

Scale to Measure the Student's Addiction to Online Social Media

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Abstract: The use of online social media has opened a line of inquiry focused on the phenomenon of addiction as a result of the intensive use of technologies and the Internet, especially for vulnerable groups of the population such as youth and adolescents. This has led to the search for diagnostic instruments, where self-awareness scales have gained ground. This article sought to validate and adapt the social media addiction scale designed by Sahin to the Mexican context. The resulting instrument is a useful tool given the inexistence of its kind in the Mexican literature to gather information as regards the level of the people's addiction to online social media.

Key words: Internet, addiction, young, social media, measure tool.

Resumen: El uso de las redes sociales online (RSO) está originando una línea de investigación centrada en el fenómeno de adicción que se produce por utilizar de forma intensa las tecnologías e Internet, especialmente en grupos poblacionales tan vulnerables como los jóvenes y adolescentes. Esto ha repercutido en la búsqueda de instrumentos para su diagnóstico, terreno donde han ganado espacio las escalas de autopercepción. Esta investigación se planteó validar y adaptar al contexto mexicano la escala de adicción a las redes sociales elaborada por Sahin (2018). El instrumento resultante constituye una herramienta útil, dada la inexistencia de una de su tipo en la literatura académica mexicana, para recoger información del grado de adicción a RSO en jóvenes y adolescentes.

Palabras clave: Internet, adicción, jóvenes, redes sociales, escala de medición.

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Introduction

Internet has become the technological paradigm of information society, while the socialization and collaboration this tool fosters has progressed through Web 2.0. According to data from “Encuesta Nacional sobre Disponibilidad y Uso de Tecnologías de la Información en los Hogares 2018, ENDUTIH [National Survey on the Availability and Use of Information Technologies in Households] (INEGI, 2019), in Mexico there are 74.3 million Internet users aged six years and older, who constitute 65.8% of the population in such age range (INEGI, 2019); 51.5% of internet users is a woman and 48.5% is a man.

On the other hand, from 2015 to 2018, an increase of 8.4 percentage points has been observed in terms of the number of people using Internet. A geographic analysis of this survey reveals that Internet use is mainly urban, as 73.1% of the total urban population uses this service.

In this context, online social networks (OSN) have been of particular relevance, and their use has increased progressively, especially among young people and adolescents around the world. However, when it is used with high frequency, an addiction phenomenon may occur. In Mexico, it is estimated that people connect to the Internet eight hours 12 minutes a day, of which three hours twenty-eight minutes are dedicated to online social media (30 minutes longer than in 2017), according to data from the association Internet.mx (2018).

Based on the above, the present research was considered to study the frequency of use of this type of technology among Mexican youths. For this purpose, the social network addiction scale designed by Sahin (2018) was resorted to analyzing the case of Turkey. This scale was selected and adapted to Mexico due to the following reasons: 1) the various social network addiction scales reviewed by the authors; 2) their Likert-type format is easy to understand for its completion; 3) in the validation made by the author, he used the expert judgment technique; 4) the statistical analyses used for its reliability and construct validity; and, 5) to adapt it to the target group.

For its validation, we followed a series of phases that entailed its translation, first- and second-order exploratory and confirmatory analyses, and obtaining the reliability index through Cronbach's alpha and Jöreskog's rho.

This article initially presents a review of the literature focused on online social networks, the problem of their intense and frequent use and their consequences as well, including a phenomenon called social network

addiction, which, in turn, is part of a more general line of research on Internet addiction. The following is a brief description of the method followed in the development of this document, the objectives of the study, the sample and the procedure for data analysis. The following section presents the results obtained and the final version of the adapted scale. Some conclusions from the analysis are included at the end.

Online social networks and addiction

Although some people have considered social networks a fad, there are opinions that highlight their constant presence in daily life:

Online social networks have had the capacity and ability to attract millions of users from all over the world in a very short time. No other media or situation in the history of humanity has been able to concentrate such a large number of people in such a “small” space (a small screen) (García and Fernández, 2016: 3).

Now, what can we understand by online social networks? To answer this question, the first thing to do is to recognize the diversity of definitions and theories on what they are and what they are not; overall, the most assumes that it is a place where a group of people interact, share information, communicate and interact with each other and create communities. From this perspective, we must recognize that social networks have always existed; what the Internet has brought is immediacy for communication.

Of all the contributions of the Internet, perhaps the virtual social networks are having the greatest impact... It is no longer a matter of having a more or less limited personal network of family, friends, acquaintances, co-workers, neighbors, etc., and of controlling and calibrating the type of relationships that one establishes with the different people who, in one way or another, are part of each other's network. The current social networks, those that have been promoted through the Internet, place the person who is involved in them in a kind of social swarm of considerable dimensions (Fuentes *et al.*, 2015: 44).

