TRANSMEDIA LITERACY IN THE NEW MEDIA ECOLOGY: TEENS' TRANSMEDIA SKILLS AND INFORMAL LEARNING STRATEGIES

Alfabetismo transmedia en la nueva ecología de medios. Competencias transmedia y estrategias de aprendizaje informal de los adolescentes

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Abstract

The emergence of new media and platforms has compelled media literacy scholars to review their theoretical frameworks and methodological approaches. Based on a new conception –'transmedia literacy'– that moves from traditional media literacy (teaching critical media skills at school) to informal learning and participatory cultures, the research behind the present article aims to understand how new generations are doing things with media and how they learn to do the things they do. The outputs of this international research that involved 8 countries were organised into three sections: 1) transmedia skills, 2) informal learning strategies and 3) emergent issues regarding teens, new media and collaborative cultures. Finally, the article deals with the future perspectives of transmedia literacy as a research and action programme.

Keywords

Media literacy; Transmedia literacy; Transmedia skills; Informal learning strategies; Short-term ethnography.

Resumen

La emergencia de nuevos medios y plataformas de comunicación ha obligado a los investigadores y profesionales de la alfabetización mediática a revisar sus marcos teóricos y enfoques metodológicos. Basada en una nueva concepción –el "alfabetismo transmedia"- que pasa de la alfabetización mediática tradicional (basada en la enseñanza de competencias críticas en la escuela) al aprendizaje informal y las culturas participativas, la investigación detrás del presente artículo busca comprender cómo las nuevas generaciones "hacen cosas con los medios" y cómo aprendieron a hacerlas. Los resultados de esta investigación internacional que involucró a 8 países se organizaron en tres secciones: 1) habilidades transmedia, 2) estrategias de aprendizaje informal y 3) otras cuestiones emergentes relacionadas con los adolescentes, los nuevos medios y las culturas colaborativas. Finalmente, el artículo reflexiona sobre las perspectivas futuras de la alfabetización transmedia entendida como un programa de investigación y acción.

Palabras clave

Alfabetización mediática; Alfabetización transmedia; Competencias transmedia; Estrategias de aprendizaje informal; Etnografía a corto plazo.

1. Introduction

Since the diffusion of personal computing in the 1980s and the expansion of the World Wide Web in the 1990s, digital technology has been a catalyst for social change in contemporary societies. Many researchers, institutions and professionals argue that while the media system has adopted and adapted to new digital technologies, twenty years after the emergence of the Web, schools still perceived the 'digital transition' as a traumatic process (*EAVI/DTI/OII*, 2011). Although schools have made great efforts to adapt to the new socio-technical conditions in the past two decades, the general perception is that the social life of children, pre-teens and teens is built up around a set of digital technologies – from social media to mobile devices- and new practices that are frequently very different from the educational protocols of schools.

The vast diffusion of digital technologies and new media practices has led to the emergence of new conceptions in the academic and professional conversations about media literacy. As early as 2004 Livingstone proposed that research

> 'must investigate the emerging skills and practices of new media users as the meaningful appropriation of ICT into their daily lives […] A top-down definition of media literacy, developed from print and audio-visual media, while a useful initial guide, should not pre-empt learning from users themselves' (**Livingstone**, 2004, p. 11).

The emergence of new concepts runs parallel to the emergence of new theoretical frameworks and research methodologies. **Buckingham** (2006) asked, 'What do young people need to know about digital media?'; in this research, another question orientates the reflections: How can researchers get to know and analyse what young people are doing with digital interactive media?

According to **Hartley** (2009)

> "Teens evidently don't see computers as technology. It's as if they have developed an innate ability for text-messaging, iPodding, gaming, and multitasking on multiple platforms. They can share their life story on Facebook, entertain each other on YouTube, muse philosophically in the blogosphere, contribute to knowledge on Wikipedia, create cutting-edge art on Flickr, and compile archives on Del.icio.us. Some can do most of these things at once, and then submit their efforts to an online ethic of collective intelligence and iterative improvability that is surely scientific in mode. But they learn very little of this in school" (**Hartley**, 2009, pp. 129-130).

Obviously, the 'innate abilities' indicated by Hartley are not inherited traits passed down from generation to generation. As Hartley describes it, something is happening outside the school: social and technological changes have reframed the meaning of lifelong (over time) and life-wide (across locations) learning (**Sefton-Green**, 2003; 2006; 2013), and the

emergence of new participatory practices (**Jenkins** *et al.*, 2006; **Lange**; **Ito**, 2010) has redefined the ways of learning and even the actual concept of 'media literacy'. In this context the idea of 'transmedia literacy' proposes a move from traditional media literacy –understood as teaching critical media skills at school (**Potter**, 2004; 2005)- to the analysis of practices of participatory cultures, youth-generated contents and informal learning strategies, and their use inside the formal educational system (**Scolari**, 2016; 2018).

