Playing digital security - Youth voices on their digital rights

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Abstract

The United Nations (UN) Convention (1989) on the Rights of the Child changed the way children are viewed and treated worldwide. The Convention has been affecting governments, civil society and the private sector. ICT driven companies on the internet should not be an exception. According to Livingstone, Carr and Byrne (2015), Internet governance bodies have given little consideration and reflection to children's rights. In this paper, it is proposed that in order for youth actively participate in an increasingly digital environment; they need to know better their rights to privacy and freedom of expression, among others. Although the understanding of the digital environments principles lies beyond the scope of average children's school curricula, they can however play and discover simple technological concepts in the classroom. Thus, by early developing their literacy on digital identity management, they will be able to navigate, communicate, play and learn online more safely, achieving a responsible connected presence. A qualitative study on a visually oriented encrypted learning activity (game) among a group of students aged 16-18 years old, of the third cycle of Basic Vocational Education has been conducted with the following aims: a) to understand how knowledge about security technological processes can improve youth's capability for managing their digital identities; b) to understand the value of pedagogies of play. Using participant observation, focus group and interviews, youth behaviours and attitudes towards this game based learning approach as well as their perceptions of their digital rights are presented.

Keywords: Digital security; Game based learning; Children rights

Introduction

Media Literacy as a Matter of Children Rights

Human rights are inherent to all human beings, despite their age, gender, nationality, religion, language, or any other status. Human beings are all equal and their rights and freedoms are interrelated, interdependent and indivisible and derive from dignity and worth that are intrinsic to the human person (United Nations Human Rights Council [UNHRC], 1948). However, the definition of minor can vary upon country jurisdiction, being 18 the generally accepted age for majority, means that children are under the age of legal responsibility and competence and should not be treated in the same way as adults. Nevertheless their rights are to be respected and protected (UN, 1989). The full rights of children are set out in the United Nations Convention on the Rights of the Child, adopted by the United Nations General Assembly in 1989. Four general principles guide the rights of the child – the principle of non-discrimination on race, gender, sexual orientation, identity, nationality, religion, ethnicity, disability; the principle of protecting and acting on the best interest of the child as a primary consideration in all decisions that will affect children; the principle to equality of opportunities for all children to reach their full development; and the principle of considering the voice of the child that must be heard and respected in all matter concerning his/her rights (UN, 1989; UNICEF, 2009). The Convention changed the way children are treated worldwide. Children have rights and their views and voices are to be considered, being recognized as active participants in society. The Convention has been having a great impact in all fields of society leading to the need to adjust the world in guaranteeing the respect and protection for children's rights (Lievens, 2011; Holloway, Green & Livingstone, 2013; Livingstone, 2013; Livingstone & Bulger, 2013).

There is a generalized consensus that "promoting and enhancing media literacy, for child and adult populations, is of growing importance, in a context of digital media convergence and a highly complex media and information ecology" (Livingstone, Bulger& Zaborowski, 2013). Despite students' familiarity with the Internet and other technologies, young people may or may not have the necessary skills to access, analyze and evaluate the information or media available online (Hobbs, 2008). Frau-Meigs, Flores, Tort & Velez (2014) state that core media and information skills include operational skills (including coding and computing), editorial skills (including multimedia writing-reading-producing and mixing) and organisational skills (including navigating, sorting, filtering, evaluating) are central to media education in a digital age. Beyond its importance as an individual skill, media literacy opens social and cultural dialogue that emphasizes its plurality. People don't create meanings individually, but as members of "interpretive communities" (Radway, 1988; Livingstone, Wijnen, Papaioannou, Costa & Grandio, 2013) where particular literacy practices evolve.

In this frame of thought the traditional literacy of *reading, writing* and *arithmetic* is not enough in an increasingly digital environment and multiple literacies should be framed in the Children rights or digital rights.

Multiliteracies or media literacy discussions pay more attention to processes of education and social uses. Yet, new and pressing issues arise in an ICT-driven economy with a complex socio-technical infrastructure (Livingstone, Wijnen, Pappaioannou, Costa & Grandio, 2013). The simple activities of creating an account on the Internet and login, which are considered a commodity, require reflexive knowledge about digital identities management both in terms of digital footprints and basic security requirements. Although the understanding of the digital environments principles lie beyond the scope of average children's school curricula, they can

however play and discover simple technological concepts in formal or informal education that empower them to manage their digital identities as well to frame their identities protection as a matter of rights. However, up until now, what has been done to protect children in the digital environment?

Internet governance bodies have been using an "age-blind" (emphasis from authors) approach to users online, which

> does not offer the possibility of understanding who is on the other side of the screen, more particularly, what age is that person, the main assumption being about their being adults. This 'everyone'-based approach used online does not meet, respect or protect the rights of the children in a digital era (Livingstone, Carr & Byrne, 2015).

