activities, and the need for some students to adjust to a new culture are all sources of stress for students (Coughlan, 2015; Divaris, et al., 2014; Wei, Liao, Heppner, Chao, & Ku, 2012). However, academic stress is a more specific form of stress that afflicts many university students (Kingkade, 2015; Novotney, 2014). With the increase in cellphone addiction, there may be a relationship between cell phone addiction and academic stress

Many studies have found a connection between addiction and stress in various fields of study (Chiu, 2014; Clark & Calleja, 2008; Aziz, Wuensch, & Duffrin, 2015; Sinha & Jastreboff, 2013). However, among university students, there is little data assessing the relationship between cell phone addiction and academic stress. Therefore, the purpose of this study is to explore the phenomenon of cell phone addiction and academic stress among university students.

Academic stress has major implications for student retention and dropout intention (Elias, Ping, & Abdullah, 2011; Tinto, 1975). Results that indicate the impact of cellphone addiction and academic stress can provide students, teachers and administrators about information on how to deal with cellphones in the learning environment.

Cell Phone Addiction

Cellphone addiction is defined as a habitual drive to continue to use one's cellphone repeatedly despite any negative impact on one's well-being (Roberts, Yaya, & Manolis, 2014). The appropriateness of a behavior can be argued as good or bad. However, one problem with an addiction is a loss of self-control, as people feel compelled to perform a behavior even to their own detriment.

Several symptoms may indicate that a person has cellphone addiction. Nomophobia or "fear of no mobile phone" is a feeling of anxiety and fear a person experiences when he or she does not have his or her cell phone(s) in his or her physical possession (Yildirim & Correia, 2015). Another sign of potential cell phone addiction is the compulsive behavior of a person constantly checking their phone for texts and believing he or she must respond immediately to any messages they receive (Archer, 2013). This is often accompanied with the

inability to pay attention to other people as the person is reading and responding to the text and posts on social media or text messaging (Archer, 2013). This inability to concentrate can have negative consequences academically for students as it makes it difficult to follow directions and complete assignments.

In Thailand, one survey claims that 96% of Thais practice "phubbing" or looking at their cell phone instead of paying attention to the people around them (The Nation, 2013). However, in the same survey the results indicated that over 80% of respondents do not find the behavior of phubbing acceptable. Inattention through phubbing is yet another symptom of cellphone addiction with the rates of this particular behavior being high in Thailand.

Phantom cell phone vibration signal is another symptom of cell phone addiction (Tanis, Beukeboom, Hartmann, & Vermeulen, 2015). Phantom cell phone vibration is a person believing their cell phone vibrated when it did not (Thibodeau, 2012). Around 50% of cell phone users have reported experiencing the phenomenon of phantom cell phone vibration at least once a week (Tanis, Beukeboom, Hartmann, & Vermeulen, 2015). The constant sense that one's phone is vibrating can make it difficult to concentrate on other matters such as academics.

Loss of sleep is also a symptom of cell phone addiction (Sahin, Ozdemir, Unsal, & Temiz, 2013). This loss of sleep is actually felt more by College Sophomores and people who use their cell phone more than 5 hours per day (Sahin et al., 2013). McAllister (2011) found that 75% of university students sleep next to their phones. Constant access to a cell phone makes it tempting to use it at times when other activities should be taking place, such as sleeping. Combining a loss of sleep from cellphone addiction with the rigors of academic life could lead to a stressful situation for many students.

Another symptom, which pertains especially to university students, is poor performance in school (Archer, 2013). Roberts, Yaya, and Manolis (2014) found that addiction to one's cellphone can negatively influence academic performance as students' concentration in class declines because of cellphone use and disrupts their studies outside of class. Lepp, Barkley, and Karpinski (2014) found a negative relationship between cell phone use and GPA. However, it is important to note that academic performance and academic stress are different in constructs with stress normally influencing performance (Sanders, 2013).

Cellphone use is common even during class for many university students. For example, 25% of university students in one study stated that they look at their cell phone every class period and 88% text in class (McAllister, 2011). Among the 88% that text in class 30% of those respondents stated that they text more than once in class (McAllister, 2011). Such constant use of a cell phone for nonacademic purposes during class leads to questioning the students' ability to participate in class activities. Without active engagement in the learning

experience, students may be unprepared for summative assessments, which could lead to academic stress.

