PHUBBING AMONG HIGHER EDUCATION STUDENTS

Hernandez Gracia, Tirso Javier; Duana Avila, Danae; Hernandez Gracia, Jose Francisco; Torres Florez, Dagoberto

PHUBBING AMONG HIGHER EDUCATION STUDENTS

La presencia de phubbing en estudiantes del nivel superior

Tirso Javier Hernandez Gracia thernan@uaeh.edu.mx
Universidad Autonoma del Estado de Hidalgo, México

Danae Duana Avila duana@uaeh.edu.mx
Universidad Autonoma del Estado de Hidalgo, México

Jose Francisco Hernandez Gracia
josefrancisco.hernandez@uttt.edu.mx
Universidad Tecnologica Tula Tepeji, México

Dagoberto Torres Florez dtorres@unillanos.edu.co
Universidad Los Llanos, Colombia

Abstract: In the framework of the so-called fourth industrial revolution, the internet and ICT (Information and Communication Technologies) are essential. In other words, the automation of processes and information management through electronic devices is increasingly present, which implies having workers who are better prepared in terms of competitiveness in their companies. In the case of educational institutions, teachers and students must be aligned with technological evolution and develop competencies and skills to guarantee the teaching-learning process. The objective of this research is to describe the different uses of cell phones by university students throughout a day of classes at a technological educational institution in central Mexico. The main results show that between 50% and 75% of the surveyed students use cell phones in class without the teacher's consent, that is, to attend to personal matters.

Keywords: Phubbing, industrial revolution, university students, education, educational technology, information technology.

Resumen: En el marco de la llamada cuarta revolución industrial, el internet y las TIC (Tecnologías de Información y Comunicación), se vuelven imprescindibles. Es decir, cada vez más la automatización de procesos y manejo de información por medio de dispositivos electrónicos se hace presente con mayor frecuencia, lo que implica contar con trabajadores mejor preparados para poder ser competitivos en sus empresas. En el caso de las instituciones educativas, los maestros y alumnos deben estar a tono con la evolución tecnológica y desarrollar competencias y habilidades que garanticen el proceso de enseñanza - aprendizaje. El objetivo de la presente investigación fue describir los distintos usos del celular por estudiantes universitarios, en un día de clases de una institución educativa tecnológica del centro de México. Los principales resultados obtenidos muestran que entre un 50% y 75% de los alumnos encuestados utilizan el teléfono celular en clase sin consentimiento del maestro, es decir, para atender asuntos personales.

Palabras clave: Phubbing, revolución industrial, universitarios, educación, tecnología educacional, tecnología de la información.

INTRODUCTION

The increased speed of technology in every area, including education, makes it necessary to reach a common ground between teachers,

students and directors, with the aim of suggesting solutions that prepare the next generation of professionals with capacities, skills, knowledge and competitions to face the working environment and the "fourth industrial revolution". The use of the Internet is intensifying among new generations, as is process automation in companies, institutions and public organizations. This entails more specialized labor, which in turn has economic and social implications, since the phenomenon of "workers' displacement or dismissal" (going back to the first revolution) is unavoidable, millions of computers, robots and machines are capable of performing multitask more quickly and precisely than humans.

The objective of the research herein is not to analyze the economic and social repercussions of the fourth industrial revolution in terms of employment or unemployment, the objective is to steer the effects of abuse and misuse of technologies in students, which has derived in lack of sensitivity and decrease in values taking place in the classroom, mostly with teachers. This phenomenon has also been transferred to the familial and corporate areas, when people engage in family meetings and social service.

The aforementioned is known as phubbing, the word is a combination of *phone* and *snubbing* and it means 'snubbing someone in favor of a cell phone', in other words, ignoring a person while focusing on portable technologies, such as mobile phones or tablets. Today's students abuse technology in inadequate moments, i.e., when they must not use it to concentrate on what the teacher is conveying.

The objective of this study is to describe the different usages of cell phones by university students, on a day of classes at a technological educational institution in the center of Mexico.

The main results show that between 50% and 75% of the surveyed students use their cell phones in class without the teacher's consent, that is, to attend to personal matters.

Communication and Technoference

Communication is essential in the teaching-learning process since it guarantees its objective; it is not enough to transmit knowledge from a teacher to a student, the act of comprehension that involves two subjects must be provoked. Every educational institution, private or public, must comply with the aforementioned process, from pedagogy to curriculum, boosting knowledge and skills, in diverse scenarios and situations faced by students, considering necessary materials and technological elements (Vargas, Fernandez & Bauza, 2016).