Livens (2011) research offers a great contribution and added-value to the study of children's rights online, as she managed to categorize into legal qualifications the online risks researchers have been identifying in the literature, offering a classification of (1) online risks, (2) their legal impact in the broader legal disciplines, which makes a direct link between communication field and the role of law, and (3) the role of the child (child as a recipient, as a participant and as an actor). As she explains, the role children play as active members in social networks sites (victims, creators, controllers, authors, editors, disseminators, etc.) might entail different legal consequences. Another important aspect is to understand the awareness children express of their rights and the rights of others, which calls for a discussion on the liability, fault and/or blame, questioning whether children can be responsible for their acts online, or who should be held liable (Lievens, 2011).

Digital Identity Management

Digital identity is a broad concept that intersects the fields of Social Sciences, Computer Sciences and Law. For Social Sciences, the concept of identity embraces similarity and difference between the self/the group of belonging and the 'other(s)'. For example, Woodward (1997) questioned the essentialist view on identity, considering it is relational, established by symbolic marking in relation to others and maintained through material and social conditions. In fact, the tension between an essentialist and not essentialist view of identity is deeply linked to the relationship of power between social groups, which have always used the scientific facts or values and beliefs that best fit the classification systems of identification and difference.

Identity could also be seen as a process or a project: 'I' can debate myself between to be myself and to find a new sense of identity (Giddens, 1997) and the identity construction happens in a close relationship with social groups and communities. When we talk about cultural or gender identity, for instance, we articulate the identity concept in the context of a social, shared meaning. In this case identity means identification with the similar other ones. The ways in which identity has been defined are undergoing profound changes in the contemporary world (Buckingham, 2008). The question of identity is not only about personal development, but deals with the self-determination struggles occurring in several parts of the world. The increasing globalization with the decline of the welfare state and the increasing social mobility and flexibility at work are developments that contribute to a feeling of uncertainty and fragmentation. Therefore, in the contemporary world, identities result from a multitude of sources - nationality, ethnicity, social class, community, gender, and sexuality -, which may conflict, in the construction of identity positions, resulting in contradictory and fragmented identities. After all,

the identity gives us a place in the world and is a link to the society in which we operate (Woodward, 1997).

Using the Internet has become part of the daily habits of a constantly growing number of people, and this process has evolved to become a bidirectional exchange of information where the 'audiences' are able to be consumers and producers of information. This trend started with the appearance of the first blogs, evolved with the paradigm of virtual reality, and has reached its current maturity with the generalization of the social networks. But as the opportunities for publishing one's thoughts, pictures, videos and whereabouts grows, the need for having these pieces of information associated with our own selves creates the need for providing information about our identity, so that one can be recognized and remembered, and our contribution does not remain anonymous. This, of course, raises the issue of managing identities, and since it takes place in a digital world, we may refer to it in Computer Sciences as the issue of Digital Identity Management.

When we consider digital identity management on the Internet, one of the first things to consider is the enormous disproportion of the scale factor. Internet users are counted by billions and this fact only, completely changes the nature of the problem, obviously quantitatively, but also qualitatively. Whereas in the confined environment of organizations, centralized repositories and management systems may be used to implement the identity management lifecycle, on the Internet there is an immeasurable number of users, an equivalent number of applications or platforms which reclaim user credentials and attributes for authentication and authorization, and to make things even more complicated, nothing prevents users from having several identities (or *personas*) which they may impersonate, according to the environment where they are required to identify themselves. Besides, due to the decentralized nature of the Internet, it is neither possible nor desirable that one single entity becomes responsible for the management of the multiple identities that each user may adopt. In fact, the extreme fragmentation of individual characteristics and the global scope of their validity imply that the users themselves should be the sole managers of their identity. This fact implies a complete paradigm shift in the way identity is managed in the Internet, which led to the concept of User Centric Identity Management (UCIM) (Jøsang& Pope, 2005).

This approach transfers to the individual the burden of enforcing the fundamental requirements of the Identity Management lifecycle, which, in a simplified approach, can be reduced to the following three generic concepts: authentication (or the ability of proving one's claimed identity), privacy (or the guarantee that one's information is not disclosed without one's consent) and trust (or the possibility to establish reliable interactions). In the current online landscape, given the inherent complexity of the interactions that managing one's identity implies, issuing responsible guidelines for safe behaviour to Internet users can no longer simply consist on lists of predetermined behaviours or situations to avoid. Much better results can be achieved if the basic concepts of the underlying interactions are clarified, so that individuals are able to avoid uncertain situations because they understand what is really going on. However, fully understanding these concepts can lie beyond the scope of the average citizen's digital literacy, mainly if their technological aspects are to be considered. Therefore, a very practical approach has to be followed for their explanation, leveraging real life identity management scenarios that users can infer by using common sense capabilities and reasoning.