This article presents the main outputs of a research carried out in eight countries (Australia, Colombia, Finland, Italy, Portugal, Spain, United Kingdom, and Uruguay) with the participation of more than 30 senior and junior researchers. The aim of the research was to understand how young people are acquiring transmedia skills in informal learning settings. This article will only focus on two of the main objectives of the research:

- To better understand and analyse how teens engage in, develop and share transmedia skills in informal learning settings.
- To identify the transmedia skills and informal learning strategies developed by teens.

2. Transmedia skills and informal learning strategies

Young people's level of digital or Internet practices and skills has been analysed in depth in the last decade. According to **Livingstone**:

> Practices and skills can more easily be separated in principle than in practice. For example, if a child edits a video and uploads it to *YouTube*, this represents a set of digital practices, but it also requires –and thus provides evidence for- a set of digital skills. Surveys reveal that they are positively correlated –more practices build skills, more skills encourage practices (**Van-Deursen**; **Helsper**; **Eynon**, 2015)-. But the correlation is not perfect: one may undertake practices for which one lacks the skills; and one may know how to do things but not actually do them in practice. So the distinction remains, even though in everyday life they are strongly connected (**Livingstone**, 2016, p. 15).

Any research about young people's digital or Internet practices and skills should avoid the temptation of considering all young people 'digital natives':

> Many of today's teens are indeed deeply engaged with social media and are active participants in networked publics, but this does not mean that they inherently have the knowledge or skills to make the most of their online experiences. The rhetoric of 'digital natives', far from being useful, is often a distraction to understanding the challenges that youth face in a networked world (**Boyd**, 2014, p. 337).

Research into teens' digital and Internet skills has been oriented towards mapping the real level of these skills beyond the 'digital natives' mythology. For example, *EU Kids Online* (**Livingstone**; **Haddon**, 2009) analysed 25,000 European 9-16 year-old Internet users' online activities, skills and self-efficacy. Although the body of available stu-

dies continues to grow, the *EU Kids Online* team concluded that 'there are significant gaps in the evidence base' and recommended expanding the research agenda to include, for example, issues like how young people use the Internet. They proposed carrying out more in-depth research into the following skills:

- Skills of navigation and searching, content interpretation and, especially vital, critical evaluation –all important for media literacy and online learning.
- User-generated content creation and other forms of networking –increasingly important for identity, sociality, creativity and civic participation (**Livingstone**; **Haddon**, 2009, p. 27).

The concept of 'transmedia skills' is very close to this research agenda. In the context of the present research, 'transmedia skills' are understood as a series of competences related to digital interactive media production, sharing and consumption. Previous research in this field (e.g. **Jenkins** *et al.*, 2006) has identified numerous skills including playing, performing, appropriating, judging, transmedia navigating, networking, and negotiating. Transmedia skills range from problem-solving processes in videogames to content production and sharing in the context of web platforms and social networks; the creation, production, sharing and critical consumption of narrative content (fanfiction, fanvids, etc.) by teens is also part of this universe.

> " Since the diffusion of personal computing in the 1980s and the expansion of the World Wide Web in the 1990s, digital technology has been a catalyst for social change in contemporary societies "

Although the concept of 'informal learning' was introduced by Knowles in *Informal adult education* (**Knowles**, 1950), John Dewey and other early 20th century education philosophers such as Mary Parker-Follett encouraged and valued informal learning practices (**Conlon**, 2004). A classic definition of informal learning comes from **Coombs** & **Ahmed** (1974):

> Informal education is 'the lifelong process by which every person acquires and accumulates knowledge, skills, attitudes and insights from daily experiences and exposure to the environment' (1974, p. 8).

Informal learning strategies were present long before the emergence of formal educational systems; for example, in libraries, churches, and museums. However, the role and structure of informal learning have evolved over the past years. Today, technological advances have expanded traditional informal learning spaces by creating new spaces like social media, websites, online communities, etc. According to **Black**, **Castro** & **Lin** (2015):

> Formal learning environments remain important while informal learning environments are gaining increasing significance as they play a key role in the modern education of our youths (…) Youths in our digital age are self-taught, forming communities of culture as they im-

merse themselves in social media outside of our class-rooms (2015, p. 2).

As a consequence of these mutations in the mediasphere, in the last decade research on informal learning has expanded to also include digital collaborative environments and analyse how teens are using social networking sites for learning (**Sefton-Green**, 2003; 2006; 2013).