It is not a secret that the media's evolution continues to broaden, which challenges education and leads to rethinking the phenomenon, thus implementing teacher strategies mostly aimed at having students use ICT in adequate and efficient ways; this is based on the high level of dependence that human beings have developed with technologies (Hertlein & Blumer, 2014). Consequences include moments of

intrusion or interference (technoference) between participants engaged in conversation (Gonzalez et al., 2017).

Ignoring another person for a digital device (be it a smartphone, computer, tablet or any of the mobile devices that are available nowadays) is known as technoference. This may be paradoxical since "one of the benefits of ICT is that it brings us closer to people who are far, yet it distances us from those who are close to us" (Capilla, 2017, p. 117).

Evidently, in this new emerging social context, the use of digital mobile devices is indispensable, seeing as they are part of education 4.0; for students, devices imply developing new potential and skill to learn in different academic spheres. All of which is plausible and necessary because this generation was born in the era of the Internet. Yet, technology comes with its underlying risks: loss of values (related to the lack of attention) and discourtesy towards people who are present (Delena, 2014).

It is common for undergraduate and postgraduate students to get continuously distracted in the classroom, and even though teachers forbid it, they sneak in their devices to check messages; in classes in which they are allowed to use a tablet or a computer, students open several tabs in the browser to multitask and interact. Additionally, there are different scenarios in which this happens, when students attend a conference or any academic event, the pretext of taking photographs leads to distraction from the main objective of the event.

The Concept of Phubbing and Its Associated Problems

The intention is not to minimize the importance of virtual society, it is known that institutions promote their educational offer in diverse modalities, that frequent renovation of classrooms and learning scenarios calls for the latest technologies, and that teachers need constant education on the use of modern didactic material. Nowadays, a student that fails to interact with classmates and teachers via technological devices will be isolated or marginalized, and will likely have problems adapting to the current educational world. Nevertheless, abuse and misuse of electronic devices causes and addiction that tends to be exaggerated, unleashing a series of negative attitudes that hinder communication. As mentioned before, this situation is recurrent in classrooms, while teachers are teaching or other students are presenting a topic of the class. Although there are several devices that are considered distractors, mobile phones are at the top of the list.

In English, the term phubbing is a combination of the words phone and snubbing (disregarding). Gomez defines this construct as "underestimating the person keeping us company by paying more attention to the mobile phone or other electronic devices" (2013, p. 25). According to several studies, this term was first coined in Australia in 2013, and it was used to refer to the behavior of ignoring a person during a conversation by using cell phones, directly interfering with communication (Barrios et al., 2017).

The structure of phubbing is multidimensional because cell phones have a wide range of functions, despite its core purpose of making phone calls, it also offers services such as the Internet, social networks (WhatsApp, Facebook, e-mail, Twitter, Instagram, etc.), videogames, specific-purpose websites on health, fashion, leisure, and others. When someone has access to that kind of information (in situations when it is not appropriate) the result is a lack of attention or distraction.

Phubbing has a series of consequences, which is why it is important to highlight the problems that cell phone addiction can entail; unfortunately, there are records of events in which this type of distraction led to accidents in the workplace and in transit, between partners or family members, had effects on health (stress, depression, anxiety, aggressive behavior, nervousness, angst, nomophobia, among others).

According to Felix et al. (2017, p. 24), nomophobia is: "the irrational fear of leaving home without the mobile phone... it is a very common psychological disorder, particularly among young people". This concept is broader, it can also refer to the feeling of being disconnected from the world in general. These are some of the sensations experienced by students, knowing their cell phone may run out of battery in the school day, and the temptation of wanting to check their messages or apps while they are in class.

Usage of cell phones in class is key as part of an educational model based on and complemented with virtual spaces, through techniques such as e-learning, m-learning, b-learning, and others, in which learning encompasses diverse dimensions (face-to-face, online and mixed). Schwab (2016) and different authors, suggest the need to currently face the fourth industrial revolution, which stands out for the incorporation of new technologies that merge the physical, digital and biological part, affecting all of the disciplines and fields of study. Students looking for academic concepts or fields in class with the assistance of the teacher is very significant, cell phones become a valuable tool for didactic support and schoolwork solving; but if instead, students use moments of the class to deviate their attention from the academic goal, with time, the result will be failed exams, punishments, topics that are difficult to understand and review, incomplete notes, uncredited subjects, among other aspects.