A Brief History of Pedagogies of Play

The use of games for learning is timeless and global trends in educational games continue age-old traditions in social game play for a variety of purposes. One can find references to the moral and educational value of games in classical antiquity and it pervades the whole history of mankind, except the Middle Ages in which games were considered profane and immoral (Baranita, 2012; Kishimoto, 2009). In the sixteenth century, humanists developed new educational proposals through the use of games and toys (Kishimoto, 2009), namely: Rabelais (1494 - 1553), Rousseau (1712 - 1778), Froebel (1782 – 1852), Decroly (1871 - 1932) and Dewey (1859 – 1952). For Rabelais teaching should be connected to game; for Rousseau, the game could advance children learning and Froebel considered that 'a good teacher' is one who transforms the game in the art of teaching; Dewey stated that learning should be customized to the students' interest and Decroly devised a method of teaching children with disabilities through a series of educative games (Baranita, 2012). Therefore, games for learning have been seen as powerful resources with strong traditions in the history of education. In addition, game practices are directly related to concepts that connect learning with play. During the first half of the twentieth century, two prominent researchers, Vygotsky (1896-1934) and Piaget (1896-1980), also mentioned play in child development. Piaget, adopted the dominant concept of play as a free and spontaneous behaviour expression of pleasure by the child. He theorized that the cognitive mechanisms of the children were revealed during play (Kishimoto, 2009). In a socio-cultural psychology tradition, Vygotsky (1978) supported Piaget's theory that play represents free expression where the meaning of everyday objects is suspended and new meaning is produced and assigned to the objects, to others and to the self. Through play, children learn to separate their reactions to the real world from the actors, objects and imagined events of play. Vygotsky conceptualized a game as a mode of play, but one that follows more explicit rules, potentially resulting in a less fanciful experience with more effort and discontent than free play (Daniels, Cole, Wertsch, 2007).

In the 1980s, a group of researchers from the *Laboratoire de Recherche sur le Jeu et le Jouet - Université de Paris-Nord* analysed a set of meanings attributed to the concept of games and identified three levels of differentiation: the game is the result of a linguistic system that works within a social context in which the language is understood as the product of a set of facts or attitudes that give meanings to words from analogies; it is a system of rules that specifies the game type while it develops a playful activity; and it is an object that materializes in different forms (Kishimoto, 2009).

In short, children's playful experiences within a game have been found to promote cognitive development, verbal ability, divergent production, motor skills, problem solving and the ability to process information (Neto, 2003).

By the turn of the last century, video games have become a major industry in the entertainment media sector, with both offline and online modes of play, especially after the launch of the Wii console and the availability of social games on Facebook (Domínguez *et al*., 2013). The large number of players who voluntarily use video games and the importance that games always have had in learning and the broad discussion of their potential in learning (Gee 2003; 2013), is followed by a growing interest of researchers in studying the motivational and engagement factors in video games and how these can contribute to learning in school. The studies of Malone (1980) were pioneers in this field.

Video games can be seen as a new form of literacy, aligned with Paolo Freire's concept of literacy as a way to "read the world" (Gee, 2013). Ito *et al.* (2008) frame these new forms of

media literacy as a convergence of analogue and digital media, and state that more scholarship is needed, especially in the area of game studies.

A plethora of studies focusing on the negative aspects of games emerged in tandem with video games, such as the C.A. Anderson's study (2004) of the effects of violent content in games, or the Khan & Kanof (2007) report referring to video games as a pathologically addictive activity. In contrast, other studies have revealed the potential advantages of using video games in education and have identified characteristics of video game play with positive outcomes in learning (Facer, 2003; Gee, 2003; Squire, 2003; Rosas *et al*., 2003). Van Eck adds that "It is insufficient to ask what the 'effects' of digital games are on players; we need to study how players make sense of their experiences with digital games" (2015, p. 24).

As a significant scholar in games and discourse theory, James Paul Gee sees gaming as one of many routes to "situated embodied learning, that is learning by participation in well-designed and well-mentored experiences with clear goals; lots of formative feedback, performances before competence; languages and texts 'just in time' and 'on demand'; and lots of talk and interactions around strategies, critique, planning, and production within a 'passionate affinity space'…built to sustain and extend the game or other curriculum" (Gee, 2013).

One of the major barriers to the design of *situated embodied learning* in contemporary classrooms is the continued dominance of essentialist educational practices. Essentialist education is a conservative educational theory from the early 20th Century promoted by William C. Bagley (1905) in direct contrast to the progressive, constructivist theories of John Dewey (1910) and Lev Vygotsky (1978). Bagley's theory marginalized the individual interests of students and instead focused on the role of experts who efficiently teach the same disciplinary and practical subject matter for all students. It could be argued that the goals of essentialist education can be characterized more as training rather than as learning.