3. Methodology

As in many other ethnographic works with teens, a series of research constraints and requirements prevented us from using conventional long-term ethnography; therefore, the research team moved towards another set of ethnographic methods. In this context, the team was particularly inspired by the notion of 'short-term ethnography', which involves intensive explorations of people's lives,

> 'which use more interventional as well as observational methods to create contexts through which to delve into questions that will reveal what matters to those people in the context of what the researcher is seeking to find out' (**Pink**; **Morgan**, 2013, p. 352).

In this short-term focus, the ethnographer is situated at the centre of the action right from the start, and engages participants in the project with this intention clearly stated (**Pink**; **Ardévol**, 2018).

The fieldwork strategy for gathering data was carried out in five complementary steps:

a) Schools as the starting point for fieldwork, a secure way to obtain the informed consents of institutions, parents and teens;

b) An initial questionnaire to get to know the teens' socio-cultural backgrounds and media uses and perceptions;

c) Participatory workshops to explore in an immersive way the teens' transmedia storytelling practices and engage them in media production and gameplay; and

d) In-depth interviews with the most active teens and media diaries to get to know their doings and sayings with media, social networks and videogames.

e) The last phase of the data-gathering process was an online observation of the teens' favourite websites, celebrities, and online communities (netgraphy).

Fieldwork was carried out in the eight participant countries. Thus far, 1,633 questionnaires, 58 workshops (participatory culture and videogames), and 311 interviews have been performed, and 8 online communities have been observed. The research focused on teens between 12-15 and 15-18 years old from different schools (urban/rural, public/private, homogeneous/heterogonous, high-tech/low-tech, etc.). A series of EU approved protocols were implemented to preserve privacy and ensure the security of personal data; the protocol included the authorisation of schools and informed consent signed by teens and their parents.

For data analysis the team relied on *NVivo 11 Pro for teams*, a server-based software for qualitative data analysis useful for organising, storing and retrieving data from different sets of sources, and which allows several users to work simultaneously. This software made it possible to combine several kinds of multimedia source materials into units of observation (cases), and to create analytical matrices by cross-matching and merging previous nodes.

4. Results

This section presents the main outputs obtained from processing and analysing the data gathered during the fieldwork.

4.1. Map of transmedia skills

A series of taxonomies of skills were reviewed in the starting phase of the research, from **Bloom**'s traditional taxonomy introduced in 1956 (**Bloom**, 1956) to **Anderson** & **Krathwohl**'s taxonomy (2001). Other contributions that were considered for creating the map of transmedia skills were **Ferrés-Prat** & **Piscitelli** (2012) and the very well-known contribution by **Jenkins** *et al.* (2006), a researcher who identified a series of skills from the analysis of teenagers' media consumption and activities in the US (Table 1).

The research team took into account these previous taxonomies to generate a complete and updated taxonomy, which

Table 1. New media literacy skills (**Jenkins** *et al.*, 2006)

Skill	Description
Play	Capacity to experiment with one's surroundings as a form of problem-solving.
Performance	Ability to adopt alternative identities for the purpose of improvisation and discovery.
Simulation	Ability to interpret and construct dynamic models of real-world processes.
Appropriation	Ability to meaningfully sample and remix media content.
Multitasking	Ability to scan the environment and shift the focus onto salient details.
Distributed cognition	Ability to interact meaningfully with tools that expand mental capacities.
Collective intelligence	Ability to pool knowledge and compare notes with others to achieve a common goal.
Judgment	Ability to evaluate the reliability and credibility of different information sources.
Transmedia navigating	Ability to follow the flow of stories and information across multiple modalities.
Networking	Ability to search for, synthesise, and disseminate information.
Negotiation	Ability to travel across diverse communities, discerning and respecting multiple perspectives, and grasping and following alternatives.
Visualisation	Ability to interpret and create data representations for the purposes of expressing ideas, finding patterns, and identifying trends.

is one of the most exhaustive maps of skills related to media production, consumption and post-production in the context of youth transmedia culture: more than two hundred main and specific transmedia skills were identified during the research. After analysing the emerging skills, the team decided to create a taxonomy that integrates many of the previous classifications. However, this taxonomy does not reject previous (or future) classifications.

The transmedia skills were organised into 9 dimensions, each of which included 44 main skills, and in a second level, 190 specific skills. Depending on the dimension, the organisation of the taxonomy of transmedia skills revolves around texts, subjects, technologies and processes. The skills were organised, when possible, following a path from writing (*to write short-stories*) to multimodal productions (*to film and edit a video*), from simplicity (*to search content*) to complexity (*to manage social media and blogs to archive content*), from technical (*to take photos*) to critical and ethical practices (*to be aware of the risks of self-exposure on social media*), and from cognitive (*to recognise and describe genres in different media and platforms*) to pragmatic attitudes (*to select and consume/quit a content based on aesthetic and narrative values*). As it is impossible to mention all of them, the following paragraphs only present the main skills and a short description of them.[1]