Unlike face-to-face social networks, OSN are defined by different characteristics: absence of physical or personal contact, lack of correspondence between the individuals identity in the real world (offline) and in the online world, a way of social relationship for people who in their real life have difficulties in keeping social relationships, possibility of simultaneous communication between a large number of people and ease of breaking or suspending relationships or contacts (Musial and Kazienko, 2013). These characteristics and conditions have had an impact on the transformation of the traditional concept of friendship, “it is

no longer used only for a close, known and reliable person, but can also be used for people who hardly know each other”. (Llamas and Pagador, 2014: 51).

There is a diversity of types of friendship in social media, depending on their degree of openness, subject matter, whether they are coordinated or not, and other characteristics. (De Haro, 2011; Cruz, 2016; Peña *et al.*, 2018).

Moving on to the objective of our work, we would like to emphasize that its use is spreading among young people and adolescents. A recent study conducted in Spain (Orange, 2018) found that they begin to use the networks from the age of 14; young people between 16 and 24 years of age are the most active users. In Mexico, Islas and Carranza (2011) identified different research works that highlighted the speed at which the use of social networks was advancing in that country, with percentages over international averages.

This increase in their use and speed of incorporation is determined by different aspects, among which the strong presence of mobile devices among young people and adolescents stands out (García and Fernández, 2016; Gértrudix *et al.*, 2017). In Spain, according to the work “Guía sobre el uso responsable de la tecnología” (Guideline on the responsible use of technology), produced by Orange (2018), 45.90% of parents says that their children have had the first smartphone at the age of 14 and that 93,2% of children uses it as a preferred means of connecting to the Internet.

As it has been pointed out, OSN have become one of the preferred means for young people to communicate and interact, extend their relationships, locate and demand information; they also use them as an element for fun, for socializing and for creating new communication languages (García and Fernández, 2016; Gértrudix *et al.*, 2017; Orange, 2018).

In the face of the possibilities OSN offer young people and adolescents, various negative effects are also appearing as a consequence of some intrinsic characteristics and the context of communication they generate, for example, anonymity, ease and speed of access, disinhibition, affordability, lack of physical contact (Griffiths, 1995; Fuentes *et al.*, 2015). In addition, it has been noted the intensive use of them, producing what some authors have called addiction to OSN (Musial and Kazienko, 2013; Müller *et al.*, 2016; Gordo *et al.*, 2018).

Griffiths (1995) has been central in defining what have been called “technological addictions” and argues that the use of the term is justified by the series of behaviors, which in spite of not involving the ingestion of any drug are potentially addictive (gambling, physical exercise, video games,

overeating and others). For Griffiths (1995: 15), technological addictions are defined as “non-chemical (behavioral) addictions that involve interaction between people and machines”.

Whereas Echeburúa and del Corral (2010: 92) state that an addiction may be generated by “any excessive inclination toward an activity”, which can become “a pathological hobby that generates dependence and reduces freedom for the human being by narrowing his field of consciousness”.

For Basteiro *et al.* (2013), addiction to OSN decreases with the age of the person, as it feeds on the characteristics of physical and psychological immaturity of young people and adolescents, as well as their strong consumption of them; a situation that might have more negative repercussions on them than on adults, therefore, the great interest in analyzing and reflecting on them. As Díaz points out (2014: 54):

At a psychological level, addiction to certain technological applications can be related to emotional instability, depression, anxiety, irritability, emotional impoverishment, impaired judgment and difficulties in coping with everyday problems.

The abusive and problematic use of various technologies is leading to the development of a line of analysis and research focused on the study of the addiction they cause and the possible consequences that this entails. Thus, a large number of studies have focused specifically on Internet abuse and its association with physical-biological, social and family problems (Echeburúa, 2012; Fernández-Villa *et al.*, 2015; Young, 2015). The topic began to be researched in 1996 with an analysis that reviewed more than 600 cases of frequent Internet users who exhibited clinical signs of addiction as measured by an adapted version of the Diagnostic and Statistical Manual of Mental Disorders-DSM-IV criteria (American Psychiatric Association, 2002), for pathological gambling (Young, 2015).

For Chóliz and Marco (2012), Internet addiction is observed when a person presents a series of behaviors: 1) tolerance: the need to spend more and more time online; 2) abstinence, discomfort is felt when the connection is interrupted; 3) the medium is used more than initially intended; 4) desire to stop using the Internet, without being able to; 5) excessive use of time on Internet-related activities; 6) cease doing other activities in order to use the Internet more; and, 7) using the Internet regardless of being aware of the self-harm.