As a successful literacy tool for both training and learning, it is possible that games have the potential to bridge the tensions between essentialists and progressive pedagogies. For example, Gee's work is focused on games as an affordance for learning in the constructivist tradition of learning by doing. He envisions "situated embodied problem-focused well designed and well-mentored learning" for all students as the goal for public education" (Gee, 2013, p. 12). However, Gee (2013) observes that games are uniquely able to bridge at least one element of essentialist and constructivist pedagogies through embedded assessments in games. In particular, real-time feedback, levels, activity tracking, and the creative uses of modding, hacking and systems thinking are categories that correspond to contemporary goals for learning and assessment.

The present exploratory study aims to understand how knowledge acquisition about security technological processes, improves youth's capability of managing their digital identities. It also aims to understand the value playful pedagogies have in empowering young people to reflect on their identities and personal rights in a digital environment. Thus, we hypothesize that young citizens literate in managing their digital identities will be able to navigate, communicate, play and learn online safely; achieving a more responsible connected presence in order to better exert their rights to have privacy, their rights to participate and their rights to freedom of expression. It is also expected that playful pedagogical strategies in the field of digital security promote greater engagement and support motivational processes, inherent to the adoption of safer online behaviours.

In this sense, a playful activity of cryptography, using the Caesar's Cipher was created by the authors, triggering the youth's appropriation of basic concepts on digital security and reflecting

on their digital rights under the social, economic and technological conditions of the digital environment. The cryptography activity was framed in a bigger discussion about youth rights and their online data, raising the youth awareness and aiming the reflection about the previously defined research objectives.

Method

Sample

The sample consisted of 13 youth, five female and eight male, aged between 14 and 18 years old (M=15.85), students in the 8th and 9th grade of a vocational education course, with an average of 8,31 years of completed formal education. These courses were created by the Portuguese Ministry of Education, to integrate students aged at least 13years old, who failed twice or more in the basic cycle of studies. The curriculum is adapted to each specific group of students, focusing mainly on basic vocational activities, namely arts, sports and computing (Direção-Geral dos Estabelecimentos Escolares [DGEstE], 2014. As an educational solution, vocational education courses are now being abandoned and recognized as promoters of premature segregation, conditioning the youth's future academic options and reporting failure rates, substantially above the national average (Costa, 2016).

The subjects were participants of a Media and Information Literacy (MIL) project aiming the promotion of tolerance and citizenship, through media creation and analysis. In that sense, the actions described in this study were part of a longitudinal process of training and research. Participants are also inhabitants of a disadvantaged socio-economical urban area, in Lisbon surroundings, with difficulties in social integration, throughout their lives, as well as low levels of literacy in several domains.

Before the described activities, social networks' usage was accessed. All the participants reported its usage, mainly Facebook, Instagram, Snapchat and WhatsApp and it was observed that the main device for accessing was the Smartphone via Wi-Fi networks, at school, University and other public Wi-Fi networks.

Intervention

Digital Footprints. First, the basic concepts related to *e-presence* were introduced by a video about digital footprints (Jaro, 2014), as the digital traces each one of us leaves behind as we conduct our online lives (Weaver & Gahegan, 2007). The video also emphasized the social ramifications of creating such a database, triggering reflection about potential consequences in its associated subspaces, mainly communications, education, employment and personal data (Weaver & Gahegan, 2007).

After the video, a semi-structured focus group was conducted, aiming a dual purpose: gathering data on their attitudes on e-presence, data management and protection/privacy rights; and eliciting several concerns about their online safety, which frame the introduction of the playful encryption activity. Focus Group discussion topics included participants' beliefs and attitudes about digital identity, online citizenship, digital traces and commercial interests regarding personal and private data online and offline. Examples of questions used to elicit information on these areas include "Why do we find more information online about some people than about others?" or "Who is in charge of protecting our personal data online?"

As shown in Figure 1, the thematic organization of the focus group reflected not only the need of gathering information about their attitudes and beliefs, but also to better prepare and frame the playful cryptography activity.