> 'Transmedia skills' are understood as a series of competences related to digital interactive media production, sharing and consumption

Production skills: This refers to the ability to conceive, plan, produce, edit and/or re-appropriate contents through different media platforms and languages (texts, audio, audio-visual, code...). This set of skills also involves both operational and creative skills. Main skills:

- Create and modify: written, photographic, audio, and audio-visual productions; drawings, and designs; videogames.
- Use: writing software and apps; audio recording and editing tools; drawing and design tools; photographic and editing tools; filming and editing tools, tools for video game creation and modification.
- Code, build and modify software and hardware.
- Use coding and ICT tools.
- Create cosplay and costumes.
- Content management: This refers to the ability to manage different media contents through a range of platforms and media: to select, download, organise and disseminate. Main skills:
- Search, select, and download
- Manage content archives
- Manage content dissemination and sharing

Individual management: This refers to the subject's ability to self-manage resources and time, and their own identity, feelings and emotions. Main skills:

- Self-manage
- Manage personal identity
- Manage personal feelings and emotions

Social management: This refers to the ability to communicate, coordinate, organise, lead and teach while gaming and producing collectively. This set of skills also includes skills related to participating in social media. Main skills:

- Participate in social media
- Collaborate
- Coordinate and lead
- Teach

Performance: This dimension includes all kinds of performing media activities using the body, be it in real life scenarios (performing arts) or virtual scenarios (videogames). In the specific case of videogames, this set of skills refers to in-game and individual activities. Main skills:

- Play videogames
- Break the rules
- Act

Media and technology: This dimension includes all the skills related to having knowledge about socio-political media economies, a subject's personal media diet, and technological features and languages. This set of skills also includes skills related to taking action regarding this knowledge. Main skills:

- Recognise and describe
- Compare
- Evaluate and reflect
- Take action and apply knowledge

Narrative and aesthetics: This dimension includes skills related to interpreting storytelling and narrative structures, as well as delving into the narrative construction through the analysis and evaluation of the genres, characters, aesthetic features, etc. This set of skills also includes the ability to reconstruct the transmedia narrative world. Main skills:

- Interpret
- Recognise and describe
- Compare
- Evaluate and reflect
- Take action and apply knowledge

Ideology and ethics: These skills refer to detecting and analysing media representations of stereotypes (in terms of gender, race, culture, religion, etc.) and ethical issues related to copyright, cheating (mainly in videogames) and hacking. This focuses particularly on how teens discuss stereotypes, gender issues, and intercultural issues, among others. This set of skills also includes the behavioural sphere through the actions taken in response to these ideological and ethical topics. Main skills:

- Recognise and describe
- Evaluate and reflect
- Take action and apply knowledge

Risk prevention: This dimension includes the skills related to knowing about and taking measures in relation to privacy and security in media (in particular social media). This set of skills also includes skills about managing and reflecting on their

Figure 1. Map of transmedia skills and informal learning strategies

own identity, and possible addictions to media. Main skills:

- Recognise and describe
- Evaluate and reflect
- Take action and apply knowledge

As it can be seen, the map produced by the research team presents a comprehensive description of the different transmedia skills that may be present in teens' practices (Figure 1). Obviously, not all young people have these skills or have them to equal degrees: while a teen may have many productive or social management skills, he or she may have very little ability to detect and analyse media representations of stereotypes. These and other issues emerging from the identification of transmedia skills will be presented and discussed in the next section.

4.2. Map of informal learning strategies

Also in this case the research team reviewed different taxonomies and reviews of informal learning strategies before working on its own proposal (e.g. **Conlon**, 2004; **Sefton-Green**, 2003; 2006; 2013). Compared to the many existing taxonomies of skills and competences, there are few references to classifications of informal learning strategies. The main problem with the existing classifications is that they are not formal taxonomies: for example, a classic strategy like 'learning by doing' may include 'problem solving', which other researches may consider as an autonomous strategy. To avoid this problem the team, in a first step, reorganised a series of well-known informal learning strategies into six modalities (Table 2):

Table 2. Modalities of informal learning strategies

Modalities	Description
Learning by doing	This refers to the strategy in which the learner puts into practice a set of activities related to the skill they want to acquire. These activities usually involve trial and error processes that gradually help the learner perfect said skill.
Problem solving	This refers to the strategy in which the learner is faced with a problem or issue that motivates them to acquire the right skill to solve it.
Imitating/Simulating	These refer to the subject's ability to self-manage resources and time, as well as their own identity, feelings and emotions.
Playing	This refers to the strategy in which the learner acquires a certain skill by engaging in gamified environments.
Evaluating	This refers to the strategy in which the learner acquires or perfects a skill by examining their own or others' work, or by others examining their work.
Teaching	This refers to the strategy in which the learner acquires a skill by transmitting knowledge to others, inspiring the learner to master an existing skill or to gain another one that helps them in the teaching tasks.