Evidently, in the era of education 4.0, phubbing has an impact on satisfaction of student-teacher relationships, students' academic performance and mental health. Which is why this study went beyond a theoretical analysis and conducted an initial approach with a concrete reality in higher education students enrolled in a technological university in the center of Mexico.

The objective was to discover the different usages of cell phones by university students in a technological educational institution in the center of Mexico on a day of class. The methodology applied was descriptive and data collection was quantitative. The population included 120 students in the fifth and sixth semesters of the Market Intelligence and Psychology program, who agreed to participate. The sample of 92

subjects was calculated with the formula for finite population, using maximum variability, a level of reliability of 95% and permissible error of 5%.

METHODOLOGY

The instrument applied was a questionnaire designed by the authors of this research, it was based on others that had been developed in similar studies, such as Cisneros and Robles (2017), Capilla and Cubo (2017) and Villafuerte and Vera (2019), among other authors. The first section included overall questions pertaining age, gender, type of student, school average, session, etc. the second section proposed items with diverse questions in a 1 to 5 Likert scale, where 1 = Never, 2 = Almost Never, 3 = Sometimes, 4 = Almost Always and 5 = Always, which were grouped in three dimensions or categories: A. Usage of cell phones (10 questions), B. Problems with the use of cell phones (10 questions), C. Feeling of guilt (5 questions). The instrument's reliability was calculated with the Cronbach's alpha, it had a value of 0.81.

Some of the initial sociodemographic questions were used only to correlate each of the instrument's three dimensions to measure phubbing.

H.: At least 30% of the students participating in the study use cell phones in class without the teacher's consent, that is, to attend to personal matters.

H.: There is a positive relationship between the dimensions of phubbing and the session in which the students are enrolled in this technological university in the center of Mexico.

H.: The type of student is strongly associated with each of the dimensions of phubbing.

H.: Sentimental relationships between students in this technological university in the center of Mexico are positively associated with each of the dimensions of phubbing.

Overall Characteristics	Percentages and Averages
Sample Size = 92 cases	
Gender	82.1% are women (76 cases)
Age	20 - 22 years of age (53.6% - 49 cases)
Session	64.3% (59 cases) afternoon session.
Type of Student	85% (78 cases) are regular students.
Number of Subjects Taken	53.6% (49 cases) taking 6 subjects.
GPA	8.2
Family Relationship	90% (83 cases) have a good relationship.
Sentimental Relationships	42.9% (39 cases) have a good relationship, 25% (23 cases) is average and the others are not in sentimental relationships.
Personal Concerns	82% (76 cases) expressed a type of concern, mostly related to the family, followed by others.
Residence	53.6% (49 cases) don't live where they study and have to commute.

Table 1

Overall characteristics of the university students

Source: compiled by the authors based on research results.

RESULTS

Table 1 includes the overall data collected from the survey, most participants are women, ages range between 20-22 and three quarters of them are enrolled in the afternoon session. It is noteworthy that the female nature leads to the assumption that they tend to engage more in active phone conversations. The session can also facilitate the use of cell phones because it is more common for people to be available in the afternoon. The number average students is initially high, although future research could consider failed subjects or additional exams presented. Finally, the percentage of concern is high, which could be associated with the need to communicate frequently to somehow vanish their concerns. This is the initial overview of some sociodemographic variables, which will allow a first approach and reflection of the data.

Table 2 introduces a series of descriptive statistical data, based on central tendency measurements, in order to break down other important analyses related to the three dimensions of phubbing.

Descriptive statistics	Dimensions of Phubbing		
	Use of cell phones	Problems with the use of cell phones	Feeling of guilt
Mean	3.20	1.97	1.94
Median	3.15	1.80	1.60
Mode	2.88	1.40	1.40
Standard Deviation	1.01	1.08	1.10

Table 2
Central tendency measurements of phubbing in university students
Source: compiled by the authors based on research results.

