



Digital Media Behavior of School Students: Abusive Use of the Internet

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Received on 17 February 2018; revised on 19 February 2018; accepted on 16 April 2018; published on 15 July 2018

DOI: 10.7821/naer.2018.7.284



ABSTRACT

The increase in the use of information technologies encompasses all educational and social issues, even changing intergenerational skills. It is considered that the most conditioned to this effect are adolescents and young people. This research is a literary review of various studies on addiction and Internet abuse and presents relevant results of the situation of college students and their level of Internet use. The study was developed in seven educational units of Ecuador, with a sample of $n = 773$ students (53.6% men and 46.4% women). An instrument with sufficient validation guarantees ($\alpha.94$) has been applied, verified by means of a factorial analysis of main components, which determined two study factors in the use of the Internet and loss of control and interference with life. Through a statistical treatment (Pearson) a good correlation was established (.62) between the two study dimensions, which is a concern in the educational field.

KEYWORDS: BEHAVIOR, INTERNET, SCHOOL PERFORMANCE.

1 INTRODUCTION

The Internet comes from the abbreviation INTERconnected NETworks, which means: interconnected networks through a communication protocol, which has transformed the way of communicating, opening new possibilities of knowledge (Mengual, Lloret & Roig, 2013).

The Internet has been used since 1969. Disseminated twenty years later due to several factors: change in regulation, increase in broadband needs, diffusion of personal computing equipment, software improvement, access, transmission of content and the social demand of commercial networks.

Billieux & Van der Linden (2012), compared to the Internet to a central nervous system in our community, which has evolved from web 1.0 that allowed only reading and searching for information, the content was paramount, on the other hand web 2.0 allows reading, more writing and round trip information, where the user is the most important. The network allows synchronous

and asynchronous communication and an environment conducive to collaborative, institutional and personal work, becoming a stimulus for global and interdisciplinary work and at the same time a common denominator between teachers and students anywhere in the world (Brand, Young & Laier, 2014), access to an inexhaustible sea of information and knowledge of multiple cultures and languages.

However, its multiplicity of functions has made it a part of daily life and therefore, as lifestyle has been changing, this has provoked the concern of multiple researchers to determine that there is the possibility of generating behavioral addiction, especially in adolescents / the young. The consequent abuse behaviors are still defined by the American Psychiatric Association (APA) (Demetrovics & Griffiths, 2012), although they are not yet recognized as addictive pathologies, they follow the research path of several authors (Castellanos, Sánchez, & Calderero, 2017; Demetrovics & Griffiths, 2012, Aesaert, et al., 2015, Jiménez-Albiar, Piqueras, Mateu-Martínez, Carballo, Orgilés & Espada, 2012, Ruiz-Olivares, Lucena, Pino & Herruzo, 2010).

The addictions sustain their course classifying themselves as a contrariety of behavior instead of an addiction. Young (1996) indicates that Internet addiction is a detriment to control and that it has a symptomatic display at the cognitive, behavioral and social levels; the excessive use of the Internet has consequences of distortion of personal, family and professional objectives. Colás-Bravo et al., (2017) mentions that adolescents who spend more time on the use of Internet display an emotional instability tending to introversion and pessimism.

Griffiths (2005; 2012) suggests that this parallelism between addiction with and without psychotropic substances can be useful for the analysis and regulation of pathologies and to understand society's perception of these behaviors. The investigation of Internet addiction arises through two issues: as an addiction in itself and as the channel that allows the growth of multiple addictions (sex, shopping, social networks, among others). Carbonell, Fuster, Chamarro, & Oberts (2012) verify that problematic use and frequency of use are associated with this phenomenon (Rivas, Fernández, & Gámez-Guadix, 2010). However, anyone can make use of new technologies in a professional way or even as a delight, the inconvenience arises when it is possible to feel comfort or relief (Echeburúa & Corral, 2010).

Internet addiction is a phenomenon that is gaining more and more strength. Laconi, et al., (2014) perform a literary review of

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the multiple studies carried out to understand the level of addiction and the gratifications of the use of information technologies taken as reference in this study. Now, considering these circumstances, the purpose of the proposed research is to understand the behavior of the media on the Internet for students of public schools to which the state deploys low-medium resources, segmented by gender. In addition, it is intended to answer and substantiate the question: what are the factors that would be causing excessive Internet use and behavioral intervention in college students? In short, it aims to contribute to the academic-scientific area from the fields of technology and education.

