

Learning with YouTube: Beyond formal and informal through new actors, strategies and affordances.

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Abstract: This article focuses on the results from interviews and workshops on teens' YouTube consumption and use as part of the Transmedia Literacy research project on teens and transmedia collaborative practices carried out in eight countries from Europe, South America and Australia. The project had two main objectives: to detect what teens are doing with media and to determine how they learn to do it. During the fieldwork, YouTube was identified as one of the platforms that teens use most for learning purposes. Therefore, this article maps teenagers' main YouTube learning topics and motivations for using the platform. We studied the video formats that teens use and the way they use them to learn a wide variety of topics. Three main areas of interest were identified: formal school curriculum, video games and technology and wellness and culture. In all three areas, teens apply the apprenticeship model of learning as they follow YouTube instructors (teachers, experts and peers) to learn about these areas. Teens highlight different YouTube affordances that motivate them to use the platform, including using it as a search engine to find specific information, using the number of views or subscribers to validate the quality of the content, being able to control the video to learn at their own pace and using it as a repository and archive to find information. Teens use YouTube both to complement their formal school curriculum and to explore their own interests. Therefore, YouTube becomes an important learning space for adolescents to learn in a continuum. This means that it is a space that blurs the boundaries between classic oppositions like formal/informal learning due to how teens use it.

Keywords: YouTube, tutorial, gameplay, vlogs, teenagers, digital apprentice, informal learning

Introduction

This article is an outcome of the Transmedia Literacy research project on teens and transmedia collaborative practices carried out in eight countries from Europe, South America and Oceania between 2015 and 2018. The main objectives of the project were to understand what teens are doing with media and how they learn to do it. To fulfil these objectives, the research team identified and analysed teens' transmedia practices and their main informal learning strategies to generate a complex and extensive map of transmedia skills and informal learning strategies. The team therefore focused, mainly, on the similarities between adolescents across the studied countries. Despite this, differences were also observed that were noted as future lines of research, due to the temporal limitations of the research project. During the study, it was observed that teens consider YouTube to be their main search engine, a place where they can find information on different topics and learn in a self-directed way, managing their own time and pace (Scolari, 2018). This article explores YouTube as a learning platform used by teenagers for different purposes and due to different motivations.

YouTube offers a variety of tools and affordances to its users to perform different uses and multiple social practices, among which we can also find learning practices (Pires, Masanet, and Scolari, 2019). In fact, YouTube and its celebrities (YouTubers) have become one of the most important sources of information, socialization, entertainment, learning and identification for the teenage population around the world (Aran-Ramspott et al., 2018; Masanet, Márquez, Pires, and Lanzeni, 2020; Scolari and Fraticelli, 2017).

However, since its launch in 2005, YouTube has always been at the centre of the debate on whether extensive digital media use among the young population is beneficial or in fact worrying. Burges and Green (2018) point out that YouTube, like any other media, was considered a negative medium by the general media outlets and studies, which focused on bullying and other sensitive topics. These views are usually grounded in what Marwick (2008) has called technopanic discourses that pathologize teens' media and technology uses; thus, generating societal anxiety and ignoring the possible benefits of the digital media and online activities. In fact, 'in most cases, online activities cannot be conclusively defined as generally positive or generally negative. Rather, the same activity can have positive consequences for one child and negative consequences for another' (Smahel et al., 2020: 43).

Different researchers have pointed out that adolescents seem to consume YouTube in a fairly passive way. Passivity, in these cases, is considered the main trait of teenage users, as most of them are not active sharers or producers (Pereira et al., 2019). Passivity is usually linked to consumption. Active use is usually associated with the teens' activity of sharing or producing content within YouTube (Khan, 2017). These divisions between active and passive ways of interaction with YouTube ignore the (active) individual or collective practices that are not necessarily reflected publicly on the platform, such as using YouTube for studying, preparing for exams, learning a language or even sharing created content privately between friends (Pires et al., 2019). That is why these approaches need to be nuanced, since the line between active and passive

use indicated here is blurred. In fact, for decades the works within Cultural Studies (Hall, 1999) have shown the media to be sources of layered meanings and adolescents and young people to be active and critical subjects.

