Risks of Interactive Communication. A Digital Literacy proposal

Isabel Rodríguez de Dios
Observatorio de los Contenidos Audiovisuales
University of Salamanca
Faculty of Social Sciences (Edificio FES)
Avda. Francisco. Tomás y Valiente, s/n 37007
(+34) 923 294640
isabelrd@usal.es

Juan José Igartua
Observatorio de los Contenidos Audiovisuales
University of Salamanca
Faculty of Social Sciences (Edificio FES)
Avda. Francisco Tomás y Valiente, s/n 37007
(+34) 923 294640
jigartua@usal.es

ABSTRACT

In recent years, adolescents have increased the use of interactive technologies. These children have more and more technological equipment and they commonly use interactive communication. This type of communication offers many possibilities and benefits to the users, but it also involves disadvantages and dangers that are of particular concern in the case of minors: exposure to pornography, cyberbullying, sexual harassment or grooming, sexting, contact with strangers… In this situation, we should not deprive adolescents of the use of digital technologies and interactive communication. The solution is to provide them with digital skills so they can use these tools safely. Therefore, this project aims to increase the digital skills of adolescents with a proposal for diagnosis and intervention of digital literacy. This project will be implemented through three phases. In the first phase we will make a survey to find the level of digital skills of children. To do this, we will create and validate a scale of digital skills. In the second phase we want to check if the digital literacy influences on the degree of gratification obtained with digital contents. To do this, we will conduct an experiment. The goal is to know if the process for getting children safer involves a restriction of the opportunities and advantages of the online world. Finally, in the third phase we will consider the results of the two previous studies to develop a mobile app to digitally literate. To develop this application we will build on the theories of persuasion and the strategy of entertainment-education. This last phase will be carried out by an experiment. Through it we would check if this application is effective for digitally literate, and more specifically, whether the narrative persuasion is effective for persuading and educating.

Categories and Subject Descriptors

J.4 [**Social and Behavioral Sciences**]: Psychology.

General Terms

Design and Experimentation

Keywords

Digital literacy, interactive communication, online risks, persuasion, entertainment-education

1. INTRODUCTION AND JUSTIFICATION

Over the last few years there have appeared a number of actors (Internet, mobile phones, video games and other digital devices) that influence in many aspects of our lives: leisure, learning, work... and also communications [5]. Thus, there have been created new social scenarios that change the way in which the relationships are being developed. So, today, you can relate virtually to anywhere in the world and this has led to major changes [30].

Teens are fully immersed in this new context of Digital Society and they use interactive media massively. In addition, their rooms have increased the technological equipment. This has led to the bedroom culture: a tendency of children and young people to spend more and more time in their rooms with digital and communication media [8] This situation causes that parental controls in time, contents or uses of the media are much lower than previously [20].

In any case, in this context is very important the interactive communication, or interactive digital communication. According to Scolari [37], the interactive communication is the communication mediated by digital technologies. This type of communication occurs through tools such as instant messaging, social networks, email ... and through technologies such as computer, mobile phones, video games and the Internet. It may also involve users who are strangers, acquaintances, friends, family or colleagues [31].

Therefore, it is a kind of communication that offers a lot of possibilities for the users. Furthermore, it has many benefits. For example, it keeps connected individuals in society [31]. However, the interactive communication is also associated with disadvantages and dangers, which are of particular concern in the case of minors. This is because they are a part of the population that requires special protection. Consequently, the may not have sufficient resources to cope with the dangers and to maximize the advantages of the technologies [41].

So, despite that "young people are very sophisticated users of technology and often lead the way in adapting new technologies to everyday use, their technological savvy, combined with the ability to be online without much adult supervision, can lead to behaviors that are high risk" [1]. When experts talk about these risks, they usually refer to exposure to pornography, cyberbullying, sexual harassment or grooming, sexting, contact with strangers and impersonation [4; 19; 32; 36; 41].