Different studies have suggested that addiction to this technology has consequences such as cognitive flexibility difficulties (Dong *et al.*, 2014), decision problems (D'Hondt *et al.*, 2015), increased level of distress (Wegmann *et al.*, 2015), forgetfulness to perform certain activities (Chóliz

and Marco, 2012), low mood (Gómez, 2014), difficulties in the development of working memory (Dong *et al.*, 2012) or conflicts in concentration (Rücker *et al.*, 2015).

Not only has the study of these high use frequencies been focused on the Internet, but also on various technologies that range from Information and Communication Technologies in general (García-Oliva *et al.*, 2017; Gairín and Mercader, 2018) to online games (Bertrán and Chamarro, 2016; Martín *et al.*, 2017), video games (González *et al.*, 2015; Espejo *et al.*, 2018), cell phones (Pedrero *et al.*, 2012; Gaspar and Cuesta, 2015) and, of course, OSN.

Excessive use of OSN is giving rise to a line of work called “online social network addiction”, which can be perceived as a particular type of Internet addiction (Sahin, 2018). Before referring to this problem, we will make some comments on the term addiction itself and some nuances with respect to OSN.

As different authors point out (Basteiro *et al.*, 2013; Echeburúa, 2012), for quite some time the term addiction has been associated with the use of drugs and chemical substances. In fact, this is what the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2002), where the term is defined as an abuse of and dependence on any type of psychoactive substance. However, contrary to this definition, different researchers maintain that the development of an addictive process can occur without the intervention of these substances. And it could be defined as a compulsive and excessive use, which causes a deterioration in the daily functioning of the individual and becomes an addictive behavior (Watters *et al.*, 2013).

Nevertheless, it should be noted there is no consensus in the academic literature on the use of the term addiction to refer to the constant use of the Internet and social media, as some authors argue that (Kuss *et al.*, 2014; Carbonell, 2014; Carbonell and Oberst, 2015; Pontes *et al.*, 2015), often, dependence on a technology is confused with addiction to a behavior; therefore, it is more appropriate to differentiate true addictions from excesses and transient problems from abusive exposure, problematic, inappropriate or intensive technology. For example, Carbonell (2014) has suggested that using the term addiction reflects more a popularized social construct than a reality; in any case, according to this author, it is an addiction of a secondary nature that is associated with a primary one, so that addiction is confused with dependence on a technology, and it may be, rather than a psychological disorder, a hobby or habit. Even some authors (Carbonell and

Oberst, 2015; Simó *et al.*, 2017) have discarded the existence of an Internet or OSN addiction because none of it is listed in the “DSM-5 Diagnostic Criteria Reference Guide” (American Psychiatric Association, 2013).

Regardless of the position we adopt, there is no denying the existence of a progressive increase in technologies, with negative consequences for the person, as they generate disruptions in our lives (Fuentes *et al.*, 2015) and especially the vulnerable group of adolescents (Chóliz and Marco, 2012). This has had an impact in the search for instruments for its diagnosis, where the scales of self-perception, called “Test of Addiction to Social Networks” (TASN) (Basteiro *et al.*, 2013; Ecurra and Salas, 2014; Tutgun-Ünal and Deniz, 2015; Banyai *et al.*, 2017; Simó *et al.*, 2017), have gradually gained space. The present article is based on the scale developed by Sahin (2018).

Below, we will present the results of the application of some scales by different authors. Sahin (2018) draws attention to people who spend too much time using social networks or have a desire to be notified of something immediately, which can cause virtual tolerance, virtual communication, and virtual problems. For their part, Echeburúa (2012) and Echeburúa and Del Corral (2010) have observed that social networks can trap the adolescent, because they have the potential to distance them from personal contact and produce social isolation, as well as to distort the real world and produce withdrawal symptoms when they are deprived of their use or cause sleep deprivation and failure to perform other activities such as academic ones. Basteiro *et al.* (2013) point to the existence of a positive linear relationship between neuroticism, extraversion and depressive symptomatology with respect to a high frequency of OSN.

Meanwhile, Llamas and Pagador (2014) suggest that its increased use leads to confusion between the real and virtual world in adolescents. This addiction has been related to other types of variables, such as low self-esteem, depression and lack of social skills (Herrera *et al.*, 2010), and health problems (migraines, low-back pain, overweight or obesity, insufficient rest) psychological aspects (risk of eating disorders, risk of mental disorder, depression), family problems and discrimination (Fernández-Villa *et al.*, 2015).