There is also evidence that university students spend the majority of the day on their cellphones. Roberts et al., (2014) found that college students use their cell phones on average 8.75 hours a day. They found that men use their phones for 7.5 hours a day on average and women use their phones for about 10 hours a day. Both men and women use their cell phone for a variety of activities from phone calls to browsing the Internet (Roberts et al., 2014). Women see cell phones as a way of maintaining relationships while men see cellphones as tool for entertainment (Junco & Cole-Avent, 2008; Junco, Merson, & Salter, 2010). In either case, such a time commitment to cellphone use takes away time for other activities such as the various academic responsibilities that university students have.

Several studies indicate that introversion, impulsiveness, emotional instability, materialism, and self-esteem have a negative influence upon cell phone addiction (Augner & Hacker, 2012; Hong, Chiu, & Huang, 2012; Roberts, Pullig, & Manolis, 2015). Extraversion appears to have a positive effect on cell phone addiction with increase extroversion leading to a decrease in cell phone addiction (Hong et al., 2012). However, Augner and Hacker (2012) found that extraversion along with chronic stress, emotional instability, being female, depression, and age are associated with cell phone addiction. As such, it is difficult to develop a singular portrait of an individual who is addicted to their cell phone.

Among teachers and students, there is support for cell phone use in the classroom. Thomas, O'Bannon, and Bolton (2013) found that 69% of teachers support the use of cellphones in the classroom. The benefits the teacher stated for cellphone use in the classroom were engagement and motivation; however, teachers had concerns with class disruption. Another study indicated concerns with cheating if students were allowed to use cell phones in class (Thomas & O'Bannon, 2013). In a different context, it was found that when students were allowed to use their cellphones as an academic tool it helped their learning, increased enjoyment of the class, increased academic performance, and was not seen as a distraction (Tessier, 2013). Therefore, students benefit from constructive and moderate uses of cellphones in an educational setting.

In the context of Thailand, there is ample evidence of the proliferation of cell phones among the entire population and not just university students. For example, 73% of people over the age of six use a cellphone (National Statistical Office, 2009). Furthermore, about 50% of the cellphones used in Thailand are smart phones with the other 50% being feature phones (Greene, 2013). Lastly, 12% of cell phone users in Thailand own multiple handsets, however, this pales in comparison to 47% of Malaysians who own multiple cellphones (Greene, 2013).

With such frequent use and possession of cellphones there may be evidence of cellphone addiction within the context of this study.

Cellphone addiction can have a detrimental impact on an individual's life through constant distractions and negative consequence pertaining to health (Archer, 2013; McAllister, 2011). There is also evidence that many students are afflicted with cellphone addiction (Archer, 2013; McAllister, 2011; Roberts et al., 2014). However, the use of cellphones can provide benefits if used in a careful manner. However, how cellphone addiction affects the stress university students experience from academics is a critical relationship to study.

Academic Stress

Academic stress is a student's perception of the pressure they face, time constraints to complete assignments, academic workload, and their academic self-perception (Bedewy & Gabriel, 2015). Symptoms of academic stress include anxiety, depression, decrease exercise, changes in eating habits, and sleep disturbance (Backović, Živojinović, Maksimović, & Maksimović, 2012; Schraml, Perski, Grossi, & Simonsson-Sarnecki, 2011).

There are several factors that influence academic stress. Students who participate in more rigorous academic studies, such as the international baccalaureate at the high school level have higher amounts of academic stress compared to students in general education (Suldo & Shaunessy-Dedrick, 2013). However, in a comparison of on-campus and distance education, no difference was found in the academic stress of the students (Furlonger & Gencic, 2014). Therefore, the rigor of academics appears to have a stronger influence than the setting in terms of contributing to academic stress.

There are several other factors that influence academic stress. The quality of the teacher-student relationship plays a role in influencing academic stress with positive relationships leading to a decrease in academic stress (Banks & Smyth, 2014). The type of marking system plays a role as well with a pass/fail systems considered to be less stressful than a GPA system (Ali, et al., 2015). Lastly, gender and class have been found to be moderators of academic stress (Backović, et al., 2012; Elias, et al., 2011).