Thus, the study EU Kids Online [32] notes that the 15% of European children, with ages between 9 and 16 years, has been involved in a sexting activity and the 6% has received nasty or

hurtful messages online. Similarly, 1 in 3 children has contacted someone who they didn't know face to face and 9% of them has met this person. In this sense, according to a study carried out with Spaniards between 12 and 17 years old [19], a quarter of minors has provided personal information to strangers over the net. In addition, 9,7% of these young recognizes to have had their identity supplanted to be harmed.

Moreover, we should note that the risks of interactive communication could have serious psychological consequences for children. Thus, many studies have shown the existence of a link between suffering cyberbullying and suffering anxiety, depression, stress, sleep disturbance, feelings of anger and frustration, irritability, suicidal ideation, suicide attempts and even suicides [12; 13; 23; 43]. Garaigordobil [18] also notes that cyberbullying affects health, quality of life, welfare and development of the person

A similar type of effects has the sexting. Thus, the viral and nonconsensual spread of sexual images has psychological consequences for the victims, but also social and legal consequences [27]. So, jokes, insults and rejection may have severe psychological effects. In fact, in some cases the humiliation and bullying lead the victim to suicide [10]. Similarly, Gáti, Tényi, Túry, and Wildmann [21] have demonstrated the existence of a relationship between suffering sexual harassment on the Internet and suffering eating disorders such as anorexia.

However, 8% of children does not care about the risks of interactive communication and 7% admits not knowing how to avoid them. Therefore, García et al. [19] believe that we must promote educational policies with the aim to inform children of these risks. In the same way, Livingstone et al. [32] believe that children should be encouraged to take responsibility for their own safety as much as possible, so we must focus on their training. Therefore, it is essential to train digital skills in order to achieve digital literacy. So, we must encourage this training and safety to ensure that all children achieve a basic level.

Therefore, digital literacy in teens is crucial for the use of digital devices. In fact, many authors consider that the more digitally literate children are, the more benefits they can get from these environments. In addition, they will also know better how to address the risks of the network [39]. In this sense, digital literacy is more than a simple ability to use software or functions in a digital medium. This includes a variety of cognitive, motor, social and emotional skills that the user needs to function effectively in a digital environment [14]. So, through literacy different skills are acquired, such as critical thinking, problem-solving skills, personal autonomy and social and communication skills [33]. Therefore, digital literacy consist in using a new medium so that it provides advantages over other forms of learning and, at the same time, be critical and aware of the impact of that environment on oneself [40].

In this regard, it is important to stress that we cannot deprive adolescents of interactive communication and also of the use of different digital technologies. In addition, it would be an impossible task. However, the solution is to give them the tools to be able to use these technologies safely [4]. These tools appear with the development of digital skills. That is, through a process of digital literacy, children could manage these risks and maximize the opportunities offered by interactive communication.

Therefore, this project aims to increase the digital skills of adolescents through two processes: a first process to perform a diagnosis of digital skills, and a second process of intervention for digital literacy. In this sense, it is very important to review the previous research in this field. This is because in recent years there have been an increasing number of digital literacy researches, and it has also increased the number of researches indicating the importance of the digital literacy, as we will discuss below.

2. STATE-OF-THE-ART

In the last decade there has been a boom in the research related to digital and interactive media. Among them, we should note, by the relationship with our object of study, the research that specifically focus on child and adolescent audiences, like the EU Kids Online project. So, there are many studies that analyze the characteristics of the use of the digital media by children and adolescents, especially the Internet: digital equipment, frequency of use, location of access... [6; 9; 20; 24; 36; 41]. But parents and educators, and therefore researchers, are particularly concerned about the effects, especially negative, that this use may have in children. For this reason, there is much research trying to delve into the risks of digital media. These studies mainly analyze the type of risks that exist [19; 31; 42]), the frequency with which they appear [32; 43] and their consequences [10; 13; 18; 21; 23].

Many of these researches conclude alerting parents, political and educational authorities... of the importance of taking urgent measures to address these risks: parental control, education in schools, security filters... In any case, we should not be apocalyptic. Given the risks, we can only educate new generations. So, minors will not renounce to use the media because they will be aware of the risks and potentials [2].

