Study of the prevalence of phubbing in classrooms by apps´use

Estudio de la prevalencia del phubbing durante clases ocasionado por el uso de apps

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Abstract

Cell phones, as well as the applications used in them, have changed the forms of communication processes between their users, inclusive, in classroom is common. Among the phenomena associated with the mobile device-applications binomial is phubbing, which is defined as the action of belittling or ignoring a person physically by paying more attention to the mobile phone. This research was developed at a public university in southern of Mexico. The principal objective was to find the relationship between phubbing and the use of mobile device apps when students are in the classroom. The study had a quantitative, descriptive and correlational approach. An instrument of our own elaboration was applied, which measured of two variables; in the one hand, Prevalence of phubbing and on the other hand, the use of apps. The questionnaire was applied in between 2019 and 2021, to 643 students, (F: 471, M: 172). It was identified that the prevalence of phubbing and the approach have a direct positive relationship. This means that, the closer the applications, the more phubbing is done in classes. The findings suggest that a significative percentage of students would like to avoid being phubbers by discovering it as a social phenomenon that affects their academic and social context in person.

Keywords: Mobile, mobile phone, addiction, apps, technologies, technopathy.

Resumen

Los teléfonos celulares, así como las aplicaciones utilizadas en ellos, han cambiado las formas en los procesos comunicativos entre sus usuarios, incluso en las aulas, lo que se percibe con frecuencia. Entre los fenómenos asociados al binomio de dispositivo móvil-aplicaciones se encuentra el *phubbing*, que se define como la acción de menospreciar o de ignorar a una persona físicamente por prestar más atención a un dispositivo móvil.

Esta investigación se desarrolló en una universidad pública en el sur de México con el objetivo de hallar la relación existente entre el *phubbing* y el uso de las aplicaciones de los dispositivos móviles cuando los y las estudiantes se encuentran presenciando su clase. El estudio tuvo un enfoque cuantitativo, descriptivo y correlacional. Se aplicó un instrumento de elaboración propia que midió dos variables, la Prevalencia del *phubbing* y, Uso de las aplicaciones. El cuestionario se aplicó en el intervalo de 2019 a 2021, a 643 estudiantes, (M:471, H:172). Se identificó que la prevalencia del phubbing y el acercamiento con las aplicaciones tienen una relación directa de engranaje, esto significa que, a mayor acercamiento a las aplicaciones, más *phubbing* se realiza en clases. Dentro de los hallazgos se encontró que un porcentaje de estudiantes desearía evitar ser *phubbers* al descubrirlo como un fenómeno social que afecta su contexto académico e interpersonal al sumergirse en el ocio ignorando su entorno.

Descriptores: Móviles, teléfono móvil, adicción, aplicaciones, TIC, tecnopatía.

1. Introduction

A new world is created with the digital era and the Internet where communication, along with technology, has reached beyond what is observed. However, it is much more than technology "It is a means of communication, interaction and social organization" (Castells, 2000, p. 1). Especially "in an era of accelerated changes where paths promoted by the use of technology are opening up" (Martín-Párraga *et al.*, 2022, p. 37), which are being classified for different interests and social benefits. Technology is emerging which allow information sharing through computers, televisions, tablets and cell phones.

> Technological revolution is a global reality. It is currently in its boom, presenting more opportunities for employment, interaction, innovation and development in all social spheres. Today, people can communicate, study, work regardless of distance through digital connectivity (Mulumeoderhwa, 2022, p.74).

The use and services provided by mobile devices, especially cell phones, facilitate and make human life more comfortable. Some of these benefits are the use of email, communication through social networks, Internet shopping or information queries on the web (Villafuerte-Garzón and Vera-Perea, 2016).

ICTs in pedagogy are also present, since students are connected with their educational environment, peers, teachers, content and resources (Campos-Soto *et al.,* 2020).

Thus, as there is a close relationship between the Internet, mobile devices and applications for social and interactive use, phubbing has become more and more frequent in the classrooms during classes, reason for which this study is conducted, to measure how much time the student spends on the internet during classes, and what are the apps the student uses the most, to change the pedagogy in the future when acting as a teacher in the classroom by learning to use these tools for teaching.

