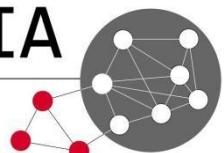|	
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UOXF	The Chancellor, Masters and Scholars of the University of Oxford	UK
JYU	Jyväskylän Yliopisto	Finland
UMINHO	Universidade do Minho	Portugal
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UNITO	Università degli Studi di Torino	Italy
ARS MEDIA	Ars Media SRL	Italy

RMIT University (Australia) participates in the research but is not a beneficiary of the TRANSLITERACY Project.

How can schools support transmedia skills?

Exploring the case of creativity in Europe

The notion of the "digital native" has become pervasive in popular discourse about young people and new technologies. In this discourse, parents and teachers ("the digital immigrants") have been characterised as unable to support young people in their uses of new technologies because (unlike the digital natives) the immigrants were not born into a world surrounded by new technologies. Yet in contrast, empirical research has shown that there is limited empirical basis for a distinction in the ways that people use new technologies because of when they were born and that young people are not all the same – they engage with new technologies in a variety of ways and vary considerably in their transmedia skills to use new technologies. Drawing on multi-method data from the TRANSLITERACY project from five of the partner countries (Portugal, the United Kingdom, Finland, Italy, and Spain**)**, this paper explores how schools can support young people in developing such skills, with a particular focus on creative practices.

1.   Introduction

Across Europe there is significant policy interest and commitment the in promotion and support of new technologies and creativity for educational purposes (both for economic and individual benefits). Increasing domestication of the Internet and ownership of other new technologies mean that young people in Europe are relatively well connected, and the rise of Web 2.0 has led to increased opportunities for participation & network effects, supporting a range of informal learning opportunities for young people. However, there remain significant challenges for schools to support digitally mediated practices and the development of transmedia skills.

Drawing on multi-method data from the TRANSLITERACY project from five of the partner countries (Portugal, the United Kingdom, Finland, Italy, and Spain**)**, this paper explores how schools can support young people in developing such skills, with a particular focus on creative practices. While a number of previous studies have shown that young people's uses of technologies for creative practices are relatively low

(Davies and Eynon, 2013), creativity and creative thinking is important for questioning and challenging conventions and assumptions; making inventive connections and associating things that are not usually related; envisaging what might be: imagining – seeing things in the mind's eye; trying alternatives and fresh approaches, keeping options open; and reflecting critically on ideas, actions and outcomes (QCA, 2005).

Following the work of Reid and Petocz, we suggest schools could "set conditions of learning where creativity is enhanced in the process of learning and is evident in the products of learning" (Reid and Petocz, 2004). Technology in schools can be used to support these processes to learn to be creative and learning through being creative, which can connect with and draw on young people's existing digital practices outside school. This can be achieved through a variety of means e.g. using technologies to develop ideas, make connections, creating and making, collaboration, communication and evaluation (Loveless, 2002). However, for schools supporting young people in their use of technology not least due to the digital native rhetoric. (Helsper and Eynon, 2010)

The digital native rhetoric

"Digital native" is one of a group of terms – net generation, Google generation or millenials etc. – which make strong claims for the significance of technologies within the lives of young people. For some (e.g. Prensky 2001; Rainie 2006; Gibbons 2007; Palfrey & Gasser 2008; Tapscott 2009), new technologies have been such a defining feature in the lives of younger generations that they predict a fundamental change in the way young people communicate, socialise, create and learn: "These kids are different. They study, work, write, and interact with each other in ways that are very different from the ways you did growing up" (Palfrey & Gasser 2008:2); "they took to it [technology] like ducks to water" (Tapscott 2009:1).

These digital native construct is part of a relatively long tradition where the relationships between young people and new technologies have been viewed in essentialist terms. Work from this tradition either puts forward a dystopian view where vulnerable children will be exploited by this technology or a utopian view where

children, unlike adults, have a natural innate ability to use and excel at using technologies (Buckingham 1998). Thus, while the term "digital native" was not introduced until 2001, the notion has been around far longer: indeed, Selwyn identifies six discourses about young people and new technologies in the UK prominent in media and policy circles since 1980 to 2000. All of these discourses are in some way technologically, socially or biologically deterministic. These include: the 'natural' child computer user where children are seen as having an innate ability to use technology; the 'adult' child computer user where children are expert and teachers novices and young people have to show adults (in a non threatening way) how to use technology; and the 'victimized' child computer user where innocent young children are exposed to undesirable content (Selwyn, 2003: 355-366). These discourses can be seen as important in a broader economic and political sense, supporting both the commercial markets for new technologies as well as the implementation of IT government strategies (Selwyn 2003).

