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## Internet Uses and parental mediation in adolescents with ADHD

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**Abstract:** The youth of today lives in the midst of a technological revolution, particularly in the field of communications (e-chats, mobile telephones, Messenger, etc.). In many parts of Spain, the Internet has overtaken television, not only as a source of entertainment and recreation among teenagers, but also as a socialisation force. Adolescents suffering from Attention-Deficit Hyperactivity Disorder (ADHD) have specific characteristics that may make them more vulnerable when using new technologies. Consequently, it is important to investigate the ways in which these teenagers use the Internet. This study attempts to identify, through the application of the Television Viewing Habits Questionnaire CH-TV 0.2, the possible differences between teenagers with ADHD and normal teenagers, with regards to Internet use, purpose of use, and parental mediation. The results, which are based on a sample of 232 adolescents from the Basque Country (Spain), indicate differences in Internet use profiles between adolescents with ADHD and the normal adolescent population. Contrary to our hypothesis, the former group uses the Internet less than the latter. Furthermore, despite the fact that for both sample groups the principal purpose of using the Internet was communication, significant differences were detected. In relation to parental mediation, teenagers with ADHD reported a higher degree of instructive and restrictive mediation.

**Keywords:** Internet; parental mediation; ADHD; adolescence, teenagers.

**Summary:** 1. Introduction. 1.1. Uses of the Internet. 1.2. Parental mediation. 1.3. Attention Deficit Hyperactivity Disorder (ADHD). 2. Methodology. 2.1. Design. 2.2. Sample. 2.3. Instruments. 2.4. Procedure. 3. Results. 4. Conclusion. 5. Bibliography.

Translation by **Cruz Alberto Martínez-Arcos**, Ph.D. student at the University of London

### 1. Introduction

The use of new technologies such as mobile phones or the Internet is more problematic among teenagers but with age it gradually becomes more normalised, more professional, less playful, and produces fewer negative consequences (Beranuy Chamarro, Graner, and Carbonell, 2009). Adolescents are considered as a risk group by many authors based on the characteristics of this evolutionary moment: omnipotence, tendency to seek the cause of their problems on other people, little life experience, difficulty to recognise subtle addictions and a sense of normality towards high-risk behaviours.

Although according to Elzo (2008), today, it is not possible to refer to adolescence as if it were a uniform category. As with other evolutionary stages, it is necessary to contextualize adolescence both culturally and socially. Therefore, when considering adolescence as object of study, researchers must be aware that this stage of development is not uniform, beyond the actual physiological characteristics. In this sense, when studying adolescence it is necessary to be cautious and not make very generalist interpretations or statements of the data obtained because they can sometimes hide the heterogeneity of this stage.

This work is guided by the ecological perspective of Bronfenbrenner (1979), which indicates that human development should be studied in relation to the different contexts in which the person is immersed. This interpretative framework allows us to go from a functionalist and instrumentalist analysis of the media to a socio, historical, and cultural analysis of the media. The media must be understood as what they are and not as merely information transmitters.

This research also follows the principles of reception theory (Orozco, 2001), which proposes that it is more relevant to inquire what viewers do with the media, and how they perceive the different contents and transmitted values, than investigating the influence of the media on the different audiences. From this perspective, "reception" is understood not as a mere reception but as an interaction that is mediated from various sources and is materially, cognitively and emotionally contextualised. The "audience" is conceptualised as a set of active and interactive social subjects that are engaged in a relationship with the media referents, and require audiovisual literacy (Medrano and Aierbe, 2008).

Based on this theoretical framework, this research aims to understand the Internet consumption and parental mediation of teens with Attention Deficit Hyperactivity Disorder (henceforth, ADHD); and in particular to offer a comparative study between adolescents with ADHD and adolescents not suffering from ADHD, from now on normal adolescents or teenagers.

### 1.1. Uses of the Internet

There is no doubt that the Internet, as a medium of communication, entertainment and information, is becoming a necessary tool in Western society. Thus, the information and communication technologies (ICTs) produce new styles to interact with new people, friends and strangers (Sanchez-Carbonell, Beranuy, Castellana, Chamarro and Oberst, 2008).