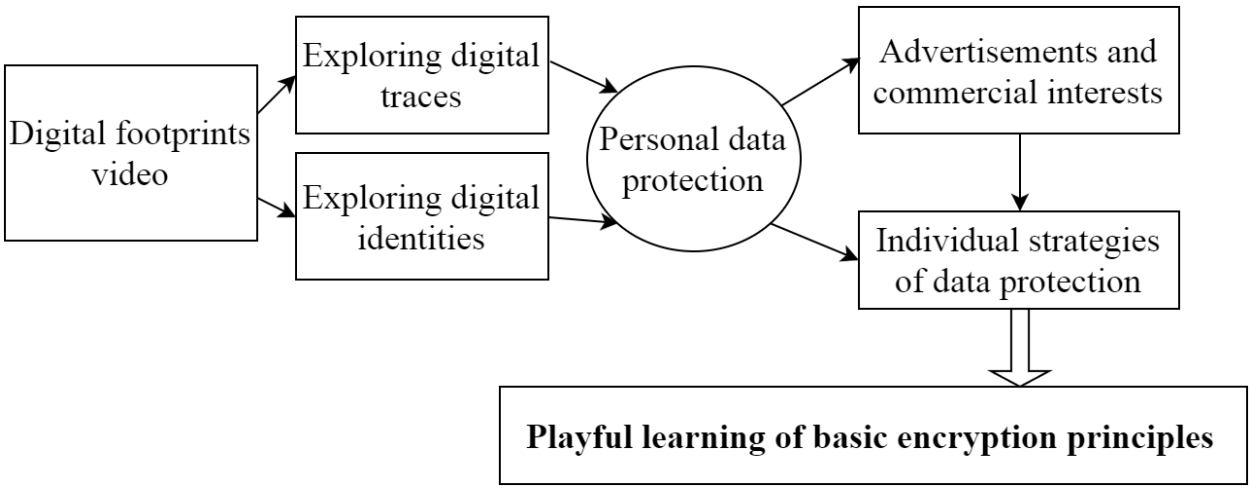

Figure 1. [Focus Group Thematic Organization].

Encryption Playful Activity. Some cryptography basic concepts were introduced in a video (Rogado, Costa & Santos, 2016) that explores the usage of the Caesar's cipher and the possible different secrets that the Latin Alphabet allows, followed by a playful activity - "The Secret Alphabet" - designed as a first hands-on introduction to digital security and, particularly, to the encryption and decryption of messages using an analogical Caesar's cipher wheel (Figure 2).

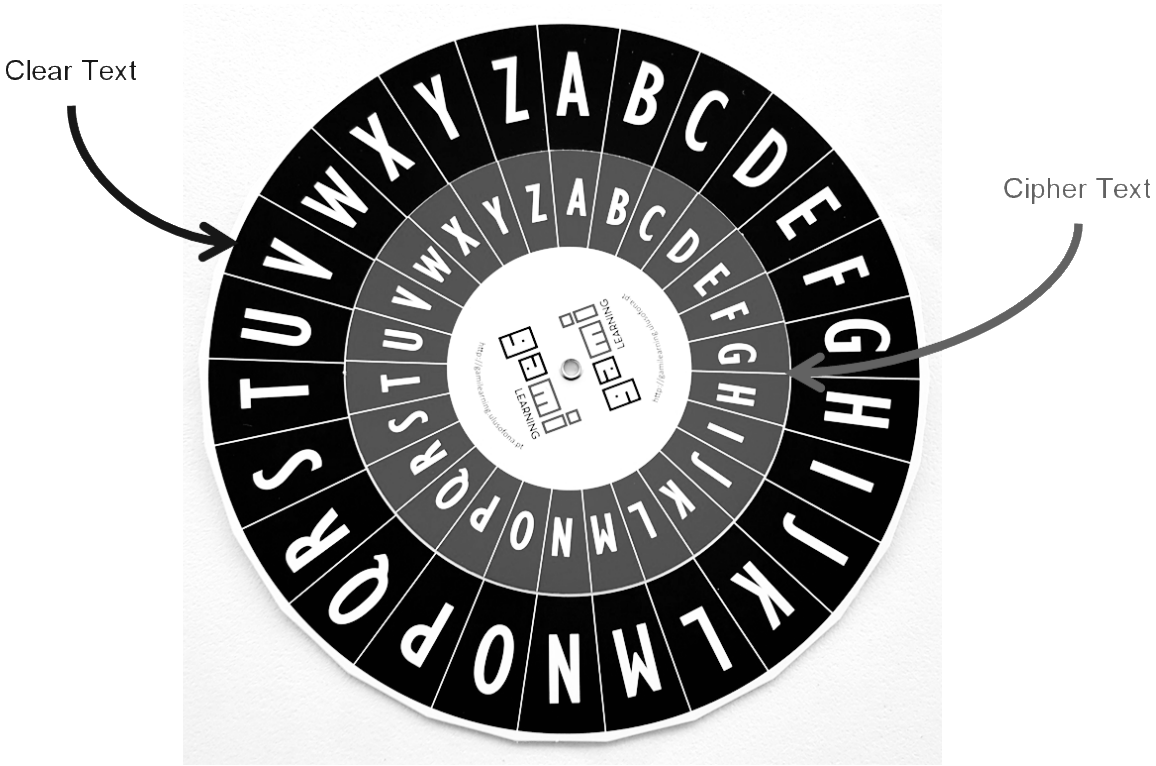

Figure 2. [Analogical Caesar's cipher wheel].