The academic stress students experience also affects many different areas psychologically. For example, academic stress affects intrinsic motivation (Liu, 2015). In addition, stress from academics has also been found to reduce satisfaction, perceptions of self-worth, and self-efficacy (Lee & Jang, 2015; Liao & Wei, 2014; Sarma, Payakkakom, & Kurpius, 2012). It was also found that students who lack coping abilities are at a higher risk of stress related behaviors such as depression, anxiety, and recreational drug use (Mahmoud, Staten, Hall, & Lennie, 2012; Pierceall & Keim, 2007). Therefore, high levels of stress can have

severe consequences for students. Understanding if there is a relationship between cellphone addiction and academic stress can help in determining an additional potential stressor in the university student population.

Lastly, academic stress has been found to be related to academic performance (Pozos-Radillo, Preciado-Serrano, Acosta-Fernandez, Aguilera-Velasco, & Delgado-Garcia, 2014; Schraml, Perski, Grossi, & Makower, 2012). In general, as stress increases performance decreases. However, caution must be made in eliminating stress. It has been found that moderate amounts of stress improve performance (Sanders, 2013). Therefore, understanding stress and controlling it would benefit the academic performance of many students.

In Thailand, 50% of students who responded to one survey were found to suffer from depression, which is a result of academic stress (Ross, et al., 2005). Saipanish (2003) found that 61% of medical students are experiencing some degree of academic stress. In a comparison of medical and humanity students in Thailand, it was found that humanity students have a higher rate of stress and sleep deprivation (Kongsomboon, 2010). However, these studies focused on nursing and medical students primarily and none of them took into account cell phone use in their respective studies.

Research Questions

Based on the review of literature, the following questions have been developed

1. What are the university students' perceptions of cellphone addiction and academic stress?

2. Is there a difference in cell phone addiction or academic stress based on the demographic profile (class, gender, major) of the participants of this study?

3. What is the relationship between cell phone addiction and academic stress?

4. Does class, gender, or major moderate the relationship between cell phone addiction and academic stress?

Hypotheses

a) There is no difference in cell phone addiction or academic stressed based on the demographic profile (class, gender, major) of the participants of this study.

b) There is no relationship between cell phone addiction and academic stress.

c) Neither class, gender nor major moderate the relationship between cell phone addiction and academic stress?

Methodology

The purpose of this study was to explore the relationship between cellphone addiction and academic stress as perceived by university students in Thailand. This study approached this phenomenon from a quantitative perspective involving the use of survey and correlational design.

Participants, Sample, Setting

The setting in which this study took place was a university located in Thailand. The sample was derived using stratified sampling based on gender. In all, 243 individuals participated in this study. In the sample, 41% of the participants were men, 57% were female, and 2% of the respondents did not indicate their gender. For class level, 31% of the participants were Freshmen, 33% were Sophomores, 19% were Juniors, 15% were Seniors, and 2% did not respond. Lastly, 12% of the respondents were Business majors, 26% were Education majors, 44% were English majors, 8% were Religion majors, 5% were Science majors, and 5% did not respond to the question about major. All majors at the university were a part of the sample of this study.

Research Design & Instruments

A cross-sectional survey design was used in this study. The instrument was comprised of two sections. Section 1 addressed demographic variables including gender, major, and academic level. Section 2 consists of 28 Likert-type statements that measure the perceptions of the students about cell phone addiction and academic stress. The Likert scale was a five point scale with 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

Cell phone addiction. The cellphone addiction scale was adapted from Kwon, Kim, and Yang (2013). This scale measures attitudes and behaviors that indicate cellphone addiction. Sample items from this scale include "I think about my cellphone even when I am not using it" and "The people around me tell me that I use my cellphone too much." The only modification to the scale was using the word "cellphone" instead of "smartphone" in the survey as this because all smartphones are also cellphones. Both types of phones have overlapping capabilities and the terms are used interchangeable. The Cronbach Alpha for the modified 10-item scale was 0.85.

Academic stress. The Academic Stress scale was adapted from Bedewy and Gabriel (2015). This scale measures a student's perception of stress they

experience due to academics. Sample items from this scale include "I can make academic decisions easily" and "I fear failing courses this year." The only modification to the items was the inclusion of the first person in several statements to enhance clarity for ESL respondents. For example, "teachers have unrealistic expectations of me" was changed to "My teachers have unrealistic expectations of me" to assure specificity and improve comprehension. The Cronbach Alpha for the modified 18-item scale was 0.70.