Campos (2008) points out that the advances in information and communication technologies have incorporated new tools and forms of intermediation and interactivity that are reconfiguring the media space. These social and professional relationships and networks that have been established and developed thanks to the Internet have started a new phase (some authors qualify it as post-media) of a much more rapid services society in which attention appears more segmented, personalised, instant, diluted, convergent, flexible, lightweight, conversational, interconnected and bound to collaboration, participation and trivialisation. The relations of the public with the media are changing: fragmentation is growing and mediation is thinned.

According to Ararteko's 2009 report on the "transmission of values to minors", Internet is, after television, the medium with most influence on children and young people. It should be noted that the use of these new technologies introduces less controlled, colder, more solitary and more distant forms of communication. Likewise, the e-chats, e-mails, and sms are appropriate channels to express emotions quickly and briefly. Sanchez-Carbonell et al, (2008) argue that some Internet channels work because they are adapted to the emotional needs of today's society.

Regarding adolescents in the Basque Country, the Ararteko's 2009 report states that secondary school students, 27% of boys and 22% of girls, use the Internet every day or nearly every day for more than 30 minutes, which accounts for 24% of all the respondents. Another 24% of students stated they use the Internet several times a week. The main uses are: "downloading movies, songs", "preparing homework, tests" and "chatting". An interesting finding is that 30% of girls and 40% of boys use the Internet for dating. The majority of the sampled students used the Internet by themselves without any adult company.

Similarly, a study carried out in Barcelona (Graner, Castellana and Sanchez-Carbonell, 2006) obtained meaningful data in relation to the Internet use of adolescents aged 11 to 15. The average Internet usage was between 1 and 3 hours per week. According to the study of Melamund, Nasanovsky, Otero, Canosa, Enriquez, Köhler, Goldfanrd, Matamoros, and Ringuelet (2009), which was conducted in the Latin American context, 40% of the sample surfed the Internet 2 hours per week, and 30% 2 to 6 hours weekly.

Previous research undertaken by us (Medrano, Palacios and Aierbe, 2007) found that adolescents in the Basque Country watched TV an average of 2 hours 20 minutes but that this did not replace other activities, since devoted an average of 21 and half weekly hours to performing other 4 different activities (walks, hanging out with friends, sports and the Internet). Diverse studies in Spain have concluded that communication and entertainment are the main reasons why young Spaniards use the Internet (Garitaonandia and Garmendia, 2009).

Like in Spain, in Israel, Mexico and Argentina communication is the main purpose of use of the Internet (Arribas and Islas, 2009; Sosa, 2008).

From the parents' perspective, the use of various media would have different purposes, although often they do not correspond with the purpose of use of their children. Thus, according to the study of Levantine and Lasso (2008), the main reason why parents like their children watching television is that they are entertained, while the main reason they would their children to use the Internet is to learn or as an instrument to do homework. These functions, however, do not match the actual uses. For example, while parents think that the computer in the bedroom serves to do homework, their children actually use it to communicate (messenger) and get entertainment (online games). Regarding gender differences we obtained results that opposed the previous research.

On the one hand, there are studies, like Arribas and Islas (2009); the Ararteko Report (2009) and Viñas Poch (2009), that claim that they could not find significant differences in gender and that, in general, the computer and Internet use (in hours) is equal in males and females. However, these studies have found some differences in the purpose of uses across genders. On the other hand, an investigation conducted in Madrid (Sanchez and Otero, 2010), with secondary and high school students, found that the *very high use* of Internet in adolescents is more associated to males.

### 1.2. Parental mediation

The use of the Internet may involve both benefits and risks and all this depends on the use made out of it. Internet access offers new socialization opportunities to adolescents so they can interact with peers that are not only in their immediate environment, but also located worldwide. Therefore, as various authors have claimed, adults must be present when their children surf the Internet, must limit the time their children spend online and of course must control their use (García-Piña 2008; Viñas Poch, 2009).