In order to simulate a real messaging scenario with users and email applications connected through the Internet, the activity divides the participants in three groups: message senders, message receivers and message deliverers (or intruders). The two messenger groups start by

sharing an encryption secret for the cipher wheel outside the room. The message senders then generate messages, encrypt them with the cipher wheel and hand them to the Internet deliverers, which forward them to the message receivers. But since the deliverers are also intruders, they try to break the code and disclose the message, using the cipher wheel and any "cryptanalytic" technique they can imagine (as schematized in Figure 3).

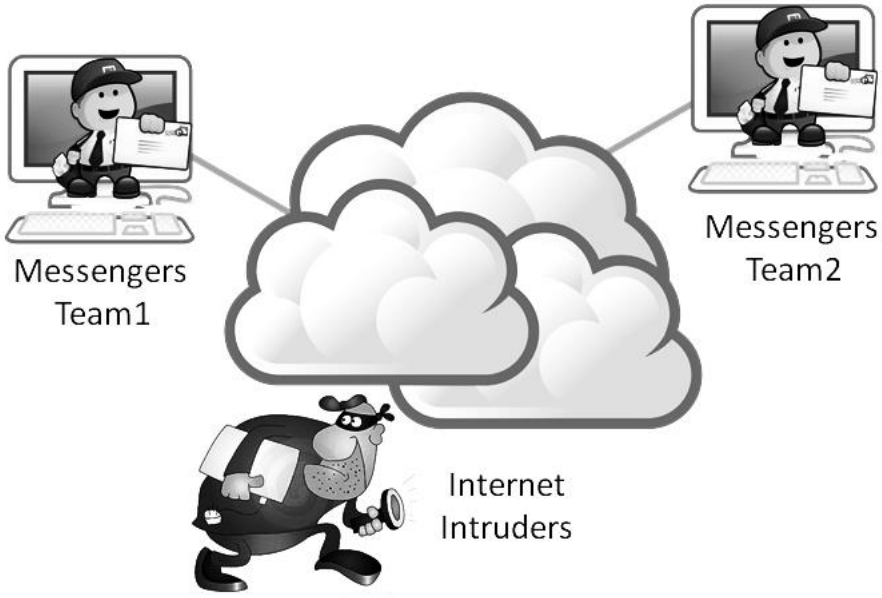

Figure 3. [Schematic representation of the playful encryption activity].

Interviews. Six participants were selected randomly to participate in individual semi-structured interviews, where previously held encryption activity was used as a trigger to elicit their attitudes and beliefs about their own online rights and how they are, or not, protected. The guidelines were based in six fundamental questions, regarding the previously covered topic, and trying to establish a parallel between these topics and the youth perceptions about human and children rights. The specific questions were conceived accordingly to the sample's literacy level, and with specific aims, as represented in Table 1. The interviewed sample was gender balanced and aged between 14 and 17 years old.

Table 1. Interview structure and specific aims.

Question	Specific Aim
What is the first thing that comes to your mind when you think about Internet?	Gather information about the online risks and opportunities, perceived by youth.
What do you know about human rights?	Elicit youth's general notions about human rights.
Do you think there is any relationship between human rights and Internet?	Understand if the participants perceive any relationship or parallelism between human rights and the digital world, mainly their own rights online.
What kind of personal data do you share online and in what circumstances?	Explore perceptions and beliefs about online data sharing
Do you think you're the same person online and in "real life"?	Gather information on perception of digital identities
How can you protect and manage your online identity? Do you know any institution that can support you in this task?	Access attitudes and behaviour on data protection and institutions able to insure this kind of protection

Analysis Strategy

Two methods of content analysis were used to identify common themes and tendencies in discourse, both in the focus group and in the interview. First, a detailed review of the notes taken during these sessions was performed, in order to identify main themes and identified non-verbal aspects. The second method consisted of reviewing transcripts of the audiotapes recorder during each session. In this analysis, questions were arranged by subject area, followed by cutting and pasting responses to these questions from the transcription. From the compiled responses emergent themes were extracted.

Results

Focus Group

Conducting the focus group showed the existence of four types of attitudes/perceptions from youth: perceptions and beliefs about digital footprints and online traces; perceptions of digital identity management; attitudes regarding the online vs. offline life and the perception of one's skills to manage their own data.

Perceptions and beliefs about digital footprints and online traces. Regarding the first attitudinal component, the youth declared unanimously to be unaware of the digital footprint concept, before viewing the video. Framed in this lack of knowledge, some of the youth were unaware of the trace their online behaviours leave, declaring discomfort to say the same things they do to other players when chatting in online games.

"I can't repeat here what we usually say…"

Working with the youth some minor technological expertise in this issue, like understanding what happens when we search our names in search engines, engaged the all group in understanding if their data are is easily accessible.