Table 3. Towards a taxonomy of informal learning strategies: dimensions and oppositions

Dimensions	Oppositions	Description	
Subject(s)	**Individual / Collaborative**	Informal learning strategies may be developed / applied by a single person or with others. The main question is: How many subjects participate in the informal learning experience?	
	Situational interest / personal interest	In this case the opposition focuses on the subject's motivations. The main question is: Why is the learner looking for a specific knowledge or skill?	
Time	**Sequenced/ Exceptional**	Informal learning strategies may develop as a continuous activity following a sequence over time or they could be reduced to specific and single interventions. The main question is: What are the time patterns of the informal learning experience?	
	Short term / Long term	Informal learning strategies may be limited to short-term actions (a few minutes) or long-term actions (a gameplay video may last many hours). The main question is: How long is the informal learning session?	
	Planned / Unplanned	Informal learning strategies may be planned or not. The main question is: Has the informal learning experience been planned or not?	
Space	**Designed / Non-designed places**	Informal practices may develop in places that have been (or not) created for learning. The main question is: Where does the informal learning experience occur?	
	Offline / Online spaces	The main question is: Does the informal learning experience occur in a virtual space or in a physical location?	
Relationship and roles	**Knowledge transmission**	From adult to teen.	In these cases it is possible to identify two roles, a 'teacher' and a 'learner' (pedagogical strategy). The main question is: How is knowledge transmitted from subject to subject?
		From teen to teen.	
		From teen to adult.	
	Knowledge construction	Adult and teen: Both subjects participate in the construction of knowledge.	Subjects learn together, both are 'learners' (non-pedagogical strategy). The main question is: How do subjects create knowledge collaboratively?
		Between teens: Both subjects participate in the construction of knowledge.	

In a second step, the research team introduced formal categories to create the taxonomy. In this context, the six modalities were intersected by four main dimensions (subject, time, space and relationships), each of these encompasses a series of categories and oppositions. For building a set of categories and oppositions, **Hidi** & **Renninger**'s distinction between *situational interest* (short lived, typically evoked by the environment) and *individual interest* (more stable and specific to an individual (cited in **Bell** *et al.*, 2001, p. 131) was a useful starting point. In addition, **Bell** *et al.* (2001) proposed three venues or configurations for learning: *everyday informal environments* (such as family or peer discussions and activities, personal hobbies, and mass media engagement and technology use), *designed environments* (such as museums, science centres, botanical gardens, zoos, aquariums, and libraries), and *out-of-school and adult programmes* (such as summer programmes, clubs, and science centre programmes). This logic was applied to each dimension (subject, time, space and relationships) (Table 3).

Beyond the limits of contemporary taxonomies of informal learning strategies, the introduction of a series of dimensions and oppositions in a second level is a useful analytical tool for mapping any kind of informal learning practice. The following example shows how this works:

> Timo[3] (male, 18 years old, Finland): *I know quite a lot about technology, I'm usually the one who fixes things in my family. My parents don't know that much about computers and other stuff. They ask help from me quite often in their problems.*

This is a teaching modality, based on a collaborative process (more than one subject) and a situational interest (the learner performs deliberately an activity motivated by an external 'call to action'). It seems to be an exceptional, short-term, and unplanned activity. The strategy develops in an offline non-designed place (home). Regarding the relations and roles, it is a knowledge transmission strategy from teen to adults.

Although one of the final objectives of research in this field should be the construction of a formal classification of informal learning strategies, at the moment scholars can only aspire to producing a general map of modalities, dimensions and oppositions to introduce some kind of order into this field.

5. Discussion

This section introduces a series of critical aspects concerning the maps and taxonomies of transmedia skills and informal learning strategies, as well as a selection of emerging issues that could be expanded in a future research agenda and/or included in (trans)media literacy actions.

Regarding the maps and taxonomies, the reader should remember that the transmedia skills and informal learning strategies that have emerged from this research have been obtained from analysing a wide-ranging selection of settings in eight countries and highly diverse teen profiles. In the specific case of the interviews and media diaries, the research team focused on the participants who had excelled in the workshops for their dedication and expertise in participatory culture, social media and videogames (e.g., the most active, the geekiest, gamers who have their own *You-*

Tube channel or record gameplays, etc.) and who had expressed interest in continuing to participate in the research (**Scolari**, 2017).