Several studies have highlighted three styles of parental mediation: the co-viewing mediation, which is observed when

adults watch TV together with their children, but not necessarily talking about what they are watching; the restrictive mediation, in which parents try to enforce rules that prevent children from watching certain types of programmes; and the instructive mediation in which parents actively discuss certain aspects of the programmes with their children. The data indicate that the two most common types of mediation are co-viewing and instructive mediation (Aierbe, Medrano and Orejudo, 2008; Uribe and Santos, 2008).

Several research studies in Spain have found that the parental mediation perceived by Spanish teens is low, around 36%, and that the parental control varies depending on the age, being stronger in children and lighter on teenagers aged 16 to 17 (Garitaonandia and Garmendia, 2009; González, Rodiño, Gorís, and Carballo 2008).

However, the perception of the parents about their own mediation tends to give higher scores. For example, Gabelas and Lazo (2008) found that parents believe that they very often tend to orient their adolescent children about the contents that are suitable for their age. Thus, 49.6% said that they always guide their children and 36.1% stated they almost always do so.

According to data provided by Livingstone (2009), the survey conducted in December 2008 by the Safer Internet Plus Programme of the European Union (also known as the Eurobarometer) showed that Spanish parents are very worried (50.7%) and quite worried (28.2%) about the sexual content and graphic violence their children can watch on the Internet and mobile phones. These figures are higher than the European average: 44.9% and 19.9%, respectively.

Research in Latin America found a low and inefficient parental control, which often facilitated minors accidentally finding contents unsuitable for their age (García-Piña, 2008; Melamund et. al., 2009).

The most common parental strategies to control Internet activities are (Livingstone 2009): 1) Installation of filtering and monitoring Software and 2) Parental mediation strategies (talking with children, reviewing visited sites, and setting norms).

### **1.3. Attention Deficit Hyperactivity Disorder (ADHD)**

In today's society the proliferation of screens that favour immediate external reinforcements (such as video games, television and the Internet) represent few opportunities to encourage and train sustained attention, the delay of reward, and reflective strategies for all individuals in general, but especially for people with ADHD (Cardo and Servera, 2005). In this same line, the research undertaken by Campos (2008) also refers to the new relations with the media, and in particular with the online social networks, and emphasises on their impact on users' attention, which is more immediate and more segmented.

Teens with ADHD have specific characteristics, such as difficulty to concentrate and impulsivity, which can make them vulnerable when using new technologies.

The attention-deficit with or without hyperactivity is a neurobiological chronic alteration that starts in people's early stages of development, has a high co-morbidity rate, and affects the social and school performance (Aierbe, 2009).

Teens with ADHD may be especially susceptible to the effects of Internet, television or other screens due to their individual characteristics (low tolerance to frustration, low self-esteem, difficult interpersonal relations, conduct disorders, learning disabilities) and this vulnerability may increase as a result of certain family situations such as dysfunctional parental attitudes, conflicts, or an inappropriate exercise of control over the use of the media.

Available preliminary research related to Internet addiction and ADHD describes Internet addiction as a pathological use of the Internet and is characterised by the lack of control in the use of it.

Research with adolescents in other cultural contexts, such as China, South Korea and Taiwan, has found relationships between the high consumption of Internet and ADHD symptoms (Cao, Su, Liu, and Gao, 2007; Yen, Ko, Wu, and Yang, 2007; Yoo, Choo, Yune Kim, Hwang, Chung, Sung and Lyoo, 2004).

The objective of the study of Yoo et al. (2004), focused on South Korean children aged 9 to 13, was to assess the relationship between ADHD symptoms and Internet addiction. 0.9% of the children met the criteria of "Internet Addiction" and 14% meet the criteria of "Possible Internet addiction". The ADHD group obtained higher scores in Internet addiction in comparison with the non-ADHD group, 32.7% and 3.2% respectively. The study found significant associations between the level of ADHD symptoms and the severity of the Internet addiction. There was a greater prevalence of Internet addiction among males. The ADHD group reported more frequency of personal history of addictive behaviours in other activities.