Therefore, many experts stress the importance of digital literacy as a prevention tool [14, 39]. In this sense, many previous studies have addressed the importance of media literacy, which involves the development of skills and abilities to communicate, analyze and evaluate the media [3; 7; 11]. This is the case of the project in which this research is placed: *Alfabetización mediática: diseño, ejecución y evaluación de un programa de intervención con adolescentes*. This is a project that aims to increase the media literacy of adolescents. To do this, they will design, execute and evaluate an intervention program of media literacy.

In the case of our research, the goal is to increase digital skills. To this end, as we have seen above, we will make a proposal for diagnosis and intervention of digital literacy. Instead of using a classical educational intervention, we will elaborate a mobile application with this literacy goal.

To do this, we will use the strategy of entertainment-education, which has become an effective and widely used strategy to address health and social problems in recent years [26]. Specifically, the strategy of entertainment-education refers to the intentional placement of educational content in messages intended for entertainment. It is not really a theory of communication, but rather a strategy used to disseminate ideas in order to achieve social and behavioral change [38].

Thus, there is an entertainment product (television series, videogames ...) that includes educational contents. It is noteworthy that this educational potential can be obtained not only through traditional media, but also through interactive media, which can also promote the acquisition of concepts, skills, or

attitudes. In any case, we will consider some theories related to multimedia learning in the developing of the mobile application:

- **Cognitive Theory of Multimedia Learning** [34]: If we want an educational software to be effective, it must be clear, organized and contain little strange or unknown information to the user. Otherwise, this information involves a high cognitive effort for the user, so it exceeds the limited capacity of working memory.
- **Capacity Theory** [17]: It argues that the gap between the educational content and the narrative should be short. So, they complement each other and do not compete for the resources of the working memory. This facilitates the understanding of the person.

The other theoretical framework that will guide the process of the elaboration of the application will be the narrative persuasion. Many researches have shown that the use of narrative fiction produces a greater impact on knowledge, attitudes and behaviors related to the health than the traditional format does [22, 28, 35]. Specifically, it has been found that transportation and identification with the characters are particularly effective in producing cognitive and emotional effects that involve attitudinal and behavioral changes. In this sense, the goal of research on narrative persuasion is to analyze the influence of fictional narratives in attitudes and behavior.

Moreover, in recent years there have been developed some models that attempt to explain how this incidental persuasion through fictional narratives occurs: theory of narrative transportation, the elaboration likelihood model and the extended parallel process model [26]. In all these theories, both narrative transportation (which causes a decline in critical thinking or reflection during the exposure to fictional story) and identification with the characters (which causes the viewer to be unable to generate criticism and counterarguments) play an important role in the processes of narrative persuasion. Therefore, in order to create the interactive product, these concepts and explanatory models will be essential to create an effective content.

In conclusion, due to narrative formats can be a valuable tool for prevention, we will develop an interactive mobile app with a narrative content. To do this, we will build on the strategy of entertainment-education and the narrative persuasion research.

3. RESEARCH OBJECTIVE GOALS

The overall goal of this project is:

> Improve digital skills in adolescents with the aim that they could afford, without dangers, the risks of interactive communication and maximize the opportunities that this communication gives to them.

From this overall goal, we set the following specific goals:

1) Create a methodological tool, which will be submitted to statistical tests of reliability and validity, to assess the level of digital skills of a population.
2) Analyze the role of the digital literacy in the satisfaction and gratification obtained with digital contents.
3) Create a mobile app, based on entertainment-education strategy and theories of narrative persuasion, to digitally literate.
4) Analyze the role of narrative persuasion as an effective tool to persuade and prevent.

4. METHODOLOGY

This project will be conducted on three studies that will be complementary to each other and that will be carried out in different phases. The first phase of the research will be conducted by the survey technique. Because the objective of this work is to provide adolescents with digital skills is necessary to know previously the level of skills that they have. Thus, we would know the characteristics that should have the digital literacy plan that we will carry out later.

