

Phubbing and gender in an academic sector in Quito: technology's use, abuse and interference

Cristian Moisés Villafuerte-Garzón  <https://orcid.org/0000-0002-3054-7272>

Instituto Tecnológico Superior Cordillera, Ecuador, cristian.villafuerte@cordillera.edu.ec

María Vera-Perea  <https://orcid.org/0000-0003-2449-4685>

Universidad Especialidades Espíritu Santo, Ecuador, mveraperea@uees.edu.ec

Abstract: The objective of the present study is to explain the interference of technology in daily life, performing a differential study by gender. The specific objectives are to ascertain if there are significant differences between men and women as regards periods of time, reasons for using technology, technological devices used, social problems that arise from the interference of technological devices in different aspects of life, time that is possible to spend without technology, feelings of guilt and perception of addiction. In order to accomplish these objectives, 3,793 people were surveyed. The sample is made up of students, academic, administrative and service staff from an academic institution located in Quito (Ecuador). Descriptive analyses, *t* student test and chi squared were performed. It has been demonstrated that there are addictive behaviors to information and communication technologies, as well as the presence of *phubbing* in the surveyed population. Moreover, significant differences between genders were verified.

Key words: tech addiction, technology, gender, phubbing.

Resumen: El artículo tiene como objetivo explicar la interferencia de la tecnología en la vida cotidiana, con un estudio diferencial por género. Los objetivos específicos son conocer si existen diferencias significativas entre hombres y mujeres en: periodos; razones que les impulsan a usar la tecnología; dispositivos tecnológicos utilizados; problemas sociales que se derivan de la interferencia de los dispositivos tecnológicos en diferentes aspectos de la vida; tiempo que pueden soportar sin utilizar tecnología; sentimiento de culpabilidad; y percepción de adicción. Se encuestaron 3,793 personas, entre estudiantes, personal académico, administrativo y de servicios de una institución académica situada en Quito, Ecuador. Mediante análisis descriptivos, pruebas *t* de Student y chi cuadrado, se ha logrado establecer un hito referencial, al demostrar que existen comportamientos adictivos a las tecnologías de información y comunicación (TIC), así como la presencia de *phubbing* en la población encuestada, habiendo diferencias significativas por género.

Palabras clave: tecnoadicción, tecnología, género, phubbing.

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Introduction

We live in a world full of smart technological devices by means of which on-demand information is consumed. There are millions of formats of connection and interactivity that set the pace of use, consumption and abuse of information and communications technologies (ICT). As a matter of fact, according to Sanou (2016: 4), by the end of 2016, around 47% of the world's population had an Internet connection (of which, 44.9% is a woman, while 51.1%, a man), there are 7.1 trillion subscribers of cellular phone lines, and more than 900 million of social networking sites and instantaneous communication systems, which evinces the large amount of information produced and demanded by these users.

In the studies on the use of technology, it is common to think of the user as a universal being, undifferentiated by gender, thereby most of the digital products and contents are thus designed, leaving important characteristics that differentiate men and women aside; the same occurs when speaking of *phubbing*¹ or *smombie*.² Therefore, this article's general objective is to analyze the use and abuse of technology and its interference, analyzing addiction and phubbing behaviors, bearing gender role in mind.

The everyday-use technologic devices were developed, at first, to make life easier. Computers, smartphones and tablets have become part of daily life; yet, not only did these devices revolutionize the pace of life, but society, allowing new forms of connection and socialization for people (Castells, 1996: 405). Almost unnoticed, they have interfered in all the activities, forcing the living of life through them, creating, mixing, producing and posting more information than that which may be consumed in activities related to labor, entertainment, communication, health and others; not to say that in all of them there is at least one technologic device, to the extent of changing everything, from the way of communicating, doing business or offering services to economic priorities.

As regards the use and consumption of technology related to gender, traditionally there is reference to a patriarchy of male domination around ICT (Sanz, 2006: 194), though men and women have always worked together in the development of technologic solutions for each epoch. For example, had Ada Lovelace not met Babbage, surely there would be no computers as we know them today, or if six women that broke the traditional molds of the time had not participated in development of ENIAC, the

1 *Phubbing* portmanteau of *Phone* and *Snub*.