These findings may indicate that ADHD symptoms, both lack of inattention and hyperactivity/impulsivity, can be potential risk factors for Internet addiction.

An investigation conducted in China, among individuals aged 12 to 18 by Cao et al. (2007), found that 64 individuals suffered Internet addiction, and that 14 of those students suffered from other disorders. Eight of these individuals suffered from ADHD.

On the other hand, the study conducted in Taiwan by Yen et al. (2007) on the psychiatric co-morbidity of Internet addiction symptoms in subjects aged 15-23, postulated that adolescents with Internet addiction showed higher

symptoms of ADHD and depressive disorders.

Based on the theoretical review of this work, we propose the following objectives:

1. To understand the similarities and differences between adolescents with ADHD and normal adolescents regarding the time spend surfing the Internet.
2. Determine the differences and similarities between adolescents with ADHD and normal adolescents regarding the purpose of Internet use.
3. Determine the differences and similarities between adolescents with ADHD and normal adolescents regarding the perception of parental mediation.
4. To determine the differences and similarities between adolescents with ADHD and normal adolescents regarding the possible relationships between the Internet consumption profiles and the perceived parental mediation styles.

## 2. Methodology

### 2.1. Design

This is a descriptive and comparative research whose general objective is to identify some indicators of Internet and television consumption profiles and their comparison between people with and without ADHD, within a broader cross-cultural research.

### 2.2. Sample

The study involved a total of 232 subjects, divided into two subsamples: normal adolescents and adolescents with ADHD.

Table 1: Description of the sample

	Gender		Total
	Male	Female	
Normal	107	90	197
ADHD	21	6	27
Total	128	96	224

The sample was designed based on the needs of the study. Thus, the subjects with ADHD had to be registered in the Red Sanitaria Pública (Public Health Network), had to study both in public and private schools, and/or had to be linked to any association of ADHD victims and families. Subjects diagnosed with ADHD are part of the associations ADAHIGI (located in the province of Guipúzcoa) and AHIDA (located in Vizcaya). One of the criteria for the selection of the sample was age: we selected subjects aged 8-13 and 14-18.

The data collection from the sample of normal teenagers was conducted in Gipúzkoa, at the Lur Berri public Institute and the Hermanos de La Salle private college, both of which are located in Donostia-San Sebastián.

### 2.3. Instruments

The Television Viewing Habits Questionnaire CH-TV 0.2 was used to carry out this research. Regarding reliability, this questionnaire presents an acceptable Alpha coefficient: .8826 (Medrano and Aierbe, 2008).

The questionnaire consists of two distinct parts. The first part gathers socio-economic data (school level and employment status of parents and family structure). The second part consists of 24 items grouped into 14 indicators, such as: 1) permanence, 2) simultaneous activities, 3) alternatives, 4) parental mediation, 5) social context of viewing, 6) conversation, 7) purpose of Internet use and paternal mediation, 8) reasons for the choice of favourite character and identification, 9) physical context for viewing, 10) purpose of sharing and prohibiting certain programmes, 11) purpose of the diet, 12) family climate, 13) television realism, and 14) genre preferences.

The indicators 3 and 7 were used for statistical analysis and therefore it is necessary to explain them in details. Indicator 3: Alternatives: refers to the hours dedicated to perform eight alternatives different from watching TV in spare time, one of them is the time spent surfing the Internet. Indicator 7: purpose of Internet use and parental mediation: refers to the purpose of using the Internet like communicating, playing, shopping, etc., and the mediation that parents exercise in the use of this medium.

The students with ADHD also answered the ESMIDA-J questionnaire to assess whether their attention deficit was accompanied by hyperactivity or not. The parents and the tutors also answered the ESMIDA-N questionnaire that collects the evaluation of the student's conduct.

### 2.4 Procedure

The data were collected in the first quarter of 2010. All students were notified that the objective of the work was to know their views regarding the aforementioned themes and that all the information would be treated confidentially. The process of data collection from the two subsamples was carried out separately.

Data from normal teens were collected in groups at the Lur Berri Institute and *de La Salle* College through the application of the online questionnaire which lasted approximately 45 minutes. During application, the group tutor and a researcher were there to clarify any doubts among students.