In any case, we will develop a questionnaire with a scale which will measure the different digital skills. In this regard, scales are used to assess complex constructs that cannot be defined easily with one quiz question in the questionnaire [25]. In this case, digital literacy is such a complex construct. Thus, according to the Educational Testing Service [15], digital literacy includes both cognitive skills (literacy in general, critical thinking, problem solving ...) as well as the application of technical skills and knowledge.

In order to develop this scale of digital skills, we will build on previous researches that have developed lists of dimensions and indicators to measure skills: visual, media… [3; 15; 29; 39], and more specifically in the indicators used to measure digital skills [15; 16].

A second phase will be seated on the importance that many authors give to the fact that the network security doesn't restrict the opportunities and benefits of the online world [32; 39]. In this case, we will use the experiment technique in order to check whether the degree of media literacy influences the degree of gratification obtained with digital contents.

Finally, in the third phase of the project, we will develop a mobile app with the goal to promote digital literacy. That is, instead of using a classic educational intervention, we will develop a mobile app with this literacy goal. To build this application, we will consider the strategy of entertainment-education and the narrative persuasion research [22; 25; 28; 35]. In this last phase we will also conduct an experiment to see if the app is effective to digitally literate, and more specifically whether the narrative persuasion is effective in persuading and educating.

5. CURRENT AND EXPECTED CONTRIBUTIONS

This projects aims to test how the strategic use of multimedia and interactive contents can be a kind of effective tool for the prevention and reduction of the risks associated with the interactive communication in adolescents. Thus, this research aims to advance in the study of prevention through narrative persuasion. An area of research that has not been addressed in the investigation of the risks associated with interactive media yet.

In this way, there are several gaps in the research related to the risks of the digital media [36]. First, there is an overwhelming focus of the research on the internet, while mobile and converging and emerging technologies are neglected. That's why, this research project will address the different types of interactive communication (including Internet, but without neglecting other options such as phones, video games…). Another gap is the lack of studies that affect the role of parents and teachers, along with

other forms of secure mediation. Nor there are studies that investigate whether these forms of mediation are effective. Again, this project aims to overcome these limitations. Therefore, we will develop a proposal for digital literacy that will be tested through the experiment technique in order to determine its effectiveness.

Moreover, the project is relevant both for basic and applied research. It is important for basic research as we seek to make a theoretical breakthrough in the study of narrative persuasion and preventive communication. And it is also relevant for the applied research because we intend to address a specific problem such as the risks of the interactive communication in adolescents by developing a mobile app as a preventive tool.

Similarly, this project is interesting because it will provide tools for working digital skills in Secondary Education. But, in addition, it will give a theoretical and scientific support to develop this type of tools for other groups of age or for other areas of prevention. Therefore, this research aims to provide tools, strategies and theoretical advances to delve into the field of prevention through communication.

6. CONCLUSIONS

The risks associated with the interactive communication are becoming more numerous and dangerous day by day, especially for minors. In this situation, institutions and researchers have proposed various solutions to address these risks: parental control, education in schools, security filters ... However, other experts opt for digital literacy as a prevention tool. This is an option that allows increasing the digital skills of children in order that they can address the risks safely.

As we have seen throughout the paper, in our research project we adhere to this view by highlighting the virtues of digital literacy. Nevertheless, our main challenge will be to check the real effectivity of the digital literacy and the digital skills as prevention tools. In addition, we should also question the validity of our literacy tool.

7. REFERENCES

[1] Agatston, P. W., Kowalski, R., and Limber, S. 2007. Students' Perspectives on Cyber Bullying. *Journal of Adolescent Health*, 41, 59-60.

[2] Aguaded-Gómez, I. 2001. Niños y adolescentes: nuevas generaciones interactivas. *Comunicar. Revista Científica de Educomunicación*, 36, 7-8.

[3] Aguaded-Gómez, I., Ferres, J., Cruz, M., Perez, M., Sánchez, J., and Agueda, D. 2011. *El grado de competencia mediática en la ciudadanía andaluza*. Grupo Comunicar Ediciones, Huelva.

[4] Ararteko. 2009. *La transmisión de valores a menores*. Ararteko, Vitoria.