Finally, it should be noted that there are young people and adolescents who are aware of their addiction and are taking steps to overcome it (Fuentes *et al.*, 2015); but there are also those who are unaware of its existence (Marín *et al.*, 2015).

Method

Objective

Our research aims to validate and adapt to the Mexican context the scale of addiction to social networks “Social Media Addiction Scale-Student Form” (SMAS-SF), developed by Sahin (2018), for high school and university students in Turkey.

Research sample

Once the irregular cases were eliminated The research sample consisted of 605 high school students (296 men: 48.93% and 309 women: 51.07%), with ages between 15 and 20 years. The students were studying at different high schools and middle schools in Mexico City (Colegio de Bachilleres, de Educación Media Superior del Instituto Politécnico Nacional-IPN, del Campus ILCE). Students of teachers participating in the ILCE 2017 Award and Institutions incorporated to Red LaTe (Red Latinoamericana de tecnología Educativa) also participated, in the latter cases also belonging to other cities.

The Sampling was non-probabilistic, convenience or causal (Alaminos, 2006; Sabariego, 2012), which is determined by the ease of access of the researchers to the subjects of the population under study.

Instrument

The instrument that we validated and adapted (Sahin, 2018) consisted in its final version of 29 items with Likert construction and five response options ranging from “strongly agree”, to “strongly disagree”. And we conducted an exploratory study on this version for its reliability and validation in the Mexican context. The choice is justified by three fundamental facts: its novelty, the theoretical foundation provided by the author for its elaboration and the rigorous process followed for its construction, which went through four major phases: 1) literature review, 2) construction of a Likert instrument, 3) validation by expert judgment, and 4) analysis of its reliability and construct validity.

The scale was administered via the Internet to facilitate data collection.

Procedure followed

For its validation we followed different phases:

- a) Translation of the instrument into Spanish.
- b) Exploratory Factor Analysis, previously calculating the Kaiser-Meyer-Olkin measure of sample adequacy and Bartlett's test of sphericity (Cerny and Kaiser, 1977).
- c) Successive reduction of items until perfect factorization (Seçer, 2013), adopting for the elimination of items the little effect of the item load on the factor or its placement in two factors.
- d) Confirmatory factor analysis to test the structure of the factor model obtained.
- e) Development of a confirmatory factor analysis for the definitive testing of the model and the application of different adaptation indexes for contracting the adequacy of the model (Kline, 2005).
- f) Development of a second-order confirmatory factor analysis, for the definitive comparison of the model and the application of different adjustment indexes for the procurement of the model adequacy (Kline, 2005).
- g) Finally, for the reliability and internal consistency of the scale, Cronbach's alpha and "composite reliability" were calculated using Jöreskog's rho (Cho, 2016).

Statistical analyses were carried out using the AMOS 24 and SPSS 24 statistical packages.

Results

First, a factor analysis was performed on the total of the 29 items of the questionnaire; the results of the sample adequacy measure KMO and Bartlett's test of sphericity are shown in Table 1¹.

From the analysis of the principal components on the total of the 29 items of the questionnaire, the first thing that was observed is that four factors were discriminated, with a percentage of variance explained of 50.19, which indicates that it is an adequate adjustment.

Table 2 shows the first Varimax rotation performed with Kaiser normalization.

¹ All the tables and figures can be found in the annex at the end of this article (Editor's note).

The data obtained led to the elimination of item 24 (“I use social networks even when I walk down the street to be instantly informed about events”), because it simultaneously loaded on two factors.

By eliminating this item, we again obtained the percentage of variance explained by the four factors identified, obtaining in this case a value of 50.46, slightly higher than that obtained in the first application.

When the factor analysis was performed for the second time, the results of the KMO measure and Bartlett’s test of sphericity are shown in Table 3, and the factor loadings obtained are presented in Table 4.

The results achieved allow us to identify four factors, which in accordance with the proposals of their presence in other scales we have named as: satisfaction/tolerance (Sahin, 2018), problems (Van den Eijnden et al., 2016), obsession to be informed (Escurra and Salas, 2014; Sahin, 2018), and need/obsession to be connected (Chóliz and Marco, 2012; Escurra and Salas 2014). All of them would be made up of a variety of items, which are shown in Table 5.

In order to analyze and validate the accuracy of the four factors identified in our study, confirmatory factor analyses, both first and second order, were carried out.