It can be seen that the highest mean scores were obtained by the dimension corresponding to the use of cell phones, with 3.20; while the other two dimensions: problems with the use of cell phones and feeling of guilt, with 1.97 and 1.94, respectively. This means that the frequency with which university students use cell phones is in the options Sometimes and Almost Always, if we consider that option 1 in the Likert scale has a value of 0% and option 5 has a value of 100%, then the obtained values would range between 50 and 75%. Therefore, the hypothesis H.: *At least 30% of the students participating in the study use cell phones in class without the teacher's consent, that is, to attend to personal matters,* is accepted.

Dimensions of Phubbing / Session	Mean	N	F-test	p
Use of cell phones			20.010	0.020
• Afternoon	3.3389	59		
• Mixed	2.9400	33		
Problems with the use of cell phones			0.171	0.822
	2.0000	59		
• Afternoon	1.9300	33		
• Mixed				
Feeling of guilt			2.210	0.420
• Afternoon	2.0333	59		
• Mixed	1.7600	33		

Table 3
Mean scores of phubbing according to the session
Source: compiled by the authors based on research results.

Table 3 shows that the higher mean scores correspond to the dimension of use of cell phones (mean = 3.3389), with a significance level of 0.020, a fact that may be interpreted as having a positive correlation with the afternoon session in which students are enrolled. However, there correlation with the other dimensions, problems with the use of cell phones and feeling of guilt, is negative. therefore, the hypothesis H.: *there is a positive relationship between the dimensions of phubbing and the session in which the students are enrolled in this technological university in the center of Mexico*, is partially accepted, only the first dimension of phubbing applies.

Table 4 illustrates the data deriving from the correlations obtained between the three dimensions of phubbing and the type of student. The highest mean scores correspond to the dimension of use of cell phones (mean = 3.2074), with a significance level of 0.010; likewise, mean data for the second dimension, problems with the use of cell phones is 1.9889 and p=0.027, while the third dimension, feeling of guilt, was found not to be associated. This means that, according to hypotheses: *H.: the type of student is strongly associated with each of the dimensions of phubbing*, is partially accepted, because the variable of type of student is strongly associated with two out of three dimensions of phubbing.

Dimensions of Phubbing / Type of Student	Mean	N	F-test	p
Use of cell phones			1.471	0.010
• Regular	3.2074	69		
• Irregular	2.9000	23		
Problems with the use of cell phones			0.795	0.027
	1.9889	69		
• Average	1.6000	23		
• Irregular				
Feeling of guilt			0.197	0.940
• Average	1.9333	69		
• Irregular	2.0000	23		

Table 4
Mean scores of phubbing according to the type of student
Source: compiled by the authors based on research results.

Finally, Table 5 correlated the dimensions of phubbing with variable called sentimental relationships (or lack thereof) of students participating in the study. Results show that there is a positive association between the use of the phone and (mean = 3.2750 and p = 0.030), problems with the use of cell phones (mean = 2.1833 y p=0.042) and feeling of guilt (mean = 2.0833 and p = 0.001). Hypothesis *H.: sentimental relationships between students in this technological university in the center of Mexico are positively associated with each of the dimensions of phubbing*, is accepted .

Dimensions of Phubbing / Sentimental Relationships	Mean	N	F-test	p
Use of cell phones			3.619	0.030
• Good	3.2750	39		
• Average	2.8429	23		
• Not in a relationship	3.3667	30		
Problems with the use of cell phones			1.665	0.042
	2.1833	39		
• Good	1.5429	23		
• Average	2.0333	30		
• Not in a relationship				
Feeling of guilt			0.757	0.001
• Good	2.0833	39		
• Average	1.6000	23		
• Not in a relationship	2.0000	30		

Table 5
Mean scores of phubbing according to sentimental relationships
Source: compiled by the authors based on research results.

DISCUSSION

Nowadays, using cell phones in class is indispensable for university students, especially as a learning tool to look for information, operate specialized platforms and software, social networks, among others, all of which focus on strengthening classroom knowledge and must be done with the teacher's supervision. Capilla (2017) explains that there is a connection between the use of mobile technology and psychological wellbeing; it can be interpreted that students continuously using their cell phones, even in class, may lead to feelings associated with health, relationships with others, academic status, distraction, leisure, among others, in other words, its effect may result in positive or negative psychological wellbeing. Results obtained show that there is an association between the use of cell phones and circumstantial aspects from the student's present or past, such as being an average student or not, having had problems at school or at home, or pain in the neck or hands, tired vision, etc.