Hence, the present work understands teenagers as active users even if they do not share/produce content on YouTube. We focus on the use of YouTube as a space and tool for learning about different topics. In fact, as we will see below, teens can also learn with YouTube even when it's not their primary goal.

Thus, the general objective of this article is to explore the common learning uses of YouTube videos performed by teens among the studied countries. To meet this objective, the study aims to (1) detect the common areas of interest that motivate teens to learn on YouTube; (2) understand teenagers' main goals for learning through YouTube; and (3) explore the aspects of YouTube that prompt teens to choose to use this platform for informal learning. That is, we use the concept of affordances, understood as 'the set of functions that a technology makes possible' and 'the social structures that take shape in association with a given technical structure' (Postigo, 2016: 335–336), to analyse the interactions between the platform's features and the way teenagers use them. We focus on the three most popular formats that teens use, according to the project's findings: vlogs, tutorials and gameplays.

Blurring boundaries between formal and informal learning

To use categories such as 'formal' or 'informal learning' means dealing with ideal types; that is, hypothetical models that accentuate one or more characteristics of an object or process. Since Max Weber introduced these categories in the social sciences, ideal types have been a useful analytical tool, especially for comparative analysis. It could be said that the opposition between 'formal' and 'informal learning' has led the analysis and conversations about educational processes throughout the 20th century.

Although the concept of 'informal learning' was officially introduced by Knowles (1950) in *Informal Adult Education*, John Dewey, Mary Parker and other early 20th century philosophers had already positively evaluated informal learning practices (Conlon, 2004). This specific way of learning is characterized by its integration into daily routines and the absence of an objective (in terms of learning outcomes); informal learning is mainly self-directed, not highly conscious and based on experience (Marsick and Watkins, 1990). When formal educational systems emerged between the 18th and 19th centuries, informal learning was already present in libraries, churches and museums. These institutions 'were viewed as places that encouraged exploration, dialogue, and conversation among the public' (Bell et al., 2001: 14).

One of the greatest transformations of informal learning practices would come with the emergence of the WWW in the 1990s and the explosion of social media platforms over the last two decades. These new digital environments expanded traditional informal learning spaces through the creation of 'communities of practice' (Wenger, 1998) and 'affinity spaces' (Gee and Hayes, 2012). Beyond criticisms of the wild data business of platforms (Fuchs, 2014), it cannot be denied that these spaces have exponentially

increased the production, circulation and appropriation of information and knowledge. Thus, scientific research into informal learning has expanded to digital collaborative environments (Sefton-Green, 2006, 2013). This expansion of informal learning environments runs parallel to an increased questioning of formal educational structures (Osuna Acedo, 2018).

In a complex changing world, where traditional concepts are under suspicion and could be 'retired' at any moment (Katz and Fialkoff, 2017), it is fairly evident that binary oppositions like formal/informal learning are not enough to account for the educational practices of the 21st century. Many of these concepts and oppositions were developed by social sciences for an industrial society that does not exist anymore. However, although oppositions like formal/informal learning began to be questioned more than 35 years ago (Cain, 2013; Strauss, 1984), they are still in good health. Although it is not easy to get past a solidified set of concepts and analytical categories, many researchers are working in this direction. The diffusion of ICT (Information and Communication Technologies) and the emergence of new media practices have led researchers like Sefton-Green (2006) to propose an 'ecological' conception of education where formal and informal processes are part of the same learning continuum.

Another issue to take into account is the social valorization of the knowledge acquired in informal settings. Knowledge generated in informal settings is often not valued until it is recognized by formal educational institutions. This need for 'certification' introduces a border between formal/informal learning that hides a devaluation of the knowledge constructed outside school, in a 'wild' setting. According to Sefton-Green, the knowledge economy will require 'not only formal educational experiences, but "lifelong learning" in a range of sites and over sustained periods of time' (2006: 9).