The factor loadings of the model obtained from the confirmatory factor analysis are presented in Figure 1, where it can be seen that the loadings on the “Satisfaction” factor are between 0.54 and 0.69; on the “Problems” factor, between 0.58 and 0.71; on the “Information” factor, between 0.56 and 0.68; and on the “Need to be connected” factor, between 0.47 and 0.69.

These values denote high levels of correlation. At the same time, the levels of relationship between the different factors are also quite high, ranging from 0.57 (problem with information) to 0.82 (satisfaction with need to be connected).

As for the first order, the values obtained for the goodness of fit of the model were those presented in Table 6.

The value obtained indicates that the proposed model has a high goodness of fit, since it is within the interval proposed by Kline (2005), who places it at $2.00 \leq \chi^2/d < 5.00$, so that it can be considered.

In order to analyze the structural suitability of the scale, the RMSEA (Root Mean Square Error of Approximation), SRMR (Standardized Root Mean Square Residual), GFI (Good Fit Index), AGFI 13 (Adjusted Goodness of Fit Index) and NFI (Normed Fit index) values were obtained. Values that according to the proposals of different authors (Kline, 2005; Raykov and Marcoulides, 2006; Jöreskog and Sörbom, 1993) indicate perfect or adequate adjustments, as shown in Table 7.

To determine the importance of each factor in the model, a second level confirmatory factor analysis was performed, as shown in Figure 2. The following can be concluded from it: firstly, that the loadings of each factor can be considered quite high on the system, ranging from 0.68 to 0.94, and secondly, that the highest loading is on the “Satisfaction” factor.

In this case, the value χ^2 / df obtained was 2,458, which again indicates that the model has an acceptable goodness of fit. Table 8 shows the structural suitability of the scale, the values of which again allow us to confirm the goodness of fit of the model.

At the end, the analysis of “composite reliability” was performed using Jöreskog’s rho (Cho, 2016), which facilitates obtaining the internal consistency of the block of indicators (Lévy, 2006), which is presented in Table 9.

All the values obtained suggest a high reliability index, in the instrument as a whole and in the different dimensions that comprise it, since they exceed the value of 0.7 (Nunally and Bernstein, 1994).

The scale finally consisted of the following items and dimensions:

1. I am eager to go to social networks (N)
2. I seek to connect to the Internet everywhere to access social networks (N)
3. The first thing I do when I wake up is to connect to social networks (N)
4. I see social networks as an escape from the real world (S)
5. A life without social networks makes no sense to me (S)
6. I prefer to use social networks even if I am in company (S)
7. I prefer social network friendships to face-to-face friendships (S)
8. I express myself better with people in social networks (S)
9. I appear to be what I want to be in social networks (S)
10. Generally, I prefer to communicate with people through social networks (S)
11. Even my family gets angry because I can’t stop using social networks (S)
12. I want to spend time on social networks when I am alone (N)
13. I prefer virtual communication on social networks to go out (S)
14. Social networks activities take hold in my daily life (N)
15. I skip my homework because I spend too much time on social networks (P)
16. I feel bad if I am forced to reduce the time I spend on social networks (P)

17. I feel unhappy when I'm not on social networks (P)
18. I am excited to be on social networks (N)
19. I use social networks so often that I forget about my family (P)
20. I am always captivated by the mysterious world of social networks (O)
21. I don't even notice that I am hungry and thirsty when I am on social networks (P)
22. I notice that my productivity has decreased due to social networking (P)
23. I have physical problems due to the use of social networks (P)
24. I like to use social networks to keep informed about what is going on (O)
25. I browse social networks to stay informed about what social media groups are sharing (O)
26. I spend more time on social networks to see some special events/ events (e.g., birthdays) (O)
27. Keeping me informed about things related to my courses (e.g. homework, activities) makes me always be on social networks (O)
28. I am always active on social networks to be immediately informed about what friends and family are sharing (O)

(Note: S = Satisfaction with being connected to social networks; P = Problems; O = Obsession with being informed; and N = Need/Obsession to be connected).

Conclusions

The findings derived from our work point in different directions. The first is that the adaptation we have made for the Mexican context of the SMAS-SF instrument developed by Sahin (2018) has proven to be valid with levels of reliability and identification of factors, similar to those obtained by said author in the construction of his instrument with students from Turkey.

In this sense, the instrument developed can provide a useful tool to collect information on the degree of addiction by students in the age range analyzed, and relate them to other variables such as the student's social class, gender, or different levels of study than those used here for validation.

On the other hand, the tool allows us to delve into the possible degree of addiction that Mexican students have to these communication technologies and the consequences, which have been found in several studies, regarding

decreased academic performance or distance from family relationships; in other words, it can be useful for Mexican researchers interested in the subject of social networks in general, and their possible addiction in particular, to carry out studies to analyze it, since the results of the present work, in terms of its validity and reliability, guarantee this for students in the Mexican context.