2 *Smombie* portmanteau of *smartphone* and *zombie*.

development of the personal computer would have taken longer. Women create technology that moves the world (Isaacson, 2014: 53).

But in reality, the equal participation of men and women has been overshadowed in the construction, development, use and innovation of ICT, generating discrimination in this area. In 1992, the European Union warned about the poor participation of women in information society; the same occurred in Beijing, in 1995, when in the UN women Conference, it was indicated that ICT were the crucial point to reach equality, democracy and social justice (Naciones Unidas, 1996). For Cantos (2017: 50), the poor representation of women in professions related to ICT is a generalized phenomenon. Moreover, women's digital abilities, essential in the current socioeconomic context, is frequently relatively lower than men's.

In her research, Rodríguez (2009: 4) points at this as a gendered digital divide, since from her standpoint there are barriers to access and use ICT, not only because there are fewer female users, but because of the persistent structural inequalities; for example, product of biased information and contents that limit the access of women to consume digital contents. Moreover, this divide is also the result of cultural conditionings (Rodríguez, 2009: 11), prejudices and stereotypes, which produce gender stratification.

The dissemination of new ICT is not gender neutral and their effects will vary in function of the woman's origin, social class, possibility to access education or even race and age (Castaño et al., 2010: 87). Terms such as techno-feminism and cyber-feminism, among others, have been introduced to explain the contribution from gender, identities and sexualities in ICT, with a view to reaching participation spaces with less biased visions. However, gender differences still exist in the use of certain types of technology. The most visible part of cyber-feminism has basically focused on exploring the possibilities offered by ICT to deconstruct genders (Reverter, 2013: 455).

Cotten et al. (2009: 1180) found that few were the gender differences in the use of mobile devices for communication activities; moreover, they identified that men used more the telephones for recreational ends such as gaming, photograph and video. For their part, Hargittai and Walejko (2008: 252) demonstrated that although there was gender equality as regards the access to ICT, certain activities such as the shared use of digital online content still displayed marked gender differences, as there were more contents shared by men than by women. These differences disappeared when the interactivity of the citizen in the web was taken into account. Finally, Rideout et al. (2010: 21) identified that boys (between 8 and 18 years of age) spent more time on

computers than girls; however, for boys, most of that time was devoted to videogames, while girls spent more time on social networking sites, listening to music or reading online.

What is crystal clear is that cyber space, to a large extent, reproduces cultural gender stereotypes (Sanz, 2006: 201). According to Ensmenger (2010: 2), the field of informatics is dominated by men and associated to masculine attributes, allegedly owing to being highly technical and require long working hours and being antisocial individuals. In her research on habits and experiences of technological consumption by tweens³ from Guayaquil (Ecuador) by gender, Gómez (2017: 71) indicates that women are more pragmatic than men as regards technology; likewise, the literature discloses that console videogames are masculine in nature. Therefore, men spend more time playing videogames, while women prefer social media.

The above makes us put forward the following hypotheses:

H₁: Men use technological devices over longer periods than women in the analyzed samples.

H₂: The reasons that make men and women use technologic devices are different in the analyzed sample. Such reasons are: information search, purchases, studies, social media, watching videos, role-playing games, leisure, communication services and labor.

H₃: The devices used by men and women for each of the uses are different in the analyzed samples; such devices are: PC, smartphones, tablets and videogame consoles.

When writing on virtual sociability, Cáceres et al. (2017: 5) expressed that the mediation of technology suppresses the need for physical and direct access to the others in communication and transforms the psychosocial aspects that are necessary in face-to-face interaction. Therefore, those who do not interact through a technological device with others on the web do not exist and may be considered outcasts, from the mere fact of not being connected, which already evinces problems from the excessive use of technological devices.