Data Collection

Data was collected by the researcher at a university in Thailand. Surveys were completed at the conclusion of several classes at the campus with the survey tacking 10-15 minutes to complete. Respondents completed both sections of the paper-based survey instrument. Prior to completing the instrument, respondents were informed of their right to refusal as well as the purpose of the study. In addition, anonymity of the respondents was assured and all respondents were informed not to write their names on the survey. Lastly, the study was approved by the Ethics Review Board of the university where the study was conduct. This assures that the study abides by the ethical practices stipulated by the university where the study took place.

Data Analysis

Descriptive data was collected in this study. Items such as the mean of the variables as well as individual items were derived from the observed data. In addition, t-test and ANOVA were conducted to see if there were any differences across sub-groups in order to provide information of the perception of the students when divided by class, gender, and major. Lastly, an assessment of the correlation between cell phone addiction and academic stress was performed.

For the t-test and ANOVA, the equality of variance was tested with the Levene statistic and the results indicated that the variance was same for class ($F = 1.25$, $p = 0.28$), gender ($F = 1.6$, $p = 0.17$), and major ($F = 0.75$, $p = 0.58$) when assessing cell phone addiction. For academic stress the Leven statistic was for class ($F = 0.79$, $p = 0.53$), for gender ($F = 0.78$, $p = 0.50$), and for major ($F = 0.52$, $p = 0.75$). In addition, Q-Q plots were assessed to determine if the sample was normally distributed according to the variables of this study. A visual inspection of the Q-Q plots confirmed normality of the data.

Results

In relation to cellphone addiction, the participants of this study indicated that the disagreed mildly with the statements on the survey ($M = 2.65$, $SD = 0.74$, 95%CI [2.56, 2.74]). For example, participants indicated that they disagree that

they "think about [their] cellphone even when [they] are not using it" (*M* = 2.35, *SD* = 1.22, 95%CI [2.20, 2.50]). Participants also disagreed that they "feel impatient and nervous when [they] are not holding [their] cellphone" (*M* = 2.38, *SD* = 1.14, 95%CI [2.72, 2.52]). However, participants were neutral toward the statements that they "could not accept not having [their] cellphone" (*M* = 3.00, *SD* = 1.10, 95%CI [2.86, 3.14]) and "I use my cellphone longer than I plan to" (*M* = 3.00, *SD* = 1.15, 95%CI [2.86, 3.14]).

For academic stress, participants indicated that they are mostly neutral towards the statements of the survey (*M* = 2.84, *SD* = 0.39, 95%CI [2.79, 2.89]). For example, participants were neutral toward the statement "my teachers are critical of my academic performance" (*M* = 3.46, *SD* = 0.92, 95%CI [3.34, 3.58]) and the statement "I think that worrying about my examinations is a weakness of character" (*M* = 3.26, *SD* = 1.06, 95%CI [3.13, 3.39]). In contrast, participants strongly disagreed that they are "confident that [they] will be a successful students" (*M* = 1.90, *SD* = 0.87, 95%CI [1.79, 2.01]) and that they are "confident that [they] will be successful in [their] future career" (*M* = 1.82, *SD* = 0.82, 95%CI [1.72, 1.92]).

In terms of difference among groups, for cellphone addiction no difference was found for Class [$F_{(4, 238)}$ = 1.56, *p* = 0.18] and Gender [$F_{(4, 239)}$ = 1.27, *p* = 0.28]. A difference was found within Major [$F_{(5, 237)}$ = 4.05, *p* < 0.01]. A Tukey Post Hoc test indicated that there was a difference between English majors (n = 107, *M* = 2.83, *SD* = 0.76, 95%CI [2.69, 2.97]) and Education majors (n = 63, *M* = 2.33, *SD* = 0.64, 95%CI [2.17, 2.49]) in their perception of cellphone addiction. The Cohen effect size (*d* = 0.71) suggests a moderate practical significance.