The data from the sample of students with ADHD were collected in two phases. The first phase was at the end of the presentation of the research at the Association. In the presence of two researchers, the students answered the Television Viewing Habits Questionnaire CH-TV 0.2, while their parents completed the questionnaire assessing ADHD. The application of this questionnaire lasted 1 hour. Subsequently, the ADHD-assessment questionnaire was answered at home by the students. Another questionnaire was provided for the tutor. In a second phase, the data collection was carried out through postal mail. The pack included instructions for the application of the tests and provided contact phone number and e-mail.

### 3. Results

Let's discuss the results based on the proposed objectives:

1. The first objective was to know the possible similarities and differences regarding Internet use among adolescents with and without ADHD. As table 2 shows, normal teenagers had a higher Internet consumption than adolescents with ADHD. The former group has an average of 9.10 hours versus 4.31 of the latter and these differences are statistically significant ( $t: 5.716$   $p: 0.000$ ).

Table 2: Internet consumption

	Sample	N	Average	Typical deviation	Average typical error
Hours dedicated to surf the Internet	Normal	192	8.70	4.702	.339
	ADHA	34	3.91	3.137	.538

There were no significant gender differences. Boys from the normal sample surf the Internet an average of 8.49 weekly hours and women 9.35 weekly hours. Similarly, females in the ADHD subsample consumed more Internet than males: 5.00 and 4.03 weekly hours, respectively. However, these results should be interpreted with caution because the sample was just 27 subjects and the number of women with ADHD is very low (only 6).

2. In relation to the second objective, we found significant differences in the purpose of use among adolescents with and without ADHD.

Teens with ADHD use the Internet to: communicate, obtain information, play, download audiovisual products, and shop. On the other hand, normal adolescents use it to communicate, consult information, download stuff, play, and shop.

While for the two samples communicating is the most common activity, there are significant differences in other activities. Communicate is understood as using MSN, Facebook, Tuenti, etc. 20% of teens with ADHD "never" use the Internet to communicate while 35.3% "always" use it for this purpose. On the other hand, only 1.6% of normal adolescents said they "never" use it to communicate and 57.8% claimed to "always" use it for this purpose.

Other activities that show statistically significant differences is using Internet for downloads, through software such as *Ares* and *eMule*, which provide films, music, TV series, and music videos, among others. 26.2% of the normal adolescents claimed to "always" use the Internet to download while only 8.8% of teens with ADHD claimed so, and 35.3% said they "never" use the Internet to download.

Regarding using the Internet for the purposes of playing, the share of teens with ADHD who claimed playing "always" is larger than the share of normal adolescents claiming so: 14.3% and 6.8% respectively.

As we have said previously, communication is the main purpose of use of the Internet in the two samples, and in both samples females have higher scores than males. Thus, in the group with ADHD, girls scored an average of 4.57 in comparison to an average of 3.26 among the boys, while in the normal group the girls reached an average of 4.61 against the boys' average of 4.06. The differences are statistically significant in the two samples (normal  $t: -4.020$   $p: 0.000$  and ADHD  $t: -2.140$   $p: 0.040$ ).

In the sample of teens with ADHD there were no more differences across genders in other activities, while in the sample of normal teens women scored higher in using the Internet to obtain information.

3. With regards to the third objective, table 3 shows the differences and similarities among adolescents with and without ADHD regarding their perception of parental Internet mediation styles.