2 LITERARY REVIEW

2.1 Digital media behavior

The Internet Network offers advantages used by all society, the intention of not using it should not be proposed, but rather the exploitation of its multiple scopes. It is manifested as an adequate environment for institutional and personal collaborative work, persuasion of interdisciplinary work, meeting space between academic components, easy and economic access (Bartau, Aierbe, & Oregui, 2017).

The web maintains an almost infinite bank of information with this the electronic contents give birth to an information society. Throughout history human beings have always wanted to communicate, before writing, graphic or oral; currently with the passage of time a new writing arises: the digitization of all types of information, the so-called texts and hypermedia that allow different ways of communicating in a complementary way to generate communicative competence (Mengual, Lloret, & Roig, 2013; Aesaert, et al., 2014).

Despite the extensive field covered by ICT, access has become a relevant cause of exclusion (Tirado-Morueta, Mendoza-Zambrano, Aguaded-Gómez & Marín-Gutiérrez, 2016). According to several pieces of research, people with more economic resources access the Internet more easily, therefore they cover mainly the communication and information needs; On the other hand, people with limited economic resources have more difficulties in accessing information and perhaps professional improvement, which is why different personal behaviors and different operational skills are established. Below is a summary of the research conducted on the Internet (Table 1).

Table 1. Investigations on Internet abuse

Scale	Autor	Theoretical basis	Country	α
Adolescent Computer Addiction Test (ACAT)	Siomos, 2009	Pathological gambling	Greece	.93
Adolescent Pathological Internet Use Scale (APIUS)	Lei & Yang, 2007	Cognitive-behavioral theory	China	.80 .94
Checklist for the Assessment of Internet and Computer game Addiction (AICA-C)	Wolfling, 2010	Substance dependence	Germany	.89
			China	.93
			Taiwan	.94
Chen Internet Addiction Scale (CIAS)	Chen, 2003	Substance dependence and pathological gambling	Turkey	.94
			Iran	.93
			China	.93
			China	
Chinese Internet Addiction Inventory (CIAI)	Huang, 2007	Pathological gambling	China	0.80 .90
			Netherlands	.89
			Iran	.89
			France	.85
Compulsive Internet Use Scale (CIUS)	Meerkerk, 2009	Substance dependence and pathological gambling	Switzerland	.78
			Germany	-
			Germany	.92
			Germany	.90
Computer and Internet Use (CIU)	Pratarelli, 1999	Substance dependence	USA	-
Computer and Internet Use 2 (CIU-2)	Pratarelli & Brown, 2002	Substance dependence	USA	.57 .89
Diagnostic Criteria of Internet Addiction (DC-IA)	Ko, 2005	Substance dependence and pathological gambling	Taiwan	-
			USA	.78
Generalized Problematic Internet Use Scale (GPIUS)	Caplan, 2002	Cognitive-behavioral theory	USA	.85
			China	.91
			Iran	.90

Internet Addiction Questionnaire (IAQ)	Wang, 2001	Cognitive-behavioral theory	Australia	.94
			Japan	.85
Internet Addiction Scale (IAS)	Nichols & Nicki, 2004	Substance dependence	Canada	.95
			Turkey	.92
			USA	-
			Korea, South	-
			UK	.71
			China	.63
			China	.82
			China	-
			Switzerland	.93
			Iran	.88
Internet Addiction Test (IAT)	Young, 1998	Pathological gambling	Finland	.92
			Poland	.93
			UK	-
			Germany	.89
			Germany	.91
			Malaysia	.91
			USA	.83
			USA	.91
			Greece	-
			Germany	.89
			Spain	.89
			Italy	.91
			Lebanon	.92
			Turkey	.90
			Korea, South	-
			China	.93
			Korea, South	.91
			Japan	.93
			Slovenia	.91
			Bangladesh	.89
Internet Related Addictive Behavior Inventory (IRABI)	Brenner, 1997	Substance dependence	Canada	.93
			China	-
			Germany	.89
Internet Related Problem Scale (IRPS)	Armstrong, 2000	Substance dependence	USA	.87
			Australia	.87
			UK	.62
			UK	.84
			UK	.60
Online Cognition Scale (OCS)	Davis, 2002	Cognitive-behavioral theory	USA	.94
			Turkey	.91
			Croatia	.94
			China	.93
			USA	.85
Problematic Internet Use Diagnostic-Interview (PIUD-I)	Beard & Wolf, 2001	Substance dependence	USA	-
Problematic Internet Use Scale (PIUS)	Morahan-Martin & Schumacher, 2000	Substance dependence	USA	.87
Virtual Addiction Survey (VAS)	Greenfield, 1999	Pathological gambling	USA	.74