Empirical research has presented a more fine-grained and balanced picture of how this supposedly homogenous generation actually engage with new technologies, especially in their own time, within their own settings (e.g. DiMaggio & Hargittai 2001; Facer & Furlong 2001; Livingstone & Helsper 2007; Bennet, *et al*. 2008). Helsper & Eynon (2009) point out that empirical research which looks at technology use across national populations suggests that generation is only one of a number of the predictors of technology use; other factors such as experience, gender and educational levels are also important (Helsper and Eynon, 2009).

Thus, critiques of this discourse are not particularly new (e.g. Thurlow &McKay 2003; McCay *et al.* 2005; Brown *et al.* 2008; Kennedy *et al*., 2008; Helsper & Eynon 2009; Jones & Ramanau 2009). Nevertheless the digital native perspective still perpetuates and is perhaps even gaining increasing currency within discussions about the future direction of education. The digital native notion becomes a kind of shorthand argument in this respect which claims that formal education short-changes young people who can do so much more on their own initiatives, and in their own contexts, than adults are aware of or can engage with. This, we argue, disempowers schools from supporting their students.

In this paper we examine young people's transmedia skills and informal learning strategies, with a particular focus on creativity. Drawing from the data, we then examine the role schools could or should play in supporting these practices.

2. Methods

The TRANSMEDIA research team employed a rapid ethnographic approach to this work to investigate the technological practices of teenagers. The fieldwork strategy for data gathering occurred in five steps: 1) Schools as the starting point for fieldwork, a secure way to obtain the informed consents of institutions, parents and teens; 2) An initial questionnaire to get to know the teens' socio-cultural backgrounds and media uses and perceptions; 3) Participatory workshops to explore in an immersive way the teens' transmedia storytelling practices and engage them in media production and gameplay; 4) In-depth interviews to the most active teens and media diaries to get to know their doings and sayings with media, social networks and videogames; and 5) Online observation of the teens' favourite websites, celebrities, and online communities (netgraphy). Fieldwork was carried out in the 8 participant countries, and resulted in n. 1.633 questionnaires, n. 58 workshops (participatory culture and videogames), n. 311 interviews have been performed, and 8 online communities have been observed. The focus on this paper is on the data from the five European countries engaged in the study (Portugal, the United Kingdom, Finland, Italy, and Spain). Table 1 summarises the information by country.

Fieldwork	
Sample population per country	
Country	Fieldwork
Spain	Total questionnaires: 100 Total Workshops: 8 Total in-depth interviews: 40 Total online communities observed: 1
Finland	Total questionnaires: 74 Total Workshops: 8 Total in-depth interviews: 20[1]

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[1] Finland case: Initially, n.37 student volunteered for the interview; but many of them cancelled last minute. In the end, 26 interviews were conducted. Despite several attempts, the Finnish research team

	Total online communities observed: 1
Italy	Total questionnaires: 97
	Total Workshops: 8
	Total in-depth interviews: 39
	Total online communities observed: 1
Portugal	Total questionnaires: 77
	Total Workshops: 8
	Total in-depth interviews: 40
	Total online communities observed: 1
United Kingdom	Total questionnaires: 113
	Total Workshops: 8
	Total in-depth interviews: 52
	Total online communities observed: 1

Table 1 - Fieldwork and sample overview

All data from the project was thematically coded and analysed. Data analysis was carried out in accordance with the principles from the qualitative tradition. The analysis took place via three interrelated and circular stages of reducing the data: 1) coding, searching for patterns and identifying categories, 2) displaying the data (primarily via the use of tree diagrams and matrices); and 3) drawing and verifying the conclusions by noting similarities / differences and testing propositions (Miles and Huberman, 1994; Boulton & Hammersley 1996). An overview of the key findings from all participating countries is provided elsewhere. Here, we focus on the similarities and differences between the five European countries, with a particular focus on the issue of creativity.

3. Findings

Young people are acquiring some skills through their organic use of technology outside of school, while using technology, interacting with friends, playing video games, etc. (Ito et al., 2010).

In this TRANSLITERACY Project, transmedia skills are viewed as a series of competencies related to digital interactive media production, sharing and consumption as those identified by Jenkins et al. (2006). These skills range from problem-solving processes in video games to content creation and distribution on web

could not find other volunteers to substitute those who had withdrawn. Furthermore, two memory cards used to record interviews and workshops were found corrupt and so their contents were lost. In the end, Finland could only analyse 20 interviews.

platforms and social networks; the research is also focused on the narrative content (fan fiction, fanvids, etc.) produced and shared by teenagers on digital platforms. The TRANSLITERACY project expanded the existing maps of skills to identify new skills and and improve their classification.

The TRANSLITERACY collaborators have identified an extensive list of transmedia skills, which can be examined on pages 17-50 of deliverable D4.2 and six types of informal learning strategies (listed as Table 7 on page 56 in deliverable D4.2).