Table 3: Perception of Parental Mediation

	Sample	Average	Typical deviation	Average typical error
My parents tell me to stop surfing the internet if I have used it already for a long time	Normal	3.07	1.261	.091
	ADHD	3.24	1.327	.228
My parents show me how to use the Internet and warn me about its risks	Normal	2.50	1.205	.087
	ADHD	2.80	1.491	.252
My parents tell me what websites I can visit or not	Normal	2.04	1.050	.076
	ADHD	2.76	1.458	.250
My parents show interest for the websites I visit	Normal	2.45	1.190	.086
	ADHD	3.03	1.424	.241
My parents impose a timetable to surf the Internet	Normal	2.08	1.202	.087
	ADHD	2.40	1.459	.247
My parents are present in the same space when I am surfing the Internet	Normal	2.16	1.165	.084
	ADHD	2.17	1.339	.226
My parents only let me use the Internet on the weekends	Normal	1.57	1.004	.073
	ADHD	2.00	1.414	.239
My parents surf the Internet with me	Normal	2.04	1.007	.073
	ADHD	2.20	1.232	.208
My parents explain to me some issues related to some websites.	Normal	1.88	.971	.070
	ADHD	2.26	1.146	.194

There are significant differences in the shares of respondents that agreed with the statement "my parents tell me what websites I can visit or not" ( $t: -3.467$   $p: 0.001$ ) because it is teens with ADHD which perceive more prohibition.

There are no significant differences in the level of agreement to the rest of statements about parental mediation.

From highest to lowest, these are the average scores in the sample of teens with ADHD: "My parents tell me to stop surfing the internet if I have used it already for a long time", "My parents show interest for the websites I visit", "My parents show me how to use the Internet and warn me about its risks", "My parents tell me what websites I can visit or not", "My parents impose a timetable to surf the Internet", "My parents explain to me some issues related to some websites", "My parents surf the Internet with me", "My parents are present in the same space when I am surfing the Internet", and "My parents only let me use the Internet on the weekends".

The sample of teens with ADHD agreed to all the statements more than the sample of normal teens did. The major difference was in the agreement to the statement "My parents show interest for the websites I visit on the Internet", averages of 2.45 and 3.03 respectively.

According to the data obtained, it can be said that female adolescents with ADHD perceived greater parental mediation strategies than male adolescents, although the differences are not statistically significant (statement 1:  $t: -0.111$   $p: 0.912$ , statement 2:  $t: 0.448$   $p: 0.657$ , statement 3:  $t: 0.975$   $p: 0.337$ , statement 4:  $t: 0.647$   $p: 0.522$ , statement 5:  $t: 0.228$   $p: 0.821$ , statement 6:  $t: 0.689$   $p: 0.496$ , statement 7:  $t: 0.894$   $p: 0.378$ ; statement 8:  $t: 1.539$   $p: 0.133$ , and statement 9:  $t: 0.658$   $p: 0.515$ ).

In contrast with the sample of teens with ADHD, the sample of normal adolescents did exhibited significant differences in the average agreement to the following statements: "My parents tell me to stop surfing the internet if I have used it already for a long time" (boys 2.74 and girls 3.45,  $t: -4.060$   $p: 0.000$ ) and "My parents show interest for the websites I visit" (boys  $M:2.15$ , and girls  $M:2.79$ ,  $t: -3.835$ ,  $p: 0.000$ ). It was only in the agreement to the statement "My parents only let me surf the Internet on the weekends", that the boys perceived greater mediation, while in all other cases it was the girls who scored higher.

There were no significant differences regarding the mediation strategy through co-viewing ( $t: -0.467$   $p: 0.641$ ), but there were some differences in relation to instructive mediation ( $t: 2.342$   $p: 0.020$ ) and restrictive mediation ( $t: 2.480$   $p: 0.014$ ) for the two subsamples.

Table 4: Types of mediation

	Samples	N	Average	Typical deviation	Average typical error
Co-viewing	Normal	190	2.1053	.87860	.06374
	ADHD	35	2.1857	1.20712	.20404
Restrictive	Normal	190	2.1908	.82141	.05959
	ADHD	34	2.5662	1.05764	.18138
Instructive	Normal	190	2.2754	.86654	.06287
	ADHD	35	2.6952	1.17538	.19868

Regarding mediation by age, as table 5 shows, the group aged 8-13 obtained higher averages than the group aged

14-18 in the level of agreement to all of the statements about parental mediation.