The behavior of a person is based on the level of exploration that he or she has been able to maintain throughout their formal and informal learning. Generally speaking, the most active, neophylic or bolder people tend to be labeled as “explorers”, while the more inactive, neophobic or more timid people tend to be labeled as “non-exploratory” (Réale et al., 2007). However, it has not been proven whether the “explorer” type actually collect more information during the learning process compared to those labeled “non-exploratory” (Toyokama, Saito & Kameda, 2017).

Geffet & Blau (2016) mention that “Behavior is a strictly physical, recordable and verifiable process, which consists, precisely, of being the activity by which a living being maintains and develops its life in relation to its environment, responding to it and modifying it. “For its part, the Royal Spanish Academy (RAE, 2010) highlights that addictive behavior becomes a “dependence of substances or activities harmful to health or psychic balance, extreme hobby to someone or something.” In response, the World Health Organization (WHO) states that “an addiction is a physical and psycho-emotional disease that creates a dependency or need for a substance, activity or relationship, it is characterized by a set of signs and symptoms, in those that involve biological, genetic, psychological and social factors “. According to the aforementioned, it can be considered as a progressive pathology determined by uncontrolled time spaces, change of thought and denial of actions performed. There are criteria that allow us to deduce if a person maintains a physical and psychological dependence on any activity or element, which are:

- Constant desire or feeling of need about a substance or activity.
- Not being able to control the action or consumption.
- Attempt to abstain in order to reduce the addictive action.
- Constantly abandoning interests over other people: family or friends.
- Persistence in the use of the substance or activity.

That is, when talking about addiction, there are several tolerance and abstinence phenomena, in such a way that the person who is permanently intoxicated or in activity, shows a demand for consuming the substance or carrying out preferential activities, it is evidently difficult or impossible to interrupt or modify consumption and present an absolute determination (Stevens et al, 2014). Based on the scoop of Griffiths (2012), which states that there are clinical criteria that could lead to the homogeneous adaptation between a chemical and behavioral addiction, the author synthesizes the following measurement parameters:

- Salience or Priority in any activity that overwhelms feelings, thoughts and behaviors.
- Change in humor.
- Tolerance.
- Withdrawal or discomfort syndrome when the practice of an activity is reduced.
- Intra-psychic conflicts.
- Relapse.

2.1.1 Intergenerational media culture

Societies are cultural constructs, Castells (2014) defines culture as: “a set of values and beliefs that shape, guide and motivate the behavior of people”, therefore, the present technological society should identify its culture as a historical indicator of transition, considering that it is a global network and works in a multiplural cultural way integrating different areas of the world.

Cultural identity maintains an ideological autonomy that sometimes contrasts and resists changes. More than the emergence of a global homogeneous culture, what can be observed is historical and cultural diversity; therefore, the communication protocols between different cultures come to convert and integrate society into a Network, because without them it was not possible (Castells, 2014).

Prensky (2001) considers that the digitized society or Network has among its allies, adolescents and young people, establishing generations of use by means of final letters of the alphabet: generation “X” born between 1971 and 1985 adapted with difficulty to the technological age, generation “And” people who have grown up with the Internet and do not consider it as a prosthesis, born between 1985 and 1992 and on the other hand the “Z” generation, born after 1992, are called digital natives who from very young coexisted with the Internet and the Propagation of use of ICT. Although the new digital generations have a great capacity to handle electronic devices, they have difficulties in managing information (Colás, González, & de Pablos, 2013, Andreassen et al., 2016).

Many terms have been added since Prensky (2001) mentions digital natives, among them: Generation Z, Generation V (Virtual), Generation C (by community or content), Silent Generation, Internet Generation or Generation Google that incorporates to ICT in their daily lives (Fernández & Fernández, 2016).