In this aspect we should point out that there are few social media analysis tools in the Mexican academic literature and this could be a contribution of the present work, although possibly a replication with a larger sample and from different contexts than the one used by us would be needed.

Our results are similar to those obtained by Sahin (2018) in his work; moreover, in its application, we found no problems of item comprehension by the young people and adolescents who completed it, nor in the need to use ample time for its administration.

Four factors have been identified that could explain this addiction or constant use of social networks: satisfaction/tolerance, problems, obsession to be informed and need/obsession to be connected. All of them coincide with what different authors have pointed out in their own research (Escurra and Salas, 2014; Al-Menayes, 2015; Sanz *et al.*, 2017; Liu and Mab, 2018).

As a future line of exploration, we suggest its application and the specific analysis of young people and adolescents, as well as its possible relationship with different variables, such as: gender, age band differences, social class or type of school. It could also be interesting to contrast the different perceptions that may exist between the addiction to social networks by young people, and the perceptions that their parents and teachers have about them.

Finally, the application of the instrument would facilitate the establishment of training plans for students to acquire knowledge about specific groups in schools and, consequently, be able to take educational measures and actions, as demonstrated by the recent work conducted at the University of Pennsylvania by Hunt *et al.* (2018), decreasing the use of social networks in students only half an hour a day contributed to improving their psychological well-being.

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Annex

Table 1

KMO and Bartlett test

Kaiser-Meyer-Olkin measure of sampling adequacy		.941
Bartlett's test of sphericity	Approx. Chi-Square	6738.28
	df	406
	Sig.	.000

Source: (authors') own elaboration.

Table 2

Factor loadings with Varimax rotation

	Factors			
	1	2	3	4
7. I prefer social network friendships to face-to-face ones.	.696			
10. I usually prefer to communicate with people through social networks.	.671			
8. I express myself better with people on social networks.	.649			
13. I prefer virtual communication in social networks for dating.	.637			
5. A life without social networks makes no sense to me.	.585			
9. I pretend to be what I want to be on social networks.	.570			
6. I prefer to use social networks despite being accompanied.	.536			
4. I see social networks as an escape from the real world.	.510			
11. Even my family gets mad because I can't stop using social networks.	.429			
23. I have physical problems due to the use of social networks.		.738		
19. I use social media so often that I forget about my family.		.675		
22. I notice that my productivity has decreased due to social media.		.674		
21. I don't even notice that I'm hungry and thirsty when I'm on social media.		.651		
15. I skip my homework because I spend so much time on social media.		.612		
16. I feel bad if I am forced to decrease the time I spend on social networks.		.563		
17. I feel unhappy when I'm not on social media.		.561		

	Factors			
	1	2	3	4
24. I use social networks even when I walk down the street to be instantly informed about events.		.469	.423	
25. I like to use social networks to keep myself informed about what's going on.			.745	
28. Keeping me informed about things related to my courses (e.g. homework, activities) makes me always be on social media.			.723	
26. I browse social networks to stay informed about what social media groups are sharing.			.688	
27. I spend more time on social networks to see some special events (e.g. birthdays).			.652	
29. I am always active on social networks to be immediately informed about what friends and family are sharing.			.614	
20. The mysterious world of social networks always captivates me.			.485	
1. I am eager to use social networks.				.722
2. I seek to connect to the Internet everywhere to access social networks.				.714
3. The first thing I do when I wake up is to connect to social networks.				.571
12. I want to spend time on social networks when I'm alone.				.558
18. I'm excited to be on social networks.				.538
14. Social networking activities take hold in my daily life.				.430

Source: (authors') own elaboration.

Table 3

KMO and Bartlett test

Kaiser-Meyer-Olkin measure of sampling adequacy		.938
Bartlett's test of sphericity	Approx. Chi-Square	6416.770
	df	378
	Sig.	.000

Source: (authors') own elaboration.