1.1 Mobile devices and their relationship with phubbing

Mobile devices allow the individual to be reachable at any time and attentive to the different content they offer (Pedrero-Pérez *et al.,* 2012; Bian and Leung, 2014; Espina-Jerez, 2016).

However, despite the obvious benefits of smartphones, researchers have been increasingly concerned about their potential adverse effects on mental and physical health, and the quality of social and school interactions (Ha *et al.,* 2008; Khan, 2008; Lee *et al.*, 2014; Chotpitayasunondh and Douglas, 2016; Wang *et al.,* 2023; Thomas *et al.,* 2022; Zhan *et al.,* 2022; Wu *et al.*, 2022; He *et al.*, 2022; Hernandez-Gracia *et al.*, 2021; Fernández-Andujar *et al.*, 2022; Xio-Pan *et al.*, 2022).

In 2007 originate mobile applications (apps), software on cell phones and tablets that perform functions for the user, tools that when downloaded facilitate tasks in everyday life. "Mobile applications have become one of the main sources used by people to communicate, organize their lives, entertain themselves and even work" (Velo-de-Sebastian, 2014, p. 12).

In that sense, cell phones can reduce the quality of interpersonal interactions, producing a "tele-addiction" effect, where people are diverted from face-to-face exchanges with others and thus lose the art of face-to-face interaction (Habuchi *et al.*, 2005; Chotpitayasunondh and Douglas, 2016).

Just as the applications are improve different services in favor of the user, they are also negative since there are those that demand a constant visualization or approach, causing different complications in the life of these consumers:

> In these applications, addiction focuses on interactive communications that can be accessed at any time when there is no control or restriction of them, their permanent and constant use generates in students lack of awareness of their environment. Our society is surrounded by technology that is innovating every day, but this

innovation is not used politely, generating dangers and risks. (Rosado-Alvarez *et al.,* 2015, p. 1)

The advent of smartphones and, subsequently, of apps, caused a series of psychopathologies related to their use. The World Health Organization (2008) mentions that one in four people suffers from technology-related disorders.

There is a wide variety of problems in the literature that have originated as a result of the use of the Internet and mobile devices. There are phenomena related to the use of cell phones and applications, some of which are often unknown to people. Among these technopathies are nomophobia, or cell phone philia, i.e., the fear of being without a cell phone (Asensio *et al.*, 2018), vibration anxiety, or phantom vibration syndrome. About 70% of users feel at some point the vibration of the phone when it does not really exist (Ponce-Aguirre, 2012; Capilla-Vilchis, 2018, Medina and Regalado, 2021). Sleep texting is a pathology that involves writing text messages while sleeping (Mobile World Capital Barcelona, 2013). FOMO (Fear of Missing Out), is a pervasive fear that others may be having rewarding experiences from which one is absent (Przybylski *et al.,* 2013). WhatsApp it is technically known as De Quervain's syndrome, BlackBerry thumb, gamer's thumb, radial styloid tenosynovitis, mom's thumb, or adolescent texting tendonitis (Malarvani *et al.*, 2014). Phubbing as the object of this study is a neologism composed of two words, phone and snubbing, a phenomenon that appears with the increasing and advanced technology.

According to Nazir and Piskin (2019), this term arises in 2012 when several experts met to find the word to describe the behavior of ignoring others for using the cell phone. In 2013 in the Australian dictionary, Macquarie Dictionary, the word phubbing appears already as a verb, describing it as the act of snubbing someone by detracting attention by looking at the cell phone.

Chotpitayasunondh and Douglas (2016) consider that this phenomenon of ignoring the interlocutor by attending to the mobile device

has been normalized and explained from psychosocial, e.g., human interaction, social exchanges (Berg *et al.,* 1995; Cialdini, 1993; Falk and Fischbacher, 2006) and reciprocity (Pelaprat and Brown, 2012). This created a behavior of accepted reciprocity, of mutual intention to prioritize digital interaction over face-to-face.

The youth population is the one that remains more time virtually connected through their cell phones so they could be doing phubbing constantly, although they do not know its definition. Most people have taken the two places, as phubber who ignores and as phubbee, the one who is ignored, terms mentioned by Chotpitayasunondh and Douglas (2018 p. 304).