For academic stress, there was no difference found by Class [$F_{(4, 238)}$ = 1.83, *p* = 0.12] or Gender [$F_{(4, 238)}$ = 0.35, *p* = 0.78]. A difference was found when comparing means by Major [$F_{(5, 237)}$ = 4.85, *p* < 0.01]. A Tukey Post Hoc test indicated that there was a difference between English majors (n= 107, *M* = 2.96, *SD* = 0.36, 95%CI [2.89, 3.03]) and Education majors (n = 63, *M* = 2.68, *SD* = 0.37, 95%CI [2.59, 2.77]) in their responses to items pertaining to academic stress. The Cohen effect size (*d* = 0.76) suggests a practical significance that is moderate.

The Pearson product correlation was calculated for cellphone addiction and academic stress for the entire sample, and as moderated by gender. The correlation between cellphone addiction and academic stress as moderated by class and major was not performed due to the insufficient size of each sub-group, which makes it difficult to develop sound conclusions for this form of statistical analysis. For the sample, the relationship between cellphone addiction and academic stress was moderate (*r* = 0.37, n = 243, *p* < 0.01, 95%CI [0.26, 0.47]).

When examining how gender moderates the relationship between cellphone addiction and academic stress, among women, there was a found a moderately weak relationship ($r = 0.28$, n = 139, $p < 0.01$, 95%CI [0.12, 0.43]). In contrast, among male participants, a moderately strong relationship was found between cellphone addiction and academic stress ($r = 0.53$, n = 99, $p < 0.01$, 95%CI [0.38, 0.66]). These results indicate that gender moderates the relationship between cellphone addiction and academic stress and that among men this relationship is significantly stronger than among women.

Conclusion and Recommendations

The results of this study have provided several important findings. First, the participants of this study indicated mild perceptions of both cellphone addiction and academic stress in their lives. For academic stress, this indicates that students for the most part are able to allocate time for their studies, are able to handle their study load, and are able to make decisions about their studies. Such forms of coping are consistent with other studies (Chao, 2012; Giancola, Grawitch, & Borchert, 2009).

For cellphone addiction, the results indicate that students are not struggling to concentrate in class, failing to complete assignments due to their cellphone use, or are they constantly thinking of their cellphone. Another way to see the responses is that denial is a part of addiction as indicated in literature (Dare & Leaanne Derigne, 2010; Wright, 2011). As such, it is possible that students are not cognizant of their cellphone addiction. Given that students are using their phones 7.5 to 10 hours a day (Roberts et al., 2014) it is difficult to indicate a lack of addiction.

A second major finding was the moderate positive correlation found between cellphone addiction and academic stress. This means that whatever is affecting cellphone addiction also affects academic stress. As such as stress increases so does addiction. The opposite is also true as addiction increases so does stress. This study confirms the relationship found between stress and addiction as indicated in other studies (Chiu, 2014; Sinha & Jastreboff, 2013).

A third major finding is the role of gender as a moderating variable for the relationship between cellphone addiction and academic stress. The results for women were mild in terms of the relationship but strong for men. This means that men in particular are much more susceptible to the influence of cellphone addiction and academic stress since the relationship is stronger in this subset of the population. Prior studies have made similar conclusions about addiction and stress differences by gender (Becker & Hu, 2008; Ha & Hwang, 2014; Backović, Živojinović, Maksimović, & Maksimović, 2012).

The major findings of this study leads to several recommendations. One, schools and teachers may be able to reduce stress levels in academics by reducing cellphone use. As such, during instructional periods, teachers should have students refrain from using cellphones while in class. Furthermore, common places of study such as libraries should discourage cellphone use as well.

Two, policies should be put in place to especially support male students in regards to academic stress and cellphone addiction. Providing support for developing time management skills and social support could help to reduce stress and addiction. Furthermore, men see cellphones as a form of entertainment (Junco, Merson, & Salter, 2010). Therefore, providing other forms of entertainment such as physical activities could help to prevent cellphone addiction among the male population.

For further study, it may be beneficial to indicate the likelihood of becoming addicted to cellphones through the development of a regression model. In addition, a study that includes other forms of addiction such as social media could provide a richer explanation of factors contributing to academic stress. Lastly, developing a study with a larger sample size could help to indicate exactly which subset of the population is at the highest risk of academic stress and cellphone addiction.

This study has limitations. The data is based on the perceptions of individuals, which assumes that they responded truthfully to the items on the survey. In addition, as a correlational study there is no way to conclude causation. This is further complicated by the fact that the study was bivariate. As such, many explanatory variables were not included which may have provided a richer explanation into the focus of the study.

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