Table 5: Mediation by age

	Category	N	Average	Typical deviation	Average typical error
My parents tell me to stop surfing the internet if I have used it already for a long time	1.00	12	3.17	1.267	.366
	2.00	196	3.07	1.273	.091
My parents show me how to use the Internet and warn me about its risks	1.00	13	3.08	1.801	.500
	2.00	196	2.49	1.213	.087
My parents tell me what websites I can visit or not	1.00	12	3.00	1.706	.492
	2.00	196	2.10	1.109	.079
My parents show interest for the websites I visit	1.00	13	3.38	1.446	.401
	2.00	196	2.49	1.234	.088
My parents impose a timetable to surf the Internet	1.00	13	2.31	1.601	.444
	2.00	196	2.13	1.233	.088
My parents are present in the same space when I am surfing the Internet	1.00	13	2.62	1.502	.417
	2.00	196	2.11	1.158	.083
My parents only let me use the Internet on the weekends	1.00	13	2.23	1.536	.426
	2.00	195	1.59	1.043	.075
My parents surf the Internet with me	1.00	13	2.62	1.387	.385
	2.00	195	2.02	.987	.071

\* Category 1: 8-13 years / category 2: 14-18 years.

4. In relation to the fourth objective there were no significant relationships between Internet use and perceived parental mediation in any of the samples.

As table 6 shows, the most significant result of applying the Pearson correlation coefficient to examine the possible influences between the indicators about Internet surfing and questions about the purpose of use is that there is a positive relationship between the hours of use and the purpose of communication in the sample of teens with ADHD (.499).

Table 6: Relationships between the Internet surfing time and purpose of use in the group with ADHD

		Internet to communicate (MSN, Tuenti, Facebook, etc.)	Internet to download (Ares, Emule, etc.)	Internet to obtain information (Wikipedia, websites, etc.)	Internet to play	Internet to shop
Hours dedicated to surf the Web	Pearson correlation	.499(**)	.249	.225	.256	.124
	Sig. (bilateral)	.003	.156	.207	.144	.484
N		34	34	33	34	34

Only in the sample of boys with ADHD there was a positive relationship between the hours of Internet use and using the Internet for the purposes of communication (through MSN, Tuenti, Facebook, etc.) ( $r = 0.516$ ).

With regards to the normal sample, we found positive relationships in the case of adolescent males both between Internet usage time and using the Internet to communicate ( $r = 0.381$ ), and between Internet usage time and using the Internet to download stuff ( $r = 0.432$ ). Normal female teens only exhibited a positive relation in the first case ( $r = 0.377$ ).

#### 4. Conclusion

The results obtained in this study draw a picture that exhibits some inconsistencies regarding the object of study. If we examine the data in its totality, it could be argued that there are differences in the consumption profile of teens with ADHD and normal adolescents.

Regarding the first objective, which was to know the time invested in Internet surfing, the obtained parameters produced scores higher than those described in other studies (Ararteko, 2009; Garcia-Piña, 2008; Graner et al., 2006; Melamund et al., 2009). For example, in this study the sample of teens with ADHD exceeded the 3.5 weekly hours of Internet surfing, and the normal adolescents reported an average of 8.7 weekly hours, which is higher than the figures found in the Basque Country. It could be argued that Internet usage is growing day by day and that there are significant differences of use across the different sectors of the population, if we look at their specific characteristics.

One of the results to be considered in this study is that the females from both samples reported a high use in comparison with males, which opposes the previous investigation claiming that males spent more time online.

Continuing with the second objective, which was to determine the purpose of Internet use, we found out that the main purpose identified in this work coincides with other investigations conducted so far (Arriba and Islas, 2009; Garitaonandia and Garmendia, 2009; Sosa, 2008). Communication is the main purpose for adolescents with and without ADHD. While the two subsamples have the same main purpose, they have a different consumption profile. Teens with ADHD prefer to play video games much more than normal teens do, who prefer to download all sorts of things.

Video games have been the subject of many studies in recent times and it has been found that children with ADHD play a little more often than normal children (Bioulac, Arfi and Bouvard, 2008). Perhaps this is the reason why teens with ADHD claim to play more often than normal adolescents.