As already indicated, not all teens have all of these skills or apply all of these informal learning strategies, as many other similar research projects have shown (**Boyd**, 2014; **Ito** *et al.*, 2010; **Livingstone**; **Sefton-Green**, 2016). Indeed, the team detected a broad spectrum of situations, skills, strategies, content production/sharing/consumption processes and alternative uses of media. In this context of rapid mutation of media environments and cultural practices (possibly one of the most challenging research territories but, at the same time, one of the most difficult to deal with), concepts like 'digital native' (**Prensky**, 2001a; 2001b) should be completely eradicated from scientific discourses. On the other hand, there is a countermovement from 'digital natives' to almost 'digital dummies' that considers teens to be passive subjects of the 'new technologies' (**Dans**, 2017). Both figures, the digital 'native' and the digital 'dummy', have no place in any scientific conversation about teens, transmedia skills or informal learning strategies. As Boyd puts it:

> Neither teens nor adults are monolithic, and there is no magical relation between skills and age. Whether in school or in informal settings, youth need opportunities to develop the skills and knowledge to engage with contemporary technology effectively and meaningfully. Becoming literate in a networked age requires hard work, regardless of age (**Boyd**, 2014, p. 338).

The next paragraphs present an initial set of issues emerging from the map of transmedia skills and informal learning strategies developed here. As already indicated, many other outputs of the present research –from a detailed analysis of online platforms to a comparative analysis between countries- will not be included in the present article as they will be disseminated in other on-going publications.

'Obviously, not all young people have these skills or have them to equal degrees: while a teen may have many productive or social management skills, he or she may have very little ability to detect and analyse media representations of stereotypes'

5.1. Transmedia skills

The following is a set of critical issues related to transmedia skills that has emerged from the research and that should be taken into account in future studies and media literacy actions inside the formal education system.

- *Transmedia skills have a diverse and uneven topography*. The skills that emerged during the research cover both a broad media spectrum in which teens (and many adults) 'live' and, at the same time, a wide-ranging list of abilities, from the most technological to the more ideological or aesthetic capacities. It should be noted that some of the skills detected are very marginal and only developed

by a handful of teens (e.g. the skills related to ideology and values), while others are much more widespread (e.g. productive skills). This is important from the perspective of future media literacy actions: there is a much higher probability of having teens with an elevated level of productive skills in the classroom than teens with ideological or ethical skills. Media literacy strategies should take up the productive skills and re-contextualise then in order to promote a critical approach to media production, sharing and consumption.

- *Transmedia skills evolve with the media ecology*. While some of these transmedia skills change very little over time (e.g., those related to ideology and values), other skills are subject to incessant technological change (e.g., those related to social networks). Therefore, the skills and the taxonomy proposed by the present research team should be periodically updated according to the accelerated mutations of the media ecology.

- *Transmedia skills are gender-biased.* Although it was not an initial objective of the research, the team observed gender differences among teens in relation to their transmedia skills. For example, girls use media focusing on relational aspects (social media) and participatory culture, while boys tend to focus on playful aspects (videogames). In the context of the taxonomy presented in this article, this means that girls show more transmedia skills in relation to the production of fanfiction or photo editing, while boys show more skills in the dimension of performance. These observations concur with previous studies of media consumption that have already highlighted the persistence of gender differences among adolescents (**Livingstone**; **Bober**; **Helsper**, 2005; **Shaw**; **Gant**, 2002; **Weiser**, 2004). As stated by **Masanet** (2016), gender differences in relation to media uses and consumption are worrying because they indicate that there are two stereotyped spheres in media consumption that connect the girls with more intimate, sentimental and emotional aspects, and the boys with action, violence and humour.

- *Teens are aware of the necessity of acquiring risk prevention skills.* One of the dimensions that is of greatest concern to parents, teachers and educational stakeholders is the one related to the risks and dangers that digital media (social media, mobile devices, etc.) may pose for adolescents. In the context of the present research, it has been observed that teens have already acquired what the team defines as 'risk prevention skills'. These skills cover a wide spectrum of situations, from the most basic skills (recognising and describing how privacy and security measures work on hardware, software, and social media) to the more complex ones (managing relations and contents taking into account privacy and security issues).

It should be remembered that, as indicated above, the research only worked with the most media-active adolescents; obviously, these reflections could not be extended to all teenagers. Despite this, the researchers' perception is that teens recognise possible risks and they are aware that they may experience them so they are concerned about them.

According to the logic behind the present research and the

actual concept of 'transmedia literacy', any action in the classroom that has the objective of acquiring or expanding transmedia skills should involve the teens in the learning process. Student-generated content production should be one of the key features of a student-centred learning process. In this context, the map of transmedia skills is a useful tool for developing didactic activities in the classroom and not only activities related to media or digital practices.[2]

> ' The skills that emerged during the research cover both a broad media spectrum in which teens (and many adults) 'live' and, at the same time, a wide-ranging list of abilities, from the most technological to the more ideological or aesthetic capacities '

5.2. Informal learning strategies

Many valuable issues related to informal learning strategies have emerged during the research that should be taken into account in future research actions in this field.