Back to the present research, as an important part of teenage students constantly use YouTube for their academic activities, as well as to access other kinds of content (González, 2018), this platform is well-suited for testing these traditional oppositions and reflecting on them. YouTube offers teenagers different content that can contribute to experiential learning processes of different kinds of information and knowledge. That is, YouTube is a platform that allows learning by doing through the 'apprenticeship model' (Bates, 2015). For Bates (2015: 100),

apprenticeship is a particular way of enabling students to learn by doing. It is often associated with vocational training, where a more experienced tradesman or journeyman models behaviour, the apprentice attempts to follow the model, and the journeyman provides feedback.

This is very similar to what Masanet, Guerrero-Pico, and Estables (2019) found when they explored adolescents' learning strategies in the digital environment. The authors conclude that teenagers mainly follow two learning strategies, 'imitation' (learning by doing) and 'learning by teaching' and, in both cases, YouTube plays a central role. It is in this context that they propose the concept of the 'digital apprentice': 'Young people who have been born and raised in a media environment that has provided them with a

digital space for learning about this digital world, that is, for acquiring transmedia skills' (Masanet et al., 2019: 402). Finally, they also highlight the emergence and importance of 'new actors' (peers, influencer, etc.) in these learning processes that take place through YouTube. These new actors could be considered the current instructors, mentors, masters or skilled craftspersons (Bates, 2015) of this type of apprenticeship. An apprenticeship that we consider to work in a continuum, where the barriers between formal and informal are diluted.

Methods

This research implemented a qualitative approach based on the precepts of short-term ethnography (Pink and Morgan, 2013). Ethnography is a reliable and well-established methodology for studies in different fields, which includes education (i.e. Street, 2014), youth and new media (i.e. Livingstone and Sefton-Green, 2016). Short-term ethnography is known for creating contexts in which researchers can go deeper into research questions in a shorter and more intense period of time compared to traditional ethnography. The research team decided to follow the short-term ethnography methodology because of the difficulties involved in working with different school settings and socio-educational environments and given the geographical extension of the study (Australia, Italy, Portugal, Spain, United Kingdom, Finland, Uruguay and Colombia) and the limited period of time to carry out the project.

The team implemented observational methods and a more interventional creative approach during the field work, substituting traditional focus groups with creative and participatory workshops for creating meaningful research contexts in which participants could become involved (Scolari, Ardèvol, Pérez-Latorre, Masanet, and Lugo Rodríguez, 2020). The following procedure was implemented across the research:

- Ethical and data management protocols (consents of teens, parents and schools);
- 1,633 questionnaires to determine teens' socio-cultural backgrounds and their media access, habits, uses and perceptions;
- 58 creative workshops for exploring three specific areas: participatory culture, videogames and social media;
- 311 in-depth interviews and 90 media diaries to delve into teens' discourses about their media practices;
- Online observation of eight websites, media celebrities, and online communities followed by teens.

Teens aged from 11 to 19 years from the eight countries participated in the research and between two and four schools from each country were involved in the project. This article analyses outcomes coming from all of the countries and mainly uses the data from the interviews and workshops. It focuses exclusively on the results related to the teenagers' use of YouTube for learning purposes because YouTube was found to be one of the most popular platforms that teenagers use in their day-to-day life for learning a wide range of topics. Its predominance among other social media

platforms had already been observed in the first research phases. The questionnaires revealed that YouTube was the most commonly used social network among teenagers from the participating countries. In all cases, the figures of its use are over 80%, exceeding by far other very popular social networks, such as Instagram, which in some contexts is used by around 50% of teenagers (Masanet, Pires, and Gómez-Puertas, 2021). YouTube is therefore the most hegemonic social media platform in terms of daily use among adolescents.