There is a campaign that was conducted through a website called Stop Phubbing (Haigh, 2022), to prevent phubbing, inform, raise awareness and advise on how to stop it.

A study conducted in Latin America (Mexico, Colombia and Brazil) points out that the largest population (75%) with mobile admit to making use of it to pretend to be busy and not talk to other people, almost half of the respondents said that they use it to "spend time" and for daily distraction, and a third, to consult an address instead of asking another individual or ordering a cab (Koob and Schulkin, 2019).

The Institute of Social Sciences in Croatia conducted international research "The Phubbing Phenomenon: Its Predictors and Consequences in a Cross-Cultural Perspective" where cell phone usage habits, Internet addiction and the number of hours online, as well as self-control were questioned. Although the results showed that they spent more than nine hours a day online, phubbing and FOMO were low to moderate, women were found to perform more phubbing, but men stay longer online (Brkljačić *et al.*, 2018, p.110).

In the case of Mexico, a study was conducted in the state of Hidalgo among high school students about the presence of phubbing in the classroom and the results show that from 50% to 75% of the students surveyed use cell phones in class without the teacher's consent, attending to

personal matters unrelated to educational practice (Hernández-Gracia *et al.,* 2020).

In Mexico, phubbing is still unknown by many, and there are even few studies related to emerging phenomena related to the use of mobile devices. Likewise, most of the literature found related to phubbing has focused on emotional disorders or affectations in interpersonal relationships suffered by users. However, research on phubbing in the classroom context is scarce, hence the purpose of this research.

2. Methodology

The study has a quantitative correlational approach. Two variables were constructed, the prevalence of phubbing and the use of apps.

2.1 Objectives

- To find the relationship between phubbing and the use of mobile device applications when students are in class.
- Identify the differences of phubbing between men and women.

2.2 Population

The study was carried out in the Academic Division of Education and Arts of Universidad Juárez Autónoma de Tabasco, with 3490 students distributed in four bachelor's degrees; 1131 in Education Sciences, 735 in Communication, 1573 in Languages and 51 in Management and Promotion of Culture.

2.3 Sample

The selection of the population was random with students of the bachelor's degrees of Education Sciences, Languages, Communication and Management and Promotion of Culture from 2019-2021. A total of 643 students participated, 471 were female and 172 male. The mean

age of the participants was 20 years with a standard deviation of 2.8.

2.4 Procedure

A self-developed instrument consisting of 27 questions was used, which consisted of three parts. The first collected information related to age, gender, degree and semester. The second consisted of 21 questions on a frequency scale (Never, Seldom, Almost always, Always) that measured the prevalence of phubbing among university students in class. The third consisted of two questions, one dichotomous, to find out whether the respondent was familiar with the term or not, and one open-ended question to elicit their opinions about the phenomenon.

Prevalence of phubbing (e.g., Do you check/use your mobile device when you are in class (cell phone, tablet, computer)? with an alpha of .73. after performing a confirmatory analysis, the data fit the model (c2 = 16.79, df = 3, p = .001; SRMR = .01, AGFI = .95, TLI = .92, CFI = .98, RMSEA = .08, CI 90% [0.05, 0.12]).

Use of applications. It was divided into two dimensions: a) Approach that measures which apps influence the prevalence of phubbing in academic spaces. It consists of four questions such as, for example: how often do you use WhatsApp while accompanied? with a reliability of .66. b) Aloofness that measures the student's permanent desire to stop phubbing. It consists of four questions such as, have you ever wished to stop checking WhatsApp while accompanied? with a reliability of .80.

After a confirmatory analysis of the variable data, fit the model (c2 = 64.31, df = 17, p = .000; SRMR = .03, AGFI = .95, TLI = .94, CFI = .96, RMSEA = .06, CI 90% [0.04, 0.08]).

A pilot test was conducted to measure its internal consistency. Once the instrument was pilot tested, a form was developed for participants to answer online and they were invited to participate through social networks, flyers and by direct invitation of 35 research professors

of the Academic Division. Each participant was guaranteed the freedom to respond openly and the confidentiality of the data. None participants was excluded.