- *Traditional learning strategies in new environment.* The number of informal learning strategies identified during the research was not as high as the number of transmedia skills identified. As already indicated, these strategies were organised into six modalities, some of which are already recognised in the formal educational context: learning by doing, problem solving, imitating/simulating, playing, evaluating and teaching. What varies is the context in which these strategies take place (e.g. through videogames and social media) and the form they adopt (e.g. real-time collaboration with peers from other countries in online spaces). The research team also observed that teens carry out traditional learning strategies, individually and collaboratively, when they acquire media skills outside formal educational settings. In this specific case, these strategies are developed mainly in a digital environment where entertainment predominates and ends up being the motivating factor. As a series of researchers have already pointed out, *motivation* seems to be the magic word both in formal and informal learning experiences (**Ferrés-Prat**, 2008; 2014; **Ferrés**; **Masanet**, 2017).

- *Imitation vs. creativity.* Throughout the research the team observed that imitation is one of the main informal learning strategies that teens use. For example, teens watch *YouTube* videos of their favourite gamers to observe how they perform (e.g. how they solve problems, how they manage characters, etc.) and imitate them in their own game sessions. This practice calls into question the growing popularity of the claim about the 'endless creative capacity of teens'. Adolescents acquire many of their skills by just imitating online situations and processes. Even when they produce their own contents, they still look for inspiration (or something more) from other users. In any case, from the perspective of transmedia literacy the level of creativity of the final product is not as important as the collaborative and interactive production process behind it.

- *The hegemony of YouTube as a learning environment.* One of the main findings of this project is the centrality of *YouTube* in teens' lives. It is a key element of their media culture and, in some cases, it has become their main source of information. *YouTube*, more than *Google*, is for many teens the main search engine. Moreover, youtubers (vloggers) have become aspirational models for teens (many claim to want to become youtubers in the future, and it is considered a profession), which entails elements of identification and attraction towards them.

  Researcher: *So if you are stuck on a level, you go on to YouTube and look at – try and get advice do you?*

  Jamie (male, 16 years old, United Kingdom): *Yeah, if I have been trying at it for like a good hour or two, I will go on and try and figure out how to do it that way.*

  Researcher: *How do you search for it?*

  Jamie: *I just search, I put… say if the game is* Far Cry*, I would search up* Far Cry *for and then type in the level name, and then it should come up. And then just click the top one.*

  Researcher: *So when you get stuck you get advice from YouTube.*

  Jamie: *YouTube, Google, well whatever I can. Sometimes I will phone a friend, one of my friends, if they know how to do it.*

  It is therefore important to analyse *YouTube* and the relationship teenagers have with it, and in particular the social and educational roles of emerging *YouTube* celebrities.

- *Teaching means learning.* Parents and adults perceive teens as more competent than themselves in the digital media field. Adults come to teens for advice, placing them in the position of teacher. At the same time teens also acquire or consolidate transmedia skills during the teaching process. In this context teaching is learning. This situation is fairly common among adults and teens but it is very popular among teens (e.g. teens record gameplays to explain how to play a videogame to classmates). These findings should be taken into account by formal education institutions when new didactic strategies are programmed.

Finally, a short reflection on the methodological aspects of the research. The application of a short-term ethnographical approach (**Pink**; **Morgan**, 2013) was discussed at length by the team during the research design process. The geographical extension of the project (eight countries from three continents) and the variety of settings and situations were the reasons the team chose this approach. A long-term approach –like the one applied by **Livingstone** & **Selfton-Green** (2016), which lasted for one year in a single UK school– would have been almost impossible to apply in the context of the present research.

The short-term ethnographic approach provided the team with a large amount of in-depth data that went far beyond the objectives of the research. The raw data coming from surveys, workshops, in-depth interviews and media diaries was a solid base for the identification of transmedia skills and informal learning strategies. The material from

the fieldwork was high-density information; for example, a 60-minute interview with a young gamer could take up to 8 hours for its first codification with *nVivo*. Future applications of this kind of approach will be very useful for making periodic upgrades of the two maps of transmedia skills and informal learning strategies, or obtaining answers for other questions regarding teens' activities in media and online environments.

6. Conclusions

The concepts of 'transmedia skills' and 'informal learning strategies' were at the centre of the present research. The inclusion of the concept of 'transmedia' (**Jenkins**, 2003; 2006; **Scolari**, 2009, 2013) for defining teens' skills is a clear sign of the centrality that collaborative culture and transmedia production/sharing/consuming practices have in young people's lives. The same may be said about 'transmedia literacy': it is not just a new name for traditional digital or Internet skills but a brand new approach that considers the subject as a prosumer (producer + consumer) and not just a passive and alienated-by-media person. If traditional literacy was book-centred or, in the case of media literacy mostly television-centred, then transmedia literacy places digital networks and interactive media experiences at the centre of its analytical and practical experience (**Scolari**, 2016, 2018).