3 METHOD

The method applied in the present study is focused quantitatively with a descriptive-exploratory investigation that bases a description of the studied topics. An experimental design is applied in the analysis of results evidenced in the manuscript. Likewise, the data analysis techniques used were; bibliographic analysis, statistical analysis and measurement of results.

The present investigation has been carried out with a random non-probabilistic sample of $n = 773$ students of tertiary education corresponding to ISCED 6 (International Standard Classification of Education, UNESCO, 2011) in seven schools of the Province of Santo Domingo de los Tsáchilas - Ecuador, to the last grade of baccalaureate, $n = 414$ men (53.6%) and $n = 359$ women (46.4%).

The proposed study hypothesis is:

H1: The frequency of Internet use increases the loss of control and interferes with the academic-social life of college students.

3.1 Process

An electronic version of the questionnaire was designed in Google forms and the public education units were visited for two and a half months, sharing the link through the support of professors from each institution in person in the computer rooms. After the information collection process, the raw data was exported to an xls spreadsheet for subsequent importation and statistical processing in the SPSS software.

3.2 Instrument

For the present investigation, the scale determined by Young (1996), pioneer in investigating Internet addiction, has been chosen, the Internet Addiction Test (IAT) scale is the commonly used diagnostic instrument as shown in Table 1, based on the criteria of the DSM-V (Diagnostic and Statistical Manual of Mental Disorders), adapted to different languages (Alavi et al, 2010; Barke, Nele, & Kröner-Herwig, 2012; Chang & Law, 2008; Chong, Sarimah, Subash, & Manveen, 2012; Estévez, Bayón, de la Cruz,

& Fernández, 2009; Khazaal et al., 2008). The instrument has 20 items on a Likert scale (0 never, 1 rarely, 2 occasionally, 3 frequently, 4 often and 5 always); Young (1998) states that the total score ranges between 20 and 49 points determine that the user is online with controlled Internet use, those who maintain a score between 50 and 79 are in the category of problematic Internet use and from 80 to 100 points have significant problems in life due to the use of the Internet, that is to say, they present symptoms of abusive use.

The IAT scale which maintains an alpha of Cronbach .94, aims to measure the level of Internet abuse of students of tertiary education colleges in their daily routine, social life, use, academy and feelings (Barke, Nyenhuis, & Kröner-Herwig, 2012). Factor analysis revealed a stable two-factor solution: use of the Internet and loss of control and interference with life, which fit with several investigations (Watters, Keefer, Kloosterman, Summerfeldt, & Parker, 2013, Hawi NS, 2013, Khazaal et al., 2008).

3.3 Principal component analysis

To determine the main components (PAC) of IAT, a pilot test has been applied in the population to be investigated, verifying a Kaiser-Meyer-Olkin sample adequacy with KMO =, 88 result that indicates an acceptable adequacy. The results obtained define two factors (Table 2). The determination of the factors of the

main components was accompanied by a Varimax rotation and the results of the Bartlett sphericity test are ($\chi^2(253) = 1302.30$, $p = 0.000$).

3.3.1 Factor 1: Internet use

The first dimension includes elements on the constancy of use of the Internet and its emotional effect, referring to the state that a person who exceeds an incorrect use of the Internet may have, which could lead to levels of emotional instability that would disturb the cognitive development of a person, causing them to feel depressed, empty, nervous and even aggressive (Escrivá, García & Navarro, 2002). The questions that make up the factor are: 17, 15, 13, 11, 9, 19, 7, 5, 3.

3.3.2 Factor 2: Loss of control and interference with life

The second dimension considers that the loss of control refers to failed attempts to stop online time and the harmful consequences of using the Internet to fulfill activities (Barke, Nyenhuis, & Kröner-Herwig, 2012; Faraci et al., 2013). In the analysis, the questions that refer to this dimension are; 14, 16, 18, 12, 20, 4, 2, 10, 8, 6, 1.