The records were processed in SPSS without loss of data, working with a 95% confidence interval. Factor analysis, reliability of variables and dimensions were performed in this application. Subsequently, means, SD and correlations were calculated.

AMOS was used to determine the goodness of fit and degree of freedom. A confirmatory analysis was performed for the variables, verifying the fit of the measurement model to the data. A 95% confidence interval was used to assess the goodness of fit of the models; fit indices proposed by previous researchers were used (Byrne, 2016; Kline, 2016) such as chi-square and associated likelihood (c2 with p>.001), standardized root mean square residual (SMSR =.01), Tucker-Lewis index (CFI =.98), and root mean square error of approximation (RMSEA =.08).

3. Results

The participation of the students was distributed as: 48% of the students from the Bachelor's Degree in Education Sciences, 17% from the Bachelor's Degree in Communication, 4% from the Bachelor's Degree in Languages and 31% from the Bachelor's Degree in Cultural Management.

Eighty-three percent of the group surveyed were unaware of the term phubbing as an emerging phenomenon from cell phone use. Table 1 shows that there are significant differences in the prevalence of phubbing between both genders. Both men and women consider that they rarely use their cell phones in the classroom, i.e., they do not see themselves as phubbers.

Table 1

Prevalence of phubbing by gender

	M (DE)	gl	t	p
Men	2.05(.55)			
		292.7	2.57	.01
Women	1.93(.52)			

Despite this result, students are aware that checking their cell phones too often can be detrimental academically. The phone can be used for academic purposes, especially now in times of pandemic and post-pandemic.

Table 2 shows that there are no differences between males and females in the willingness to walk away from the cell phone to check applications.

Table 2

Application distance by gender

	M (DE)	gl	t	p
Men	2.20(.85)			
		641	-.56	. .57
Women	2.24(.84)			

After performing a correlation analysis, there was a significance between the variables of app use and prevalence. This suggests a negative correlation, the greater the distance the lower the prevalence of phubbing in academic spaces, as shown in Table 3.

Table 3

Mean, standard deviation and correlations between the variables use of apps and prevalence of phubbing.

Variable	M	SD	1	2	3
Approach	1.9	.55		22**	.54**
Distancing	2.2	.84	.22**		-.12**
Prevalence	1.9	.53	.54**	-.12**	
*p<0.05. **p<0.01. ***p<0.001					

As can be seen in Table 4, students are distracted by applications oriented to instant communication or those that allow them to watch series or play online video games.

Tabla 4

Media y desviación estándar por tipo de aplicaciones más utilizadas

Application	M(SD)
Facebook	2.16(.75)
WhatsApp	2.43(.82)
Instagram	1.72(.75)
YouTube	1.62(.79)

Consequently, 23% indicated that they have always wanted to stop checking their cell phone while in class. Twenty-one percent of the students answered never, i.e., most of them have not felt the desire to avoid checking their cell phone applications while they are with another person, since they do not use them. They consider that social networks have changed the way of socializing nowadays, and the topics to be discussed in the meetings are derived from the exchange of content seen in the networks. They consider that strategies should be explored to diminish this practice of their use for social purposes in the classroom because it has become a habit rather than a necessity.

4. Discussion and conclusions

This research extends previous discussions on phubbing as an emerging phenomenon that impacts on various areas of communication. The basis of correlating the prevalence of phubbing in class with the use of apps had not been explored in the literature and the results were inconclusive.

In general, the fact that students avoid using apps would be associated with the norms established by the faculty, this means that there is no self-recognition on the part of the student, since as Bianchi and Philips (2005) mention, it is not clear why people do not have the necessary self-control when the use may be inappropriate. As Obregón (2015) says, there is an important paradox when stating that society claims not to depend on it, but at the same time encourages dependence until it becomes an addiction. In general, respondents are unaware that walking away can be critical in their academic performance and in their social relationship with others in face-to-face.

The effects of the prevalence of phubbing in academic spaces, and in classes, are significant, since 54% of students check their cell phones in class. This data indicates that phubbers are present when the teacher is teaching the class, or when their classmates are presenting a topic. This result

means that only 46% of teachers do not suffer from snubbing by their students, however, there are complaints from teachers, commenting that they realize that students perform practices outside class on their devices, evidencing phubbing.