The overarching findings show that young people engage in numerous digital practices. In some ways, young people are quite skilled at using the technologies outside of school, yet while teenagers engage in some forms of creative practices (i.e. the creation of YouTube content), other forms of creativity are relatively rare. We examine these findings in more detail in the section below.

3.1. Teenagers' informal learning strategies

The six types of informal learning strategies (learning by doing, problem solving, imitation, playing, evaluation, and teaching) are summarised in Table 2 (also listed as Table 7 on page 56 in deliverable D4.2).

Modalities	Description
Learning by doing	It 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	It 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	They refer to the ability of the subject to self-manage resources and time, own identity, feelings and emotions.
Playing	It refers to the strategy in which the learner acquires a certain skill by engaging in gamified environments.
Evaluating	It refers to the strategy in which the learner acquires or perfects a skill by examining their own or others' work, or being examined by others.
Teaching	It 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 add another one that helps them in the teaching tasks.

Table 2 – Description of Informal Learning Strategies

Teenagers in this study employ all six informal learning strategies. Learning by doing, imitation, and evaluation of information are perhaps the most common across the

European countries engaged in the TRANSLITERACTY project, and are discussed below (see also deliverable 4.2 for full overview).

Learning by doing and imitation

In the case of the teenagers in our study, learning by doing and imitation go hand in hand. In both Spain and Italy, YouTubers are highly respected as sources of information. Many teenagers use YouTube to watch tutorials on various subjects and activities. This is one of the most common ways of learning about software, video games, and new technlogy – watching a YouTuber's tutorial, followed by one's own trial and error. In particular, trial and error in gaming (eg. getting to the next level), and learning how to use new apps, is a skill widely developed by teenagers using technology. For example, when a participant from Spain was asked asked how they learned to structure video content, the participant replied, 'It's how YouTubers do it,' and clarified that watching the YouTubers' videos helped to give the participant inspiration. Another student, from Finland, shared, 'I've watched Youtube tutorials about some stuff, for example one was when we tried to find some info from Youtube, can't remember what about. If I need to find something, I just go to Google first.'

Searching for and evaluating information

Teenagers across Portugal, the United Kingdom, Finland, Italy, and Spain utilize similar informal learning strategies, particularly when it comes to searching for and evaluating information. Across these European nations, teenagers use Google, social media, YouTube, Wikipedia, friends, and family to search for information. While using technology and search engines is a very common way for teenagers to do research or learn how to use new technology, teenagers look to their family members to both learn and teach more technically oriented information (eg. how to get started with new mobile phone). Teenagers often also teach their parents, or younger siblings may teach the older ones. For example, one Italian participant shared how they taught their father to use certain technologies: 'I think that today the boys teach their parents how to use the electronic media because we pass more time with these things, so ... my father asks me to insert the names in rubric, because for him it's an hard work...and

then I teach him how to use Facebook, we are a family that uses to go on the websites.'

3.2. Teenagers' creative pursuits online

For many teenagers, the Internet and social media have provided increased opportunity to share original creative content. In the UK, Spain, Italy, and Portugal, YouTube is a common platform onto which participants in this research upload and share their video creations. Some have their own YouTube channels, and upload videos regularly for their Followers to watch. A popular activity in the United Kingdom is to record oneself while playing a video game, and upload that video to YouTube to share with other gamers. One student in Spain alluded to the same activity, and discussed their interest in creating a YouTube channel for original content after watching a friend do the same. This student 'saw [the friend] uploading a video on YouTube, and then, we made two or three videos.' Students from all of these countries look to YouTubers as sources of information entertainment and learning.

Moreover, some teenagers use the Internet to share their original artwork. For example, to get work experience, one participant from the United Kingdom, who enjoys drawing manga and anime, had contacted a company in Japan that produces anime art and received payment for commissions. The student has 'been doing that for I think about four months now so and they just send me cheques through the post.' Only the student's trusted close friends knew about this arrangement. The student was concerned her parents would find out because they were 'completely against social media' so (s)he would 'never talk to my parents about this job.'

However, not all teenagers utilize the Internet for creative purposes, and relative to other forms of digital engagement such as entertainment and information seeking, it is a less common occurrence. This is due to a number of complex and inter-related reasons, based on access to technologies, motivations, social connections and support as well as specific skills. Amid the teenagers who enjoyed creating, perceived lack of technical skills were relevant constrains to share their creations with others.

3.3 Digital Natives?

As noted in the introduction, teenagers are often described as Digital Natives – born into a generation that constantly uses technology and social media, and are therefore equipped with the skills needed to use such technologies. While findings from Spain and Italy confirm that teenagers use media to fit their needs and interests, the data from across the countries highlights that we cannot make the assumption that teenagers are Digital Natives as there is significant differences across and between groups.