Table 2. Matrix of rotated factors

	Factor	
	1	2
17. Do you try to hide how much time you really spend browsing?	0,857	
15. Has it ever happened to say "just a few more minutes" before turning off the computer or mobile device?	0,755	
13. How often do you lose hours of sleep by going online?	0,734	
11. Do you fear that your life without Internet will be boring and empty?	0,711	
9. Do you evade your real-life problems by spending some time connected to the Internet?	0,631	
19. Do you feel anxious, nervous, depressed or bored when you are not connected to the Internet?	0,622	
7. Is your academic productivity impaired by the use of the Internet?	0,606	
5. Is your academic activity (school, university) impaired because you spend too much time navigating?	0,48	
3. Do you prefer to get excited with photos or videos on the Internet instead of getting intimate with your partner?	0,471	
14. Are you often thinking about things related to the Internet when you are not connected?		0,813
16. Have you ever tried to spend less time connected to the Internet and have not succeeded?		0,753
18. Do you prefer to spend more time online than with your real-life friends?		0,729
12. Do you feel upset when someone interrupts you while you are surfing?		0,664
20. How often do new relationships form with other online users?		0,625
4. How often do people around you reproach you that you spend too much time on the Internet?		0,554
2. Do you neglect academic work by spending more time in front of the computer while surfing?		0,539
10. Are you ever thinking about what you are going to do the next time you connect to the Internet?		0,536
8. Do you become cautious or reserved when someone asks you what you spend the time you spend browsing?		0,369
6. How often do you check the email before performing other priority tasks?		0,315
1. How often do you find yourself carrying more time than you intended to be?		0,273

Extraction method: Factorization of the main axis.

Rotation method: Varimax standardization with Kaiser.

4 RESULTS

According to the achievement of results in this section, we proceed to perform the statistical treatment, which is part of the verification of the hypothesis. Subsequently we proceed to the descriptive and bivariate analysis to determine the scope of the research results.

H1: The frequency of Internet use increases the loss of control and interferes with the academic-social life of college students.

Determining a scale of three levels in the analysis of the first dimension (controlled level, medium advanced and advanced), it can be observed that 60.2% of the population operated maintains a controlled level of Internet use and 36.6% maintains a medium-advanced level.

Therefore, the result adds regularity to the cognitive level of young school students because their openness to learning is not being affected due to the use of technologies, but it does mark a worrying percentage of advanced level in the analysis, as the tendency to grow, according to some authors mentioned above, it is eminent.

Table 3. Factor 1 analysis

		F	%	Valid %	Accumulated %
Valid	Checked	450	58,2	60,2	60,2
	Pre-advanced	274	35,4	36,6	96,8
	Advanced	24	3,1	3,2	100
	Total	748	96,8	100	
Lost	System	25	3,2		
	Total	773	100		

Regarding the analysis of factor 1, 73% of the determined sample maintains an advanced rate of loss of control and interference with life (table 4), however, to consider the level of significance, the correlation was carried out through Pearson between the two research variables.

Table 4. Factor 2 analysis

		F	%	Valid %	Accumulated %
Valid	Checked	168	21,7	22,1	22,1
	Pre-advanced	554	71,7	73	95,1
	Advanced	37	4,8	4,9	100
	Total	759	98,2	100	
Lost	System	14	1,8		
	Total	773	100		

After applying the Pearson Correlation, the result is shown in Table 5 that indicates that there is a correlation between variables 1 and 2, because the bilateral value is $p < 0.05$ and the level of significance shows a "good correlation" (.625) according to Pearson's R and Rho index. Therefore, in response to the hypothesis, there is a good correlation between the use of the Internet and the loss of control and interference with life among students of public colleges in the region.

Table 5. Pearson correlation

		Dimension 1	Dimension 2
Dimension 1	Pearson correlation	1	,625**
	Sig. (bilateral)		0
	N	748	736
Dimension 2	Pearson correlation	,625**	1
	Sig. (bilateral)	0	
	N	736	759

**The correlation is significant at the 0,01 (bilateral).

Finally, the descriptive analysis of items 18-20 of virtual friendships stand out, in which 34% frequently prefer to spend more time with their friends online than in real life and 33% frequently make friendships online person to person.

Table 6. Do you prefer to spend more time online than with your real life friends?

		F	%	Valid %	Accumulated %
Valid	Never	64	8,3	8,3	8,3
	Rarely	40	5,2	5,2	13,5
	Occasionally	5	0,6	0,6	14,1
	Frequently	263	34	34	48,1
	Often	234	30,3	30,3	78,4
	Always	167	21,6	21,6	100
	Total	773	100	100	

Table 7. How often do new relationships with other online users form?