The project's methodology was tested in Barcelona in the second semester of 2015, and the fieldwork was carried out during 2016. The data were processed during 2017 and 2019. The research team used the software NVivo 11 Pro for teams to carry out an inductive and interpretative data analysis.

All the names used in the teenagers' quotes are pseudonyms. The research team translated the quotes into English, which further prevented recognition.

Analysis

Figure 1 summarizes the main learning areas and objectives teens explained that are important for them when they watch YouTube videos for conscious or unconscious learning purposes. It also includes the actors involved in these processes, the learning strategies applied and the YouTube characteristics that make this social media useful to teens for learning (affordances). This figure is not extensive; however, it identifies the three most recurrent areas teens engage in for learning: (1) formal school curriculum, (2) video games and technologies and (3) wellness and culture. These areas (first column, Figure 1) encompass practically all the practices and uses found across the eight counties of the study.

The learning areas are complemented by specific learning objectives (second column, Figure 1). Unlike the areas, only the most predominant learning objectives are indicated. The research team has also observed specific and minor learning objectives for which one or two references to an activity have emerged, such as, for example, watching videos to learn how to do origami (inside the wellness and culture area). Therefore, we decided to focus on the learning objectives that were recurrent, as they represent the trends of teenagers' use of YouTube, and left out what was occasional and which we considered to be not qualitatively significant. That is, we present the learning objectives that were reached through saturation, understanding this to be when no new information is found among the data so that the results become redundant and only serve to confirm recurrent emerging themes (Faulkner and Trotter, 2017). Finally, as we have previously indicated in the introduction section, we mainly focus on similarities between adolescents from the different participant countries. Despite this, we also observed some differences; however, they have not been explored in depth in this project and, therefore, they are not included in this article.

Learning Area	Learning Objectives	Actors involved	Informal Learning Strategies	YouTube Affordances
Formal school curriculum	<ul style="list-style-type: none"> ▪ To complement and expand classroom contents; ▪ To study for exams. ▪ To learn new topics derived from the school curriculum. 	<ul style="list-style-type: none"> ▪ Teacher and professors. 	<ul style="list-style-type: none"> ▪ Imitation; Learning by doing; ▪ Repetition. 	<ul style="list-style-type: none"> ▪ Search engine; ▪ Library and repository (you can also save videos); ▪ Indicators (number of views and the recommendation system); ▪ Audio-visual output of information; ▪ Allows to Pause; ▪ Allows to rewind; ▪ Asynchronicity ▪ Streaming; ▪ Learning autonomously.
Videogames and Technologies	<ul style="list-style-type: none"> ▪ To play and improve their performance in a video game; ▪ To overcome difficulties; ▪ To create mods; ▪ To use and manage devices and software; ▪ To edit videos and photos; ▪ To create and manage social media accounts, and apps; ▪ To tune gadgets; ▪ Other issues related to management of technologies 	<ul style="list-style-type: none"> ▪ Famous gamers; ▪ Common people; ▪ Expert users; ▪ Peers. 	<ul style="list-style-type: none"> ▪ Learning by watching; ▪ Imitation (learning by doing); ▪ Contrasting information; ▪ Searching for complementary information; ▪ Co-working/ Collaboration. 	<ul style="list-style-type: none"> ▪ Search engine; ▪ Video repository in different languages and video styles; ▪ Follow channels of interest; ▪ Permanent Resource (Re-watch videos at any time); ▪ Quick access to information; ▪ Immediate solution; ▪ Entertaining way of learning.
Wellness and Culture	<ul style="list-style-type: none"> ▪ To reuse; ▪ To learn a craft; ▪ To cook; ▪ To practice sports; ▪ To play instruments; ▪ To resolve issues related to physical appearance (beauty); ▪ To deal with other issues related to wellness and culture. 	<ul style="list-style-type: none"> ▪ Experts and enthusiasts (music, sports, beauty, cooking, etc.). 	<ul style="list-style-type: none"> ▪ Learning by watching; ▪ Imitation (learning by doing); ▪ Repetition. 	<ul style="list-style-type: none"> ▪ Search engine; ▪ Video repository in different languages and video styles; ▪ Follow channels of interest; ▪ Permanent Resource (Re-watch videos at any time); ▪ Quick access to information;