And since new ICT have changed the pace of life and have become elements essential for daily life, beyond being devices or body extensions to carry out almost every activity, studies that refer to the prolonged periods of time have established milestones as regards addiction, finding out, for example, that in addition to new technologies is characterized by an abusive use of computer, Internet, mobile phones, videogames and social media. And

3 It is the child population from 8 to 13 years of age. The term *tween* comes from the shortening of *between*.

even though addictions may affect at every age, Rodríguez et al. (2012: 355) demonstrate that in adolescents there is an index higher than at older ages. It is worth pointing out that these studies are commonly aimed to establish if there is addiction and its symptomatology.

Starting from previous research on activities, times and periods of use of technologic devices, the interference these cause in everyday life is noticed, catalyzing social addiction problems to new ICT. One of these problems is phubbing: ignore people around in order to pay more attention to technologic devices. According to Treviño (2013: 1), phubbing is the act of looking down on their companions as they pay more attention to an electronic device than people, i.e., those in front are ignored over a mobile phone.

Going beyond, phubbing is the actual problem of current couples (Roberts and David, 2016: 140). stopphubbing.com (Haigh, 2013) reports how in restaurants there are on average 36 cases of phubbing over dinner; that is, being alone while in the company of others. Likewise, 87% of the adolescents prefer to communicate via texting to do it face to face. Owing to some of these reasons phubbing has been labeled as “the end of civilization” (Haigh, 2013: 1). Not going to extremes, it seems as though behavioral changes from the interference of technologic devices would have to be the reason for these new social problems. González et al. (2018: 90) disclose that phubbing negatively impacts on the satisfaction of individuals' romantic relationships and mental health. Those with the most characteristics of phubbers also displayed a more noticeable symptomatology associated to depression, anxiety and stress, less satisfaction with their relationships and less psychological wellbeing.

Technological devices such as the smartphone keep people updated about the events at every moment, either important information or not, necessary or not interesting; devices that constantly receive notifications of what occurs in other people's daily lives. Roberts and David (2016: 139) showed an example in which most of the analyzed couples recognized having been affected at sometime by the active presence of a mobile phone in an intimate context. The specialists also indicated that phubbing leads to disorders such as depression and anxiety.

At present, there are no studies on phubbing and gender in academic communities in Quito, Ecuador, in order to bridge such gap, the following hypotheses are stated:

H₄: The social problems that come from the interference of technologic devices into various aspects of life are different in the case of the men and women from the analyzed sample.

H₅: The men and women from the analyzed sample admit being able to endure various periods of time without using technology.

H₆: There are significant differences as regards the feeling of guilt in the men and women from the analyzed sample owing to spend long periods of time using technological devices such as a personal computer, a smartphone, a tablet or a videogame console.

H₇: The men and women from the analyzed sample report various perceptions of addiction to technology.

Method

Sample and procedure

A convenience sampling was carried out in a higher education institution located in the City of Quito, Ecuador, on every person involved, i.e., students, professors, administrative and service staff. The questionnaire was applied over the Internet in two modalities; firstly, the institution's laboratories were used so that students and service staff were able to access and fill in the questionnaire; secondly, professors and administrative staff were sent the survey's web address, via email, so that they answered it. The questionnaire remained active for two weeks.

The sample comprises 3793 respondents (58% of the total population), of which 60.3% is a woman and 39.7%, a man. The mean age is 23 years (DT = 0.5). 90% of the sample is about to undertake a degree related to technology; 5.6% concluded high school; 1.1% is a technologist; 1.1% engineer; 0.9% concluded a master degree; 0.6% is studying engineering; 0.4% is studying a master degree; 0.1% does not hold any studies, 0.1% elementary, 0.1% studying for PhD and 0.1% holds a PhD. As regards labor, 44.6% is unemployed, 10.5% works in public enterprises and, 44.9% works in private enterprises.

Instruments

A complete battery of questions on the technology to answer all the studies hypotheses. Therefore, all the items were created with a view to answering such hypotheses.