[5] Area, M., and Pessoa, T. 2012. De lo sólido a lo líquido: las nuevas alfabetizaciones ante los cambios culturales de la Web 2.0. *Comunicar. Revista Científica de Educomunicación*, 2, 1, 13-20.

[6] Beentjes, J. W. J., Koolstra, C. M., Mareille, N., and van der Voort, T. H. A. 2001. Children's Use of Different Media: For How Long and Why? In S. Livingstone and M. Bovill (Eds.), *Children and Their Changing Media Environment: a European comparative study* (pp. 85-112). Lawrence Erlbaum Associates, Mahwah, NJ.

[7] Bernad, M., and Sola, R. 2007. Alfabetización mediática: una estrategia para el acercamiento de la educación. *FISEC-Estrategias*, 3, 6, 65-88.

[8] Bovill, M., and Livingstone, S. 2001. Bedroom Culture and the Privatization of Media Use. In S. Livingstone and M. Bovill (Eds.), *Children and Their Changing Media Environment: a European comparative study* (pp. 179-200). Lawrence Erlbaum Associates, Mahwah, NJ.

[9] Bringué, X., and Sádaba, C. 2009. *La generación interactiva en España. Niños y adolescentes ante las pantallas*. Ariel, Barcelona.

[10] Chalfen, R. 2009. 'It's only a picture': sexting, 'smutty' snapshots and felony charges. *Visual Studies*, 24, 3, 258-268.

[11] Davou, B., and Nika, V. 2007. Diseño de un programa de educación en medios en la escuela primaria griega. *Comunicar. Revista Científica de Educomunicación*, 28, 75-82.

[12] Dehue, F., Bolman, C., and Vollink, T. 2008. Cyberbullying: Youngsters' experiences and parental perception. *CyberPsychology and Behavior*, 11, 217-223.

[13] Erdur-Baker, O., and Tanrıkulu, I. 2010. Psychological consequences of cyber bullying experiences among Turkish secondary school children. *Procedia-Social and Behavioral Sciences*, 2, 2, 2771-2776.

[14] Eshet, Y. 2004. Digital Literacy: A Conceptual Framework for Survival Skills in the Digital era. *Journal of Educational Multimedia and Hypermedia*, 13, 1, 93-106.

[15] Educational Testing Service. 2002. *Digital Transformation: A Framework for ICT Literacy*. Retrieved from Educational Testing Service http://www.ets.org/Media/Tests/Information_and_Communication_Technology_Literacy/ictreport.pdf

[16] Ferres, J., and Piscitelli, A. 2012. La competencia mediática: propuesta articulada de dimensiones e indicadores. *Comunicar. Revista Científica de Educomunicación*, 19, 38, 75-82.

[17] Fisch, S. M. 2000. A capacity model of children's comprehension of educational content on television. *Media Psychology*, 2, 1, 63-91.

[18] Garaigordobil, M. 2011. Prevalencia y consecuencias del cyberbullying: una revisión. International *Journal of Psychology and Psychological Therapy*, 11, 2, 233-254.

[19] García, A., López de Ayala, M. C., and Catalina, B. 2014. *Practicas comunicativas de los adolescentes en las redes sociales: concienciación y exposición a riesgos online*. Paper presented at the IV Congreso Internacional de la Asociación Española de Investigación de la Comunicación. Bilbao, Spain.

[20] Garitaonania, C., Fernández, E., and Oleaga, J. A. 2005. Las tecnologías de la información y de la comunicación y su uso por los niños y los adolescentes. *Doxa Comunicación*, 3, 45-64.

[21] Gáti, Á., Tényi, T., Túry, F., and Wildmann, M. 2002. Anorexia Nervosa Following Sexual Harrassment on the

Internet: A Case Report. *Journal of Eating Disorders*, 31, 4, 474-474.

[22] Green, M. C. 2006. Narratives and cancer communication. *Journal of Communication*, 56, 163–183.