Table 4

Factor loadings with Varimax rotation

	Component			
	1	2	3	4
7. I prefer social network friendships to face-to-face ones.	.697			
10. I usually prefer to communicate with people through social networks.	.673			
8. I express myself better with people on social networks.	.651			
13. I prefer virtual communication in social networks for dating.	.638			
5. A life without social networks makes no sense to me.	.587			
9. I pretend to be what I want to be on social networks.	.572			
6. I prefer to use social networks despite being accompanied.	.539			
4. I see social networks as an escape from the real world.	.511			
11. Even my family gets mad because I can't stop using social networks..	.433			
23. I have physical problems due to the use of social networks.		.735		

	Component			
	1	2	3	4
22. I notice that my productivity has decreased due to social media.	.680			
19. I use social media so often that I forget about my family.	.678			
21. I don't even notice that I'm hungry and thirsty when I'm on social media.	.658			
15. I skip my homework because I spend so much time on social media.	.608			
16. I feel bad if I am forced to decrease the time I spend on social networks.	.565			
17. I feel unhappy when I'm not on social media.	.563			
25. I like to use social networks to keep myself informed about what's going on.	.740			
28. Keeping me informed about things related to my courses (e.g. homework, activities) makes me always be on social media.	.732			
26. I browse social networks to stay informed about what social media groups are sharing.	.687			
27. I spend more time on social networks to see some special events (e.g. birthdays).	.657			
29. I am always active on social networks to be immediately informed about what friends and family are sharing.	.609			
20. The mysterious world of social networks always captivates me.	.497			
2. I seek to connect to the Internet everywhere to access social networks.	.723			
1. I am eager to use social networks.	.722			
3. The first thing I do when I wake up is to connect to social networks.	.574			
12. I want to spend time on social networks when I'm alone.	.544			
18. I'm excited to be on social networks.	.527			
14. Social networking activities take hold in my daily life.	.436			

Source: (authors') own elaboration.

Table 5

Identification and designation of factors, and items that form them

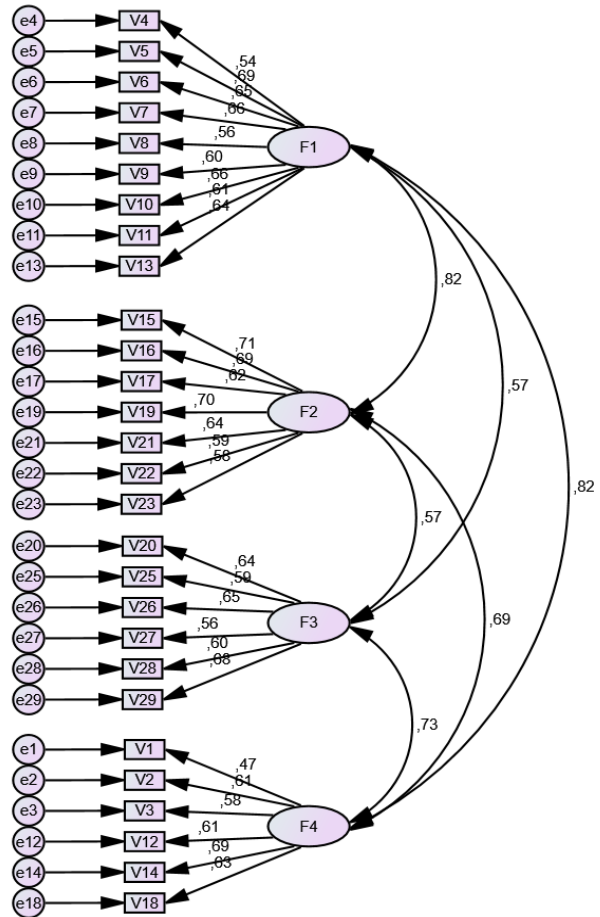
Satisfaction	Issues
7. I prefer social network friendships to face-to-face ones.	23. I have physical problems due to the use of social networks.
10. I usually prefer to communicate with people through social networks.	22. I notice that my productivity has decreased due to social media..
8. I express myself better with people on social networks.	19. I use social media so often that I forget about my family
13. I prefer virtual communication in social networks for dating.	21. I don't even notice that I'm hungry and thirsty when I'm on social media.
5. A life without social networks makes no sense to me.	15. I skip my homework because I spend so much time on social media.
9. I pretend to be what I want to be on social networks.	16. I feel bad if I am forced to decrease the time I spend on social networks.
6. I prefer to use social networks despite being accompanied.	17. I feel unhappy when I'm not on social media.
4. I see social networks as an escape from the real world.	
11. Even my family gets mad because I can't stop using social networks.	

Obsession to be informed	Need/obsession to be connected
25. I like to use social networks to keep myself informed about what's going on.	2. I seek to connect to the Internet everywhere to access social networks.
28. Keeping me informed about things related to my courses (e.g. homework, activities) makes me always be on social media.	1. I am eager to use social networks.
26. I browse social networks to stay informed about what social media groups are sharing.	3. The first thing I do when I wake up is to connect to social networks.
27. I spend more time on social networks to see some special events (e.g. birthdays).	12. I want to spend time on social networks when I'm alone.
29. I am always active on social networks to be immediately informed about what friends and family are sharing.	18. I'm excited to be on social networks.
20. The mysterious world of social networks always captivates me.	14. Social networking activities take hold in my daily life.