Future studies must delve into an analysis of some variables that need to be tackled longitudinally, such as: university students session, GPA, study habits, gender, among others, seeing as they may provide information on excessive or inadequate use of cell phones in the classroom and in other social scenarios.

CONCLUSIONS

It must be acknowledged that pubbing is a phenomenon that interferes in classroom communication and personally affects university students' psychological wellbeing; it also entails consequences for the health and social relationships, which is why strategies must be developed to deal with it and teach how to use it responsibly.

Education 4.0 brings new educational challenges that are mainly based on modern technology; nonetheless, we must acknowledge the current social reality experienced by students in every educational level, mostly in university, in order to challenge it (although not forbidding it) but having school and university teachers and directors set up rules for appropriate usage of cell phones and other devices in class; the aim of these rules is to foster university students' psychological wellbeing, and as mentioned before, the solution is not to ban the devices but to teach responsible usage.

REFERENCES

Barrios, D., Bejar, V., & Cauchos, V. (2017). Uso excesivo de smartphones/ teléfonos celulares: *Phubbing* y Nomofobia. *Revista Chilena de Neuropsiquiatría, 55*(3), 205-206. Recuperado de: https://scielo.conicyt. cl/pdf/rchnp/v55n3/0034-7388-rchnp-55-03-0205.pdf

Capilla, E., & Cubo, S. (2017). *Phubbing.* Conectados a la red y desconectados de la realidad. Un análisis en relación con el bienestar psicológico. *Revista de Medios y Educación, 1*(50), 173-185. Recuperado de: http://www.reda lyc.org/pdf/368/36849882012.pdf

Cisneros, L. & Robles, S. (2017). ¿Para qué utilizan el celular en el aula, los estudiantes universitarios? XIV Congreso Nacional de Investigación Educativa (COMIE). San Luís Potosí, México.

Delena, M. (2014). *Adicción tecnológica*. Buenos Aires, Argentina: Universidad de Palermo. Recuperado de: http://www.adinarosario.com/fotos/bibliot eca/adicc10g.pdf

Esparza, D. (2016). *¿Comunicados o conectados?* Recuperado de: ttps:// es.aleteia.org/2016/09/26/comunicados-o-conectados/

Felix, V., Mena, L., Ostos, R., & Acosta, M. (2017). Nomofobia como factor nocivo para los hábitos de estudio. *Revista de Filosofía y Cotidianidad, 3*(6), 23-29. Recuperado de: https://www.researchgate.net/publication/32393 3302_Nomofobia_como_factor_nocivo_para_los_habitos_de_estudio

Gómez, J. (2013). *El "phubbing", otra amenaza contra las relaciones interpersonales y laborales.* Recuperado de: https://www.merca20.com/el-*Phubbing*-otra-amenaza-contra-las-relaciones-nterpersonales-y-laborales/

Guijosa, C. (2018). *Los smartphones son una distracción en el salón de clase, según encuesta*. Recuperado de: https://observatorio.tec.mx/edu-news/los-smar tphones-son-una-distraccion-en-el-salon-de-clase

González, J., Hernández, I., Martínez, R., Matos, J., Galindo, M., & García, S. (2017). Interferencia de la tecnología en las relaciones de pareja y su impacto en la salud mental de la mujer puertorriqueña. *Revista*

puertorriqueña de Psicología, 29(1), 56-71. Recuperado de: https://dialne t.unirioja.es/descarga/articulo/6496521.pdf

Hertlein, K., & Blumer, M. (2014). *The Couple and Family Technology Framework: Intimate Relationships in a Digital Age*. Recuperado de:

Shawab, K. (2016). *The Fourth Industrial Revolution*. Kindle Edition. Recuperado de: http://www3.weforum.org/docs/Media/KSC_4IR.pdf

Vargas, I., Fernández, M., & Bauza, B. (2016). La comunicación pedagógica y su influencia en el proceso de enseñanza aprendizaje de la lengua española: principales problemas en los estudiantes de la carrera de educación primaria en Las Tunas (Cuba). *Revista GeoGraphos, 7*(86), 132-146. Recuperado de:

Villafuerte, C., & Vera, M. (2019). *Phubbing* y género en un sector académico en

Quito: Uso, abuso e interferencia de la tecnología. *Revista Convergencia, 1*(79), 1-19. DOI: doi.org/ 10.29101/crcs.v0i79.9156