[23] Hinduja, S., and Patchin, J. W. 2010. Bullying, Cyberbullying, and Suicide. *Archives of Suicide Research*, 14, 3, 206-221.

[24] Höflich, J. R., and Rössler, P. 2002. El teléfono móvil y el uso del SMS por parte de los adolescentes alemanes: Resultados de un estudio piloto. *Estudios de Juventud*, 57, 79-99.

[25] Igartua, J. J. 2006. *Métodos cuantitativos de investigación en comunicación*. Bosch, Barcelona.

[26] Igartua, J. J. (2007). *Persuasión narrativa*. Editorial Club Universitario, Alicante.

[27] Katzman, D. K. 2010. Sexting: Keeping teens safe and responsible in a technologically savvy world. *Paediatric Child Health*, 15, 1, 41-42.

[28] Kreuter, M. W., Green, M. C., Cappella, J. N., Slater, M. D., Wise, M. E., Storey, D., and Woolley, S. 2007. Narrative communication in cancer prevention and control: A framework to guide research and application. *Annals of Behavioral Medicine*, 33, 3, 221–235.

[29] Krucsay, S. 2007. Educación en medios en Austria: Competencia, comunicación, autonomía. *Comunicar. Revista Científica de Educomunicación*, 28, 111-120.

[30] Laespada, M. T. 2010. *El discurso de los jóvenes en Internet*. Universidad de Deusto, Bilbao.

[31] Lin, C. A. (2009). Effects of the Internet. In J. Bryant and M. B. Oliver (Eds.), *Media effects: advances in theory and research*. (3rd ed., pp. 567-591). Routledge, London.

[32] Livingstone, S., Haddon, L., Görzig, A., and Ólafsson, K. 2011. *Risks and safety on the internet: the perspective of European children: full findings and policy implications from the EU Kids Online survey of 9-16 year olds and their parents in 25 countries*. Retrieved from http://eprints.lse.ac.uk/33731/

[33] Martinsson, J. 2011. El programa CommGAP del Banco Mundial. Alfabetización mediática y reforma de la gobernanza. *Infoamérica. Revista Iberoamericana de Comunicación*, 5, 69-81.

[34] Mayer, R. E. 2009. *Multimedia learning* (2º ed.). Cambridge University Press, New York.

[35] Murphy, S. T., Frank, L. B., Chatterjee, J. S., and Baezconde-Garbanati, L. 2013. Narrative versus Nonnarrative: The Role of Identification, Transportation, and Emotion in Reducing Health Disparities. *Journal of Communication*, 63, 116–137.

[36] Ólafsson, K., Livingstone, S., and Haddon, L. 2013. *Children's Use of Online Technologies in Europe. A review of the European evidence base*. EU Kids Online, LSE, London.

[37] Scolari, C. 2008. *Hipermediaciones: elementos para una Teoría de la Comunicación Digital Interactiva*. Gedisa, Barcelona.

[38] Singhal, A., and Rogers, E. M. 2002. A Theoretical Agenda for Entertainment-Education. *Communication Theory*, 12, 2, 117–135.

[39] Sonck, N., Livingstone, S., Kuiper, E., and de Haan, J. 2011. *Digital literacy and safety skills EU Kids Online*. School of Economics and Political Science, United Kingdom, London.

[40] Süss, D. 2001. Computers and the Internet in School: Closing the Knowledge Gap? In S. Livingstone and M. Bovill (Eds.), *Children and Their Changing Media Environment: a European comparative study* (pp. 221-244). Lawrence Erlbaum Associates, Mahwah, NJ.

[41] Tolsá, J. 2012. *Los menores y el mercado de las pantallas: una propuesta de conocimiento integrado*. Foro Generaciones Interactivas, Madrid.

[42] Valkenburg, P. M., and Peter, J. 2011. Online communication among adolescents: An integrated model of its attraction, opportunities, and risks. *Journal of Adolescent Health*, 48, 2, 121-127.

[43] Vandebosch, H., and Van Cleemput, K. 2009. Cyberbullying among youngsters: profiles of bullies and victims. *New Media and Society*, 11, 8, 1349-1371.