Frequency of use. Each of the devices' (PC, smartphone, tablet and videogame console) frequency of use was measured in a 9-point Likert scale (from 1 = never to 9 = more than 15 hours a day).

Promotion of the use of technology. The respondents had to pick an option on what motivates them to use technology out of the following: social media, labor, studies, being in touch with relatives, fashion, society and leisure.

Use of devices. The respondents had to state the percentage of time they devote in a dual entry chart: in the first, they indicated the sort of device, and in the second, the activity. The activities were: retrieve information, online shopping, course regular studies, social networking, reproduce videos, self-learning, network gaming, leisure, communication and labor services.

Problems from the excessive use of technology. The respondents had to state on a 5-point Likert scale (from 1 = never; 5 = always), the frequency with which they had experienced problems from the excessive use of technology in the following areas: at home or with the family, at work, at school, in transport, doing sport, in supermarkets, stores or social gatherings.

Time without using technology. The frequency of the time the respondents can spend without using their devices was measured with a 10-point Likert scale (1 = never; 10 = one day with no problems).

Guilt. The respondents had to state on a 6-point Likert scale (1 = frequently; 6 = never) if they felt guilty from using their devices for long time.

Addiction to technology. To measure this construct, the participants answered two items. In the first place, there were directly asked if in their opinion, they believed they had an addiction to technology, which they have to answer in dichotomic way. Secondly, they were asked if they had returned home, their office or school because they had forgotten their device regardless if they were late; it was also a dichotomic answer.

Data analysis

The analysis of data to try the hypotheses were the following: first, the descriptive; second, student's t and chi-square tests.

Results

To try H_1 and verify if men and women exhibit periodicity in the use of various technological devices, a Student's t test for independent samples was carried out, with which significant differences were obtained; men report a greater use of all the devices, for they always displayed the highest values, which expresses a longer use of the devices (see table 1⁴). With this, H_1 is verified: men report a greater use of all the technological devices.

4 Tables and figures are in the Annex at the end of the present article (editor's note).

In the case of H_2 , two tests were carried out: first, a chi-square test to find out differences as regards men and women when they define what motivates them to use technology (the options were: networking / social media, work, studies, being in touch with the family, fashion, society and leisure) and the result was 85.61 ($p=.000$). Second, a student's t test for independent samples was run, in it significant differences were noticed regarding the hours devoted a day to the following: online shopping, social media, reproduction of videos, online gaming, communication and work services. It was found that men devote more hours to these activities in the day; as regards search for information and studies, none of the genders showed significant differences (see table 1). Such differences are very clearly seen in figure 1.

H_3 is closely related to the above, as regards the device utilized for each use though. In this case, data have been divided by device. As noticed in table 1, for every device and use there are significant differences by gender (except for information search, with PC and smartphone); in the case of men, the percentage is always higher.

As regards H_4 , which approaches the problems of interference that can take place from the use of technology, the results of student's t test for independent samples (table 1) indicate there are important differences as regards gender and are always higher for men. Likewise, in figure 4 it is noticed how problems arise from the interference of technological devices regardless of the place. In all the cases, women keep a similar response trend.

As for H_5 , on the amount of time that men and women are able to spend without using their devices. It is important to underscore that the higher the score, the least complications they experience from not accessing their devices. Results of Student's t for independent samples (table 1) indicate that the only significant difference occurs in the case of the time they are able to spend without using their PC, being these differences less stressed (thereby, more difficult not to use such device) for men.

H_6 deals with differences displayed by men and women regarding the guilt they feel after using these devices for long. As in the hypothesis above, higher values imply less guilt. Results from student's t for independent samples (table 1) indicate that the only important difference is in the case of the videogame console: men report the most guilt.

In the case of H_7 , which deals with addiction to technology, the chi-square tests produced the following results. In the perception of addiction, there were significant differences ($\chi^2=40.88$; $p=000$): among those who consider themselves adults there are none, but there are among those who do not consider themselves such (see figure 2). Finally, as regards the question

if they return home, their office or school in order to pick up their device, regardless if they were late, the differences are also significant ($\chi^2=15.86$; $p=000$): by and large, women reported a negative answer in comparison with men (figure 3).