Source: (authors') own elaboration.

Figure 1

Model of first-order confirmatory factor analysis



Source: (authors') own elaboration.

Table 6

Values for the goodness of fit of the model according to the first confirmatory factor analysis

χ^2	df	p	χ^2 / df
806.076	340	0.000	2.371

Source: (authors') own elaboration.

Table 7

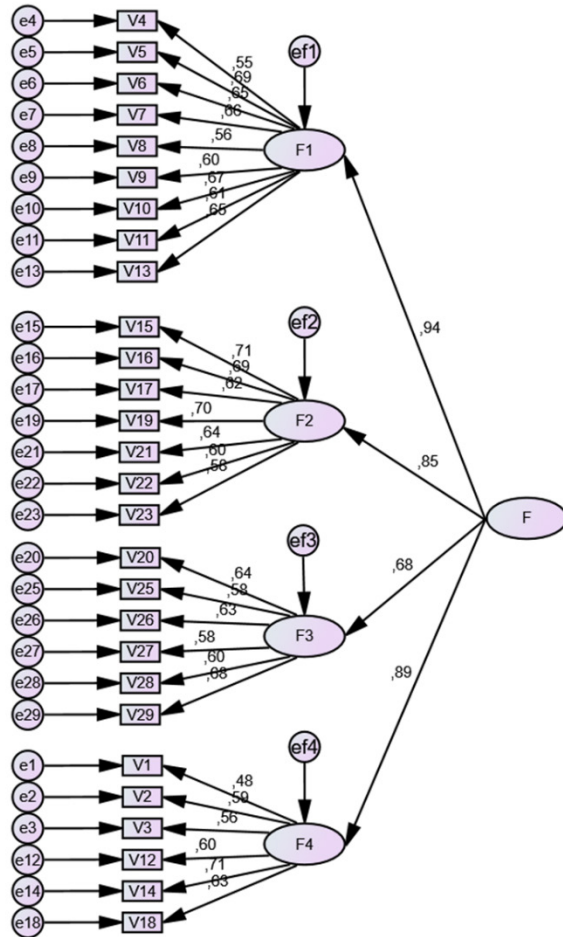
Adjustment indexes

Adjustment indexes inspected	Perfect fit	Acceptable fit	First level confirmatory analysis
RMSEA	$0 \leq \text{RMSEA} \leq 0.05$	$0.05 \leq \text{RMSEA} \leq 0.08$	0.048
SRMR	$0 \leq \text{SRMR} \leq 0.05$	$0.05 \leq \text{SRMR} \leq 0.10$	0.048
NFI	$0.95 \leq \text{NFI} \leq 1.00$	$0.90 \leq \text{NFI} \leq 0.95$	0.876
GFI	$0.95 \leq \text{GFI} \leq 1.00$	$0.95 \leq \text{CFI} \leq 0.97$	0.914
AGFI	$0.95 \leq \text{AGFI} \leq 1.00$	$0.85 \leq \text{AGFI} \leq 0.95$	0.897

Source: (authors') own elaboration.

Figure 2

Second level confirmatory factor analysis model



Source: (authors') own elaboration.

Table 8

Adjustment indexes

Adjustment indexes inspected	Perfect fit	Acceptable fit	Second order confirmatory factor analysis
RMSEA	$0 \leq \text{RMSEA} \leq 0.05$	$0.05 \leq \text{RMSEA} \leq 0.08$	0.049
SRMR	$0 \leq \text{SRMR} \leq 0.05$	$0.05 \leq \text{SRMR} \leq 0.10$	0.05
NFI	$0.95 \leq \text{NFI} \leq 1.00$	$0.90 \leq \text{NFI} \leq 0.95$	0.872
GFI	$0.95 \leq \text{GFI} \leq 1.00$	$0.95 \leq \text{CFI} \leq 0.97$	0.910
AGFI	$0.95 \leq \text{AGFI} \leq 1.00$	$0.85 \leq \text{AGFI} \leq 0.95$	0.892

Source: (authors') own elaboration.

Table 9

Rho de Jöreskog's for instrument globality and factors

Variable	Jöreskog's rho (ρ_c)
Total instrument	0.923
F1 Satisfaction	0.853
F2 issues	0.838
F3 Information	0.800
F4 Need to be connected	0.767

Source: (authors') own elaboration.

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