Perceptions of digital identity management. The youth revealed several ideas about who is responsible of managing our data. Mainly, this responsibility is assigned to big Internet companies, what elicits a concern about who is the owner of these companies, and what is their interest in our data.

> "I think that whoever controls our data is Google, I just don't know who the owner of Google is."
>
> "I think they are rich. Just do not know why! All that we have installed is free and they could only make money if they oblige us to pay."

After eliciting of concepts like advertisement, the entire group agreed that our data have some financial value, understanding the business model of the apparently free Internet companies.

Attitudes regarding the online vs. offline life. The group doesn't agree that the Internet is a very different world, but defined it as a different part of the "real" world, offering a set of risks and opportunities. The perception of opportunities on the internet is linked to the knowledge of all the resources it can offers, and how they can helps our daily lives, while the perception of risks is mainly bound to the beliefs of social contact loss and addiction.

> "When we are on the Internet we interact differently, we have much more help to do what we need, while in real life we have to understand everything by ourselves."
>
> "Internet spoils people's social contact. We can be all together, but we end up being always distant."
>
> "Social Networks can ruin one's life. It's a waste of time and we get addicted."
>
> "It really depends on the person. Extroverted people will never get so addicted to the Internet, while an isolated person may be more addicted, to have a focus in life."

Nevertheless, the majority of youth see the Internet as having more risks than opportunities, framing it as a negative thing, mainly for "psychologically susceptible" individuals, referring isolation and addiction several times.

Perception of one's skills to manage their own data. Regarding the perception of their own skills to manage and protect their data online, the youth's attitudes were framed in a paradoxical view of both fear and avoidance and awareness of the need for concern. Even if these beliefs seem opposite, both rely on a sense of lack of knowledge to effectively protect and manage their digital identity.

> "If I think about it too much, I'll be worried, so I do not think."
>
> "The only thing I know is that we shouldn't give too much information on the Internet."

Encryption Learning Activity

The participant observation in the visually oriented, analogical and gamified encryption learning activity allowed some notions related to the group's engagement and distresses in understanding the cipher's principles.

When asked about what they have learned from the encryption activity:

> "I learned that we can make games that motivate us ... we can talk using code in a fun way"
> "I have learn how to code/decode messages…it could help me in the future"
> "The Caesar Cipher is related with security, only knows who has the secret. We need to know how to think…and it can be a game also…so we will remember more of it".

The level of engagement in the activity also seemed to be higher in the more participative elements in the previous focus group. In addition, comparing to previous experiences with this activity in similar age groups, a relationship between the levels of literacy and the engagement with encryption games could be equated.

Interviews

Interviews were conducted with the aim of eliciting youth's perceptions about Internet, their online practices and their views on their (children) online rights. The most referred concepts are illustrated in Figure 4, being social networks the most prominent, followed by danger, games, people, curiosity, communication, school, connection and work.

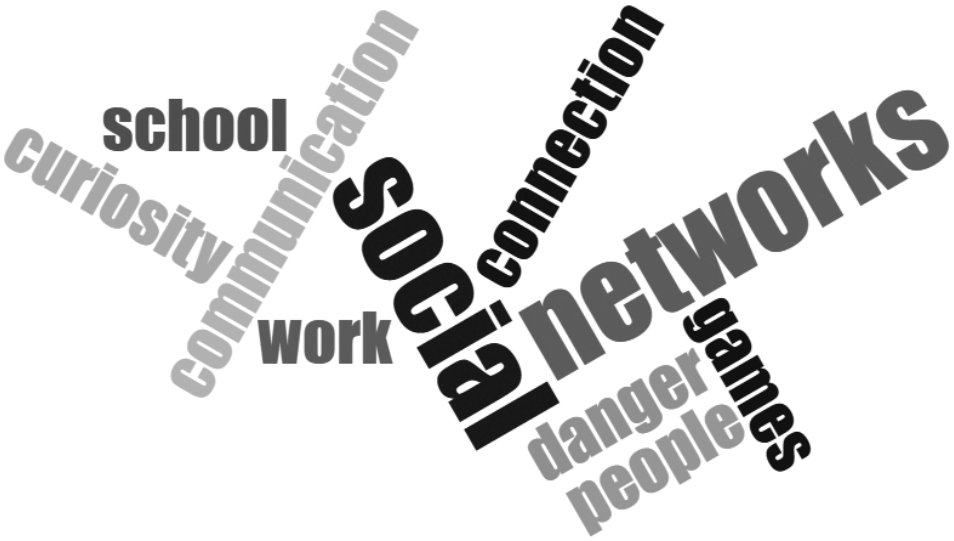

Figure 4. [World Cloud of spontaneous perceptions about Internet].