It is worth underscoring that the results of the seven hypotheses presented in this article are restricted to the sample of the study, they are not generalizations.

Discussion

Previous studies have verified that technology interferes with people's daily life (Roberts and David, 2016: 140). The present article evinces that men spend longer time in technological devices and also report feeling guiltier. As regards encouragement to use technology, there is a marked difference between genders. What motivates the most is to be connected with their families, however women report a higher score than men. In all the other activities both genders remain similar. It is worth mentioning that men display more serious problems from the interference of technology, mainly conflicts at home.

When one notices places where there are problem because of technology interference (see figure 4), both men and women display similar tendencies in the same places, though there is a slightly more evident difference for men than for women: work, doing sport and at stores or shopping centers. These results are directly related to the cyber-feminist trend, as they evince that in the uses of technological devices there is no male patriarchal domination, as there is no gendered digital divide in the present study; moreover, Hargittai and Walejko's (2008: 252) data as regards gender equality in ICT access in certain activities were verified.

Revising the characteristics of phubbing, it was found that men exhibit more evidence of being phubbers, such a result verifies the existence of phubbing in the examined sample and that relates to studies by Roberts and David (2016: 140) on the preference for technological devices over people around. For example, in the present research, in the case of leisure, men display marked differences in all the devices: PC ($t=-7.42$), SP ($t=-4.21$), tablet ($t=-4.97$), videogame console ($t=-11.20$), as compared with women (see table 1). As regards the times of use with leisure, for example, videogame console, it was confirmed that men spend most of their time using this device for such activity. Likewise, by comparison with research by Rideout et al. (2010: 21) and Gómez et al. (2018: 71), it is noticed that the same behavior of men and women remain, even if there is age difference between the groups assessed.

Finally, the results from the study disclose the perception that there are no significant differences between those who recognize that they indeed suffer from an addiction to technology; while between those who do not accept this fact, there are important differences. Most of the women indicated they were not addict, but even so they returned home to pick their device, regardless if they were delayed. In this case, the research is based on the respondent's own perception as regards their guilt, time of use of the devices, sort of problems they have had owing to interference from technology, the fact of returning home to pick their devices, having expenses, among other issues related to the studies of González *et al.* (2018: 82).

Limitations and future studies

Although one of the strengths is the large number of respondents, as previously stated, the sample mainly comprises students of an academic community in Quito, so it is necessary to broaden the sample to other sectors.

Furthermore, it would be essential to deepen into the sort of motivations or reasons that boost men and women to carry out various activities for various periods through various devices: it would be interesting as well to define priorities and importance given to them. Also, the sort of problems that men and women have from the interference of technology in areas such as work, family and society.

Therefore, this study is a first approach to understand ICT in current society, how they affect daily life and differences owing to gender.

Conclusions

As a result it may be added that despite there is neither patriarchal domination nor gendered digital divide, equal access between genders is noticed; men spend more time using technological devices and report a greater guilt compared with women. Moreover, for both men and women being connected with their families is what encourages the most to use technological devices. As for interference, men have more problems owing to this than women, mainly at work, doing sport, and at stores or shopping centers. It is important to underscore that the presence of phubbing is verified, and men are those who exhibit the most evidence that they act as phubbers, as they pay the most attention to the technological devices than people around. And finally, at the moment of recognizing whether they suffer from addiction to technology, the perception of the respondents does not exhibit significant differences,

even if women, in most of the cases, have expressed they are not addicts, in spite of returning home to pick their device, regardless they were delayed.