Regarding the primary purpose of use, female teens use the Internet to communicate more than their male counterparts do. As we said earlier, female teens are those who consume Internet the most.

The questionnaire used for this work takes the use of MSN, Tuenti and Facebook as a reference to study the use of internet for the purposes of "communication". Tuenti and Facebook are part of what is now called social networks, which have developed quickly and have reached almost all teens. In these social networks communication takes place through comments on the profile pages of friends (or strangers) and through the posting of photos. These activities are becoming the topic of conversation and concern among the educational and social community, as this new form of communication involves advertising many personal data that belong to the private sphere and thus poses the risk of losing privacy.

In this sense, Campos (2008) points out that the affiliation to some networks, which in some cases requires up to 17 types of personal identity data, represents an impressive source of commercial value on the profile of users, and poses a severe risk for users due to the lack of sufficient security policies for identity protection.

In relation to the third objective, which was to establish the level of parental Internet mediation perceived by adolescents, one can conclude that teens with ADHD perceive greater mediation strategies from parents than normal teens do. The reason for this could be that the sample of teens with ADHD in this study, and their parents, are part of associations, which give parents training courses to make them aware of the risks of the media and the mediation strategies to diminish them.

Teens with ADHD perceive major restrictive measures than normal teens perhaps because the associations have given the former guidelines to recognise those measures. This information could be used as the basis to investigate whether parents mediate similarly the use of other media, and could be compared with a sample of teens who suffer from ADHD but whose parents do not belong to any association.

It is noteworthy that mediation scores do not reach the established average of the scoring parameters (1-5 Likert scale). The highest score is 5 and only teens with ADHD perceived instructive mediation around the average (2.5). All the other scores are below, which generally coincides with previous research indicating the existence of a low level of parental mediation (Garitaonandia and Garmendia 2009; González, Rodiño, Gorisy Carballo, 2008).

Based on these results, audiovisual literacy among adolescents should be promoted. Given the increase in Internet usage and its possibilities, it is desirable to learn how to use it beyond technical skills. It is important to understand the dangers of the web and what to do to avoid them. Teenagers are not the only ones who should develop their internet literacy, but also their parents. It has been demonstrated that formalised audiovisual literacy provides higher skills and fosters a more rapid progress in the acquisition of interpretative skills (Idoyaga, Andreu and Jimenez, 2010).

In relation to the fourth objective, the study did not find any correlation between Internet use and parental mediation, i.e. there is no correlation between the mediation strategies and the increase in Internet usage. Parents mediate regardless of whether their children surf the Internet much or little. One of the reasons may be the low level of knowledge on computers and Internet among adults. As explained above, it is necessary for parents and children to learn about Internet mediation strategies and the installation of Internet filtering and monitoring software.

There is also a striking contrast between the "parents' concerns about the Internet" and the mediation perceived by adolescents. According to different research studies (Garitaonandia and Garmendia, 2009) Spanish parents seem to be more concerned than the European average but, on the other hand, their children perceive a lower mediation level. Thus, normal schools or schools for parents should consider the possibility of educating parents in the field of the new information technologies.

While there are no correlations between Internet use and perceived mediation, some correlations were found in the main purpose of use: the greater the increase in the use of the Internet, the more communication becomes the main purpose of use. On the other hand, the use of Internet to play video games does not increase with the overall increase in Internet usage, which contradicts the belief that the online video games can become "addictive" and that adolescents that play them spend more hours on the computer.

Beyond of the suggestive nature of the data presented in this study, it is important to contextualise the results in terms of limitations. Firstly, the characteristics of the sample do not allow generalising the results to the entire population of

adolescents with and without ADHD, since the sample was designed based on convenience. On the other hand, the data presented here are limited to the questionnaire and it would be interesting to relate them to other information, such as the type of Internet connection, the risks perceived by adolescents and other more qualitative methodologies like focus groups and in-depth interviews to know adolescents' own arguments and reasons.

Taking into account these limitations, it is necessary to further study the use of the Internet and parental mediation, and to undertake other studies to better understand the uses of the Internet in different contexts, as it has been done with other media like television.

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