Most of the participants recognized school as a crucial agent in their acquisition of the basic notions about human and children rights. The most referred rights are related with privacy, education, protection, equality, home conditions, perceived as basic human rights for the majority. Children's rights are rarely specified by the participants, referring mainly protection and the moral duty of every citizen to protect children. When trying to understand youth's attitudes regarding the relation between human rights and Internet, it's possible to elicit concepts like freedom of expression and privacy, what could be related with the focus group and encryption activities. These results are summarized in Table 2.

Table 2. Most emphasized rights, distributed by areas where the participants most commonly allocated them

Notions about specific rights	Human Rights	Digital Rights	Children Rights
Education	X		
Privacy	X	X	
Protection	X		X
Equality	X		
Home conditions	X		
Freedom of expression	X	X	

Youth perceive Internet as a place where people have more rights but only the rights to privacy and freedom of expression were elicited by them:

> "In the Internet I have the right to do everything."

The youth also tend to reinforce the Internet's role in the dissemination of social injustices, as an attempt to sensitize people to help solve them.

When asked about what is the information they usually share online, the participants refer, mainly, age, photos of themselves, information about their interests and hobbies and, in some cases, information about the place where they live. The views were very diverse, regarding digital identity, as, or not, the same as the "real" identity. Two of the youth referred the use of avatars as a digital identity management resource, although in very different senses, one of them as a direct representation and the other as a strategy to overcome gender discrimination.

> "I use an avatar, but it looks like me."
>
> "I usually use an avatar. It represents some aspects of me, like my personality, but usually it is a male. In the online world, girls are not taken very seriously (…)."

To manage the privacy of their online accounts, youth mainly referred, to accept the privacy definitions of each online game or social network, without searching for additional configurations. Otherwise, they seem to be selective regarding the content they share among close friends or relatives and the content they share openly, revealing also some concerns, leading them to omit personal data that could identify them and refuse to meet strangers:

Youth didn't reveal knowledge about governmental or nongovernmental institutions whose work can help them with digital security matters. Only one participant reveals an awareness of some anti cyber-bullying campaigns.

When asked about the encryption learning activity, youth emphasized its playful characteristics as an easier and more effective way of learning about security proceedings that, otherwise, they tend to see as too complex for them. The participants also perceived this experience as relevant for their future online experiences and behaviours.

Discussion

In the present exploratory study, a game was introduced to motivate and empower youth in learning basic concepts of security, framing this type of competencies under media literacy "umbrella" that is transversal in the school curriculum of Basic and Secondary education, in this European region.

The results from observation and interviews show that youth value not only learning in a gamified way, as well as they recognize the acquired knowledge as important for their online protection and their future as citizens.

Youth perceptions of digital identity management rely on external attributions of responsibilities in the matter, being Google and Facebook the most appointed companies in charge of managing people personal data. Perceived online opportunities and risks are a clear point of contention among these young people with a minority of youth supporting a more reparative view, where risk and opportunities come together.

Considering, in the frame of Human rights, the literacies that citizens need to operate in a society with a complex techno-social infrastructure, whether it is called, media literacy, multiliteracies, transliteracy, pedagogies of play seem very adequate to empower children to participate actively in protecting their data, as a matter of digital rights. It is also relevant to refer the promotion of critical thinking skills, even if not directed with digital rights, as a key point in youth's education, promoting their ability to engage and understand the importance of technological processes in the management of their online identities. The intervention's observation process justified this perception of media literacy as crucial part of citizenship, and of one's ability to preserve their freedom of expression.

It was also noted the concern of young people with the way they are providing data online. The acquisition of some technical expertise is understood as a way to objectify these feelings of concern, answering to this self-perceived need of protection. In addition, the gamification characteristics of the studied activity seem to appeal, not only the understanding of the inherent cryptography principles but also the perception of technical skills as a relevant part of digital security and privacy.

Youth's knowledge about children's rights is very superficial, which is often the cause of difficulties when they are confronted with objective situations. When talking about human/children rights on the Internet, Youth's belief that they have more rights than they really have raises the question of children liability as formulated by Lievens (2011).

Grounds for future research

As an exploratory study, it's not possible to obtain generalizable conclusions about the effectiveness of gamified digital security learning programs, framing the ground for further research on the matter, both in formal and informal educational contexts. Consequently, more research on games as part of youth culture and as an affordance for learning in the constructivist tradition of learning by doing (Gee, 2013) should be conducted.

Media literacy or multiliteracies, as a set of competencies that include digital identities management, should be framed in children rights since rights are to be respected and protected (UN, 1989). Therefore, it is very relevant for all society, to promote further research on fostering multiliteracies and children's rights, in order "to find a balance between a protectionist approach and a responsible and mindful one that also understands children's right to access information, media and culture, the right to privacy and active participation in social and cultural forums" (Livingstone, Carr &Byrne, 2015).

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