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Annex

Table 1

Measurement comparison (N=3793)

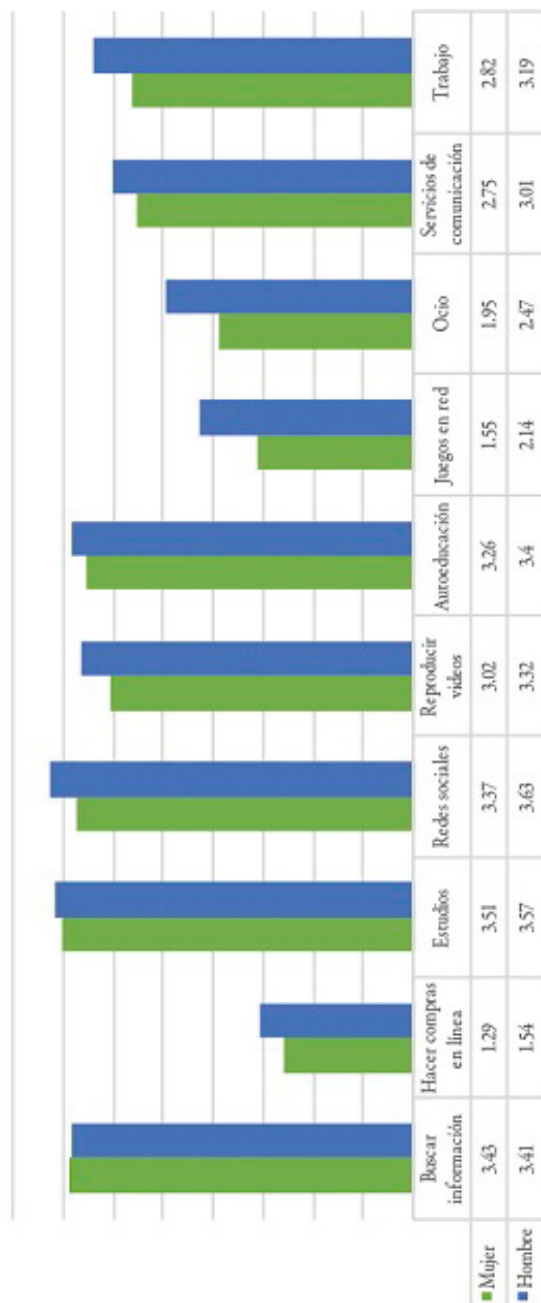
	M		Statistics
	H	M	
Periodicity PC	4.03	3.85	t=-3.23 (p=.001)
Periodicity Smartphone (SP)	4.06	3.68	t=-5.12 (p=.000)
Periodicity tablet	2.20	1.91	t=-5.81 (p=.000)
Periodicity console	1.97	1.27	t=-17.84 (p=.000)
Information retrieval	3.41	3.43	t=-.45 (p=.654)
Online shopping	1.54	1.29	t= 8,03 (p=.000)
Study	3.57	3.51	t= 1,28 (p=.200)
Social media	3.63	3.37	t= 4,55 (p=.000)
Play videos	3.32	3.02	t= 5,70 (p=.000)
Self-teaching	3.40	3.26	t= 2,81 (p=.005)
Online gaming	2.14	1.55	t= 13,74 (p=.000)
Leisure	2.47	1.95	t= 10,55 (p=.000)
Communication services	3.01	2.75	t= 4,72 (p=.000)
Work	3.19	2.82	t= 5.59 (p=.000)