		F	%	Valid %	Accumulated %
Valid	Never	55	7,1	7,1	7,1
	Rarely	56	7,2	7,2	14,4
	Occasionally	34	4,4	4,4	18,8
	Frequently	254	32,9	32,9	51,6
	Often	228	29,5	29,5	81,1
	Always	146	18,9	18,9	100
	Total	773	100	100	

It is important to emphasize that this phenomenon of abusive use of technologies could be affecting the social performance of adolescents in general, since the use of electronic devices constantly makes them lose personal or physical contact, which is why their preference for dialogue is reduced and their communication through digital resources increases. This produces more timid, less participatory young people inside and outside the classroom, without forgetting the digital risks to which they are exposed by the constant use of ICT.

5 DISCUSSION

According to the results obtained it could be determined in a general way that the use of Internet is more and more constant (Laconi, Chauchard, Girard, Rodgers, & Chabrol, 2014). That

is why the need for studies derived from this phenomenon are affecting the personal and academic life of adolescents, youth and adults. Considering the criterion of several authors, it is the smartphone, which is the electronic device that is being used by the entire population due to its multiple functionalities, including the Internet connection at anytime and anywhere. However, as mentioned by Odgerd (2018), it is not the frequency of use, but rather that they are using it, which generates concern, since applying a proper media literacy could generate e-learning benefits.

The behavior of a person is based on the level of exploration that he has been able to maintain throughout his formal and informal learning. Digital media behavior depends on the level of social influence perceived by a person, it would be considered part of associative learning and is based on social cognitive theory which mentions that the environment and behavior are the ones that influence actions (Bandura, 1977, Réale et al., 2007).

In the present investigation it is possible to demonstrate a correlation between the two variables presented with more than, 63 a good correlation could be determined. Therefore, the constant use of the Internet does influence the loss of control and therefore maintain an interference with the daily life of students. Its result worries, because that could be intervening in the academic-social development of a school student (Demetrovics & Griffiths, 2012). However, this type of studies should be expanded to generate more results for the benefit of the academy.

As part of the analysis of the research, the preference of friendship in the school students has been highlighted, the result mentions that they frequently prefer to spend more time with their friends online (34%) and form more online friendships than in physical conversation, that conditions a personal relationship that is increasingly ephemeral (García-Umaña, 2017). In this investigation, it is evident in the medium degree of the above-mentioned, because only 15% do not prefer online friendships and more than 35% always do it. Joo & Sang (2013) demonstrate two determining factors to measure the motivations for the use of technologies, factor one: motivation of ritualized use that involves the dimensions of evasion, hobby, relaxation and entertainment, and factor two: motivation of instrumental use that attends to the dimensions of daily life, commercial information, news, work and learning, that is, cognitive processes, as mentioned before, in this research it was intended to address part of the two.

In the results, the target audience could not be labeled as addicted to the Internet, but with a degree of abusive or uncontrolled use of the Internet by school teenagers (Carbonell, Fuster, Chamarro, & Oberts, 2012; Rivas, Fernández, & Gámez-Guadix, 2010). To diagnose this phenomenon, one could consider expanding research dimensions and qualitative resources so as not to allow hasty deductions.

6 CONCLUSIONS

It is essential to apply educational measures to promote the responsible use of the Internet, it is unquestionable that information technologies are gaining strength in the information society and preferably among adolescents who will be the future of society. Prohibition could not be considered an option, regulating and encouraging research in the Network would become a resource with more academic input.

Latin America, according to the World Economic Forum (2015), is delayed compared to the European continent; however, North America maintains a remarkable percentage of worldwide connectivity with interesting characteristics in all areas. In the 2016 report of the International Telecommunication Union (ITU),

Ecuador is considered as a medium developing country, which is why the demand for regulatory policies is essential for a global positioning, economic and social growth.

The target audience of the research, despite maintaining a low appellation of resources, understands that they have access to the Internet every day; their access could be facilitated by operator plans or domiciliary contracts, motivated by communication networks. An important reflection is developed in terms of accessibility and a variable *per capita*.

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How to cite this article: García-Umaña, A. (2018). Digital Media Behavior of School Students: Abusive Use of the Internet. *Journal of New Approaches in Educational Research*, 7(2), PP. 140-147. doi: 10.7821/naer.2018.7.284