> *YouTube*, more than *Google*, is for many teens the main search engine

Unlike previous research into the crossroads where teens, media and cultural practices converge, the present study did not aim to measure the level of teens' Internet or digital skills. Many studies have already done this both in Europe and the US with high-level research outputs in terms of skill levels, international comparisons, etc. (e.g. **Livingstone**; **Haddon**, 2009). These studies were particularly important for mapping the territory and orienting the corresponding media literacy actions. As the main questions of the present research were 'What are teens doing with media and how did they learn to do it?', the study focused on obtaining a better understanding and analysing how teens engage in, develop and share transmedia skills in informal learning settings. The main output of this part of the research was an exhaustive map of transmedia skills especially designed for orienting future interventions in the context of (trans)media literacy actions. Consequently, the team activated the production of a series of didactic activities to take up and apply these skills inside the classroom (Teacher's Kit).

It was not easy to identify and analyse the informal learning strategies. These 'wild' experiences are often invisible or directly rejected by (adult) researchers:

> So much is projected onto youth that it is often difficult to discuss what they are doing, and why, without observation being obscured by ideas of what they *should* or *shouldn't* be doing. Youth are rarely seen as deserving any agency and, yet, they are also judged based on what they choose to do [...] people think that they know something about youth either because they were once

young or because they are parents to a young person (**Boyd**, 2014, p. 34).

If researchers like **Sefton-Green** (2003; 2006; 2013) have delineated new territories in the study of teens' informal learning strategies, the present study went one step further by expanding the range of strategies and introducing a first set of categories and oppositions for their classification.

As already indicated, further research is needed in the field of teens' collaborative culture and transmedia production/sharing/consuming practices. As a consequence of the accelerated rhythm of technological evolution and the rapid changes in the media ecology, many of the cultural practices, transmedia skills and informal learning strategies identified and classified in the present research may need to be periodically updated. In any case, the most urgent issue is to activate proposals for reducing the distance between formal educational environments and the extremely active 'digital lives' of teens in social media and online environments. The outputs of the present research can serve as an orientation for defining and designing proposals in the context of (trans)media literacy programmes.

Notes

1. The complete list of transmedia skills can be consulted and downloaded here:
http://transmedialiteracy.upf.edu

2. The transmedia skills and informal learning strategies identified during the present research will be used to develop a Teacher's Kit with didactic activities. The objective of the Kit is to exploit the transmedia skills that teens may have inside the classroom to learn any kind of subject (not just related to media or technology).

3. All names have been changed to protect the teens' identities.

7. Acknowledgments

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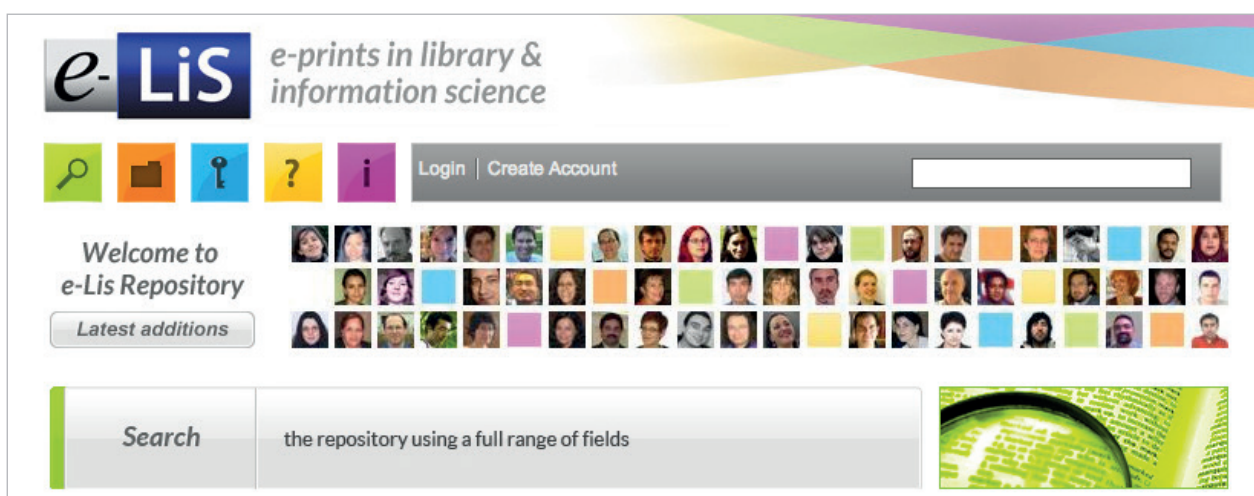https://doi.org/10.1080/1369118X.2015.1078834

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