	M		Statistics
	H	M	
Look for information on PC	51.40	51.63	t=.22 (p=.826)
Look for information on SP	30.23	26.19	t=-.97 (p=.000)
Look for information on tablet	13.44	12.73	t=-.85 (p=.392)
Look for information on console	5.47	2.48	t=-6.60 (p=.000)
Online shopping on PC	10.03	5.94	t=-5.90 (p=.000)
Online shopping on SP	7.46	4.45	t=-5.34 (p=.000)
Online shopping on tablet	4.99	2.85	t=-4.91 (p=.000)
Online shopping on console	3.70	1.41	t=-6.56 (p=.000)
Studies on PC	40.70	36.91	t=-3.43 (p=.001)
Studies on SP	21.89	18.40	t=-4.01 (p=.000)
Studies on tablet	11.07	8.73	t=-3.45 (p=.001)
Studies on console	3.75	2.11	t=-4.37 (p=.000)
Social media on PC	34.43	29.46	t=-4.78 (p=.000)
Social media on SP	35.95	30.74	t=-4.64 (p=.000)
Social media on Tablet	12.14	10.24	t=-2.53 (p=.011)
Social media on console	5.09	2.48	t=-6.05 (p=.000)
Play videos on PC	36.18	29.76	t=-5.90 (p=.000)
Play videos on SP	24.81	20.81	t=-4.11 (p=.000)
Play videos on tablet	11.47	9.60	t=-2.54 (p=.011)
Play videos on console	7.33	2.80	t=-8.85 (p=.000)
Self-teaching on PC	33.92	30.56	t=-3.11 (p=.002)
Self-teaching on SP	19.84	16.35	t=-4.70 (p=.000)
Self-teaching on tablet	9.60	7.76	t=-2.85 (p=.004)
Self-teaching on console	3.42	1.81	t=-4.55 (p=.000)
Online gaming on PC	15.20	8.63	t=-8.28 (p=.000)
Online gaming on SP	11.06	8.62	t=-3.37 (p=.001)
Online gaming on tablet	6.93	4.71	t=-4.02 (p=.000)
Online gaming on console	16.16	3.59	t=-16.48 (p=.000)
Leisure on PC	18.02	11.98	t=-7.42 (p=.000)
Leisure on SP	15.38	11.96	t=-4.21 (p=.000)
Leisure on tablet	7.38	4.70	t=-4.97 (p=.000)
Leisure on console	9.67	2.90	t=-11.20 (p=.000)
Communication services on PC	24.78	19.84	t=-5.04 (p=.000)
Communication services on SP	23.08	18.42	t=-4.63 (p=.000)
Communication services on tablet	7.96	6.30	t=-2.73 (p=.006)
Communication services on console	3.92	1.63	t=-6.34 (p=.000)
Work on PC	28.01	23.52	t=-3.93 (p=.000)

	M		Statistics
	H	M	
Work on SP	16.31	10.35	$t=-7.44$ ($p=.000$)
Work on tablet	7.39	4.66	$t=-4.92$ ($p=.000$)
Work on console	3.09	1.21	$t=-5.84$ ($p=.000$)
Problems from interference at home	1.92	1.85	$t=-2.31$ ($p=.021$)
Problems from interference at work	1.59	1.48	$t=-4.10$ ($p=.000$)
Problems from interference at school	1.82	1.74	$t=-2.86$ ($p=.004$)
Problems from interference on transport means	1.77	1.62	$t=-4.89$ ($p=.004$)
Problems from interference doing sport	1.60	1.44	$t=-5.63$ ($p=.000$)
Problems from interference at in shopping centers	1.74	1.60	$t=-4.45$ ($p=.000$)
Problems from interference at in social gatherings	1.78	1.68	$t=-3.29$ ($p=.001$)
Time without using PC	5.64	5.96	$t=2.89$ ($p=.004$)
Time without using SP	5.14	5.06	$t=-.71$ ($p=.477$)
Time without using tablet	5.75	5.83	$t=.58$ ($p=.562$)
Time without using console	5.89	5.82	$t=-.50$ ($p=.619$)
Reports guilt from the use of CP	3.47	3.46	$t=-.17$ ($p=.863$)
Reports guilt from the use of SP	3.79	3.87	$t=1.27$ ($p=.206$)
Reports guilt from the use of tablet	4.39	4.50	$t=1.77$ ($p=.076$)
Reports guilt from the use of console	4.50	4.93	$t=7.14$ ($p=.000$)

Source: own elaboration.