In the United Kingdom in particular, there were persistent digital and social inequalities among young people that illustrate that not all teenagers are Digital Natives. One student from the U.K. shared, 'My dad don't use the phone or Facebook or anything. Because my dad, he never really went to school, that's the only reason I come to school a lot because I'm trying to do something my dad never did because my dad left school and he can't read or write …I don't know about anything else, all I know about is Facebook.' While this student from the U.K. illustrates social and economic constraints to their learning these technical skills, other students are also lagging behind their peers in these technical skills. Portuguese teens are not regular content producers, and most of them showed little interest in being so, sometimes due to their lack of technical skills for more complex creations. One Portuguese student said, 'I've always wanted to do it [publish fanfiction]. But I don't know what programs to use and I haven't a lot of time because of school. I already don't have time to read, much less for those things. Besides, I haven't a lot of imagination.'

We argue that there is an important role for schools in supporting young people to develop their transmedia skills, with a focus on creative practices.

3.4 Supporting young people in developing transmedia skills

Contrary to popular assumptions young people do need support in developing transmedia skills and schools have an important role to play in facilitating this practice. Here we highlight how young people have different motivations and interests in engaging in digital practices, and how, contrary to the rhetoric around young people privacy considerations feature importantly in their practice.

3.4.1 The role of gender in transmedia skill acquisition

We have observed that that there are some gender differences in social media use, and this also translates into the transmedia skills developed as a result of technology and web 2.0 use. Web 2.0 offers varied opportunities in terms of collaboration and publication – enabling an authentic audience (Crook, 2008). Results from Spain indicate that girls use media focusing on relational aspects (social media) and participatory culture, while boys tend to focus on playful aspects (video games). Furthermore, girls tend express more transmedia skills in relation to the production of fan fiction or photo editing, while the boys show more skills in the dimension of performance. These observations confirm findings from previous studies (Livingstone, Bober & Helsper, 2005).

Furthermore, there are gender differences in the types of activities and media platforms that will get teenagers engaged in creating online. Drawing on social constructivist ideas of learning, individual interests and motivations are important to connect with. Gender is an important and complex area, and requires more exploration in further analyses of the transliteracy data.

3.4.2. Intercultural motivations

Interestingly, some young people are motivated to engage across countries. Teenagers in Italy are developing as intercultural individuals, using the Internet and other technological platforms to practice languages other than Italian, and learning about the culture and popular culture of other countries. For example, some teenagers interact via chat with people from all over the world in online games such as Minecraft, mostly engaging in English but also using some words from the other languages. In these chats, Italian teenagers are learning information about the country and culture of the other players. Additionally, teenagers are looking for cultural products that are beyond the mainstream products of one's own country (i.e. Korean music groups or TV series). These products can create a common environment to share experiences and to reactivate the communication between generations.

3.4.3. Privacy considerations

Teenagers are identifying the risks associated with certain online behaviours. For example, in Portugal, teenagers utilise social media while evaluating privacy and security risks associated with sharing their personal content and talking to strangers on social media. Similarly, in the United Kingdom, some participants have considered these risks and discussed them with their parents before subsequently meeting strangers online. Some of those participants have then met these new people in person. In those cases, parents/guardians knew of the friendship, and supervised the in-person meeting. One participant had a romantic relationship that began online and via Skype, and then they met in person.

In Finland, teenagers who understood the risks associated with sharing personal information with strangers online chose instead to delete people from their social media contact lists and avoided talking to strangers altogether. Italian teenagers deal with issues of privacy by choosing what to share/not share on certain social media sites, as well as giving password access or permission to a parent or boyfriend/girlfriend. In Spain, teenagers also censor content, and are sensitive to ask their friends before sharing a picture of them online as a way of pre-emptively censoring content.

Thus contrary to popular rhetoric young people do care about their privacy, and schools need to support young people in this regard. Privacy is also an important aspect of supporting learning, where young people can be free to experiment and make mistakes without concerns of becoming visible or their activities being recorded over time.

4. Discussion and conclusion

This paper has shown that young people, in conjunction with their friends, families, and social resources are using technology for interesting purposes outside of school, but not all teenagers are the same in their nature of engagement. Some of these differences relate to personal interest and motivation, however some differences are related to variations in transmedia skills. In contrast to the digital native rhetoric, not

all young people are digitally savvy, yet others are engaging in important and meaningful creative activities. Thus, schools need to support different students, with different needs and motivations. For some young people support in using digital technologies is lacking and is having a negative influence on the range and depth of their digital engagement, whereas others are motivated to use technologies to achieve their own goals and interests and have many of the skills to do so.

The results therefore suggest a need both for a greater liberalisation of technology-supported learning practices within the school, and greater encouragement and regard for self-directed learning within the home. Yet, this also needs to be alongside a stronger set of support and advice for those young people who require guidance and additional resources and support. Creativity is one área where schools could better support young people and enhance creative practices both within and outside school settings.

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