These findings are closely related to the use of applications; students feel the need to keep in touch in an immediate and mediated way. This is related to what Jie *et al.* argue about the need to relate which will induce the desire of college students to seek emotional support in social networks, especially when needs in the offline context are not well met (2020, p. 2).

It is possible that Maslow's hierarchy of needs has changed with technology in mediated communication (Rico, 2017). The need for security, belonging to a group, affiliation, recognition and self-realization are subordinated to the use of social and interactive applications on cell phones.

The act of ignoring the other in a face-to-face manner by connecting with the digital world, reflects that this phenomenon has been normalized in our society, which has caused emotional problems, as well as personal, family and academic ruptures. This means that the self-perception of being discourteous is null, consequently, the desire to leave the situation becomes nonexistent. As mentioned by Capilla-Garrido and Cubo-Delgado (2017), technological diseases increase due to their excessive use (p. 178). Nowadays, phubbing is common, as stated by Vanden-Abeele *et al.* (2019) "people do not really seem to notice, and any effect on distraction and conversational intimacy, whether positive or negative, seems to be quite small" (p. 42).

As mentioned by Davey *et al.* (2018), the greater the dependence on cell phones, the greater the behavior associated with phubbing among university students.

The results show that there is a need for pedagogical strategies among students to be oriented to the use of cell phones in classes. This fact is related to 45% of the respondents, who say they do not want to stop checking their cell phones.

In general, this situation has caused serious problems in interpersonal relationships, since there are those who are rejected and ignored because in the middle of the communication between two or more people they feel affected because someone pays more attention to the mobile device than to the same person, developing behaviors such as the following: they do not stop looking at the cell phone, they write while talking, they lower their gaze at every moment, they do not pay attention or interrupt. What do these people who have been ignored or rejected because of a "machine" feel? "Dependence on technology affects interpersonal relationships with people who are in their social environment" (Durán-Nieves, 2014, p. 182).

The variable of distancing from the app, as opposed to approaching it, shows that the students identified their willingness to stop phubbing. They consider that staying away from apps and mobile devices is a difficult task. The academic slogan of absenting themselves from mediated communication has become a complicated task. However, in the classroom the student is expected to have his/her five senses in class, when they present in class, they expect the audience to pay full attention. This does not change on the teacher's side, participation and interactivity in the classroom is expected as a result of thematic understanding. In the end, the work of raising awareness should not only fall on parents, but also on teachers, as mentioned by Santana-Vega *et al.* (2019), they should be involved to create a common learning space about the problems generated by the misuse of cell phones and the need to use them responsibly.

According to the results, the applications that distract students are those related to instant communication; Terán-Prieto (2019) confirms that WhatsApp and social networks are the most widely used among adolescents and young people, where a high prevalence is found for their inappropriate use, as well as the risk of abuse and dependence on them.

The results of this research in relation to the use and abuse of social networks are consistent with other previous studies, Bendayan and Blanca (2019) argue that there are specific behaviors with excessive use of Facebook that are related with problematic use of the cell phone and phubbing. It agrees with Karadag *et al.* (2015) when saying that the desire to show one's existence by peeking on social networks may be the factors that increase this addiction. Although for Igarashi *et al.* (2005), young people do not need fully integrated relationships with others, but relationships that function partially in response to one's situational demand. It makes sense then that students are more attentive to their cell phones because they are expecting the reactions provoked by their posts or instant messages.

Finally, this study focused on student phubbing in the classroom from the use of apps on their mobile. The study contributes to understanding the relationship between smartphone applications and university students' classroom behavior through the prevalence of use and apps. One of the limitations of the study was that it focused only on students in the social sciences and humanities areas of a single public university. Additional transdisciplinary validations should be conducted to compare and explain specific behaviors in common. It will be up to social scientists to open future research on comparative studies among all the phenomena arising from the use of mobile devices to identify which has the greatest impact on the academic quality of university students and, therefore, on their social life, since it is unknown whether they will impose new rules on the way we communicate face to face.

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