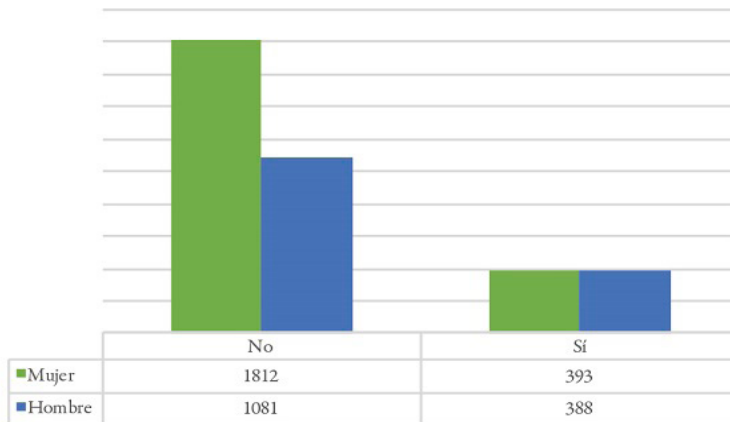
Figure 1
Men and women's reasons to use technology



Source: own elaboration.

Figure 2

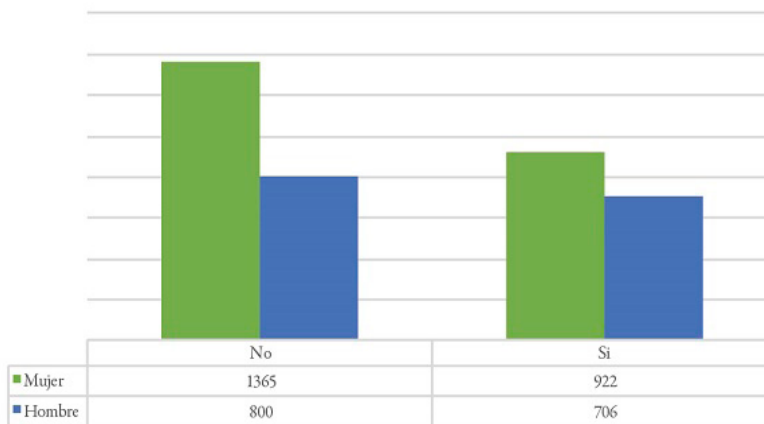
Perception of addiction



Source: own elaboration.

Figure 3

Return home to pick the forgotten device



Source: own elaboration.

Figure 4
Place of gender problems



Source: own elaboration.

Cristian Moisés Villafuerte-Garzón. General Academic coordinator in Tecnológico Superior Cordillera, Systems Analyst from Tecnológico Superior Cordillera, Quito, Ecuador, Higher Diploma in Education and New Technologies from FLACSO, Buenos Aires, Argentina. Research lines: consumer tendencies, education, new technologies. Recent publications: Villafuerte-Garzón, Cristian Moisés (2017), “La realidad de la calidad educativa del nivel técnico y tecnológico en el Ecuador y el cambio de la Matriz Productiva”, in *Revista Yura: Relaciones Internacionales*, vol. 10, April – June, Ecuador: Red de investigación sobre complejidad en América Latina y el Caribe; Villafuerte-Garzón, Cristian Moisés (2017), “Educación y nuevas tecnologías, una perspectiva del uso estudiantil en educación superior”, in *Revista Yura: Relaciones Internacionales*, vol. 12, October – December, Ecuador: Red de investigación sobre complejidad en América Latina y el Caribe.

María Vera-Perea. PhD in Psychology of Labor and Organizations from Universitat Jaume I. Professor in Universidad Especialidades Espíritu Santo (College of Liberal Arts, School of Psychology). Research lines: self-efficacy, wellbeing, *engagement*, resilience. Recent publications: Vera, M., Rodríguez-Sánchez, A. and Salanova, M. (2017), “May the force be with you: Looking for resources that build team resilience”, in *Journal of Workplace Behavioral Health*, England: Taylor & Francis, DOI:10.1080/15555240.2017.1329629; Cortés, J. A., Vera, M. and Cifre, E. (2017), “Relación entre la inteligencia emocional del líder y el *flow* de sus trabajadores/as”, in *Revista Interamericana de Psicología Ocupacional*, vol. 34, no. 2, Colombia: Centro de Investigación en Comportamiento Organizacional.