Figure1. YouTube Learning Areas

Education: YouTube for school, from formal to informal learning

The first learning area the research team found is the use of YouTube videos for school-related activities. The team observed that teens have the self-initiative of using YouTube as a complementary element for their formal learning curriculum (content worked on in high school). We detected three main reasons why teens tend to use YouTube (a) to understand a topic they did not understand during the class explanation, (b) to do their homework and (c) to study for exams. Teens tend to go directly to the YouTube search engine over Google because of its audiovisual output, as they can learn and imitate what is on the video. As discussed in a previous publication (Pires et al., 2019), teenagers see YouTube as their main search engine, where they can find the content if they need to solve a particular problem or to learn a specific topic, but also as a library where they can save useful videos, and as a repository where any kind of content can be found.

On YouTube, teenagers learn by imitation (learning by doing), but also by repetition:

I learn more maths on YouTube than at school because you can repeat the video as many times as you want. Let's say, during class you can only ask and tell the teacher once or twice: No teacher, I didn't understand. But on YouTube, you can repeat as many times as you want. And it's easy. (Lucero, aged 14, girl, Colombia)

Therefore, teens see YouTube as a streaming platform that is easy to use and gives them the opportunity to repeat, pause and save the video for watching it again later if necessary, something that is usually not possible in a traditional face-to-face class. This YouTube affordance helps teens to avoid a possible situation of embarrassment, as students commonly worry about teachers' or classmates' reactions, which can include not being listened to, being made fun of and consequently feeling humiliated while asking questions during class (Doga and Yucel-Toy, 2021).

Most of the videos that teens look for are YouTube tutorial videos. This is because this format is very visually instructive, sequential and what must be done is generally explained step-by-step: 'I think YouTube is just a good platform for tutorials. You can have the commentary over it with the person's voice and you can see where they're pointing the mouse or a cursor and what they're clicking on' (Will, aged 18, boy, United Kingdom). As Will points out, YouTube videos have a high appeal because they are visual. Moreover, tutorial videos can help teens to understand how to put into practice a theory or how to do certain exercises:

Yes [I use tutorials], because I can watch the videos and see how it's done, while in class it's more theoretical. I've found tutorials to learn how to do something [from topics like drawing, maths and physics] and I understand it much better. (Corina, aged 16, girl, Spain)

In formal education, the tutorial is a well-established methodology, in which a student, or a very small group, usually discusses ideas and solves doubts with a teacher or instructor (Bates, 2015). Similarly, tutorial videos on YouTube are used to solve doubts because they are instructive videos (González, 2018). Nonetheless, it can be said that YouTube video tutorials have their origins more in the video game industry than in the official teaching methodology. This is because the video game industry already had a consolidated practice of developing tutorial videos from its very beginnings, in which the main goal is for the players to understand the games' operational rules, mechanics and to acquire skills that allow the game to be played (White, 2014). The goal of a tutorial is a basic process of learning through instructions that aim to decrease the players' possibilities of failing while playing (Brenner-Adams, 2017). Similarly, in this case and in the following examples, tutorial videos help students to not fail in their formal education curriculum. As we can see, the tutorial format crosses the frontier of the video game context and is also consolidated in the field of formal education. This, again, makes us question the lines and barriers between formal and informal learning. Informal YouTube formats are introduced in the formal educational context, although, for the most part, through informal practices carried out by adolescents themselves and not necessarily by the teachers.

In fact, there were more than a few cases of teenagers who search for tutorials on YouTube for helping them to study: ‘So, I self-taught especially for revising for exams. Especially for maths, there’d be, like, YouTube videos’ (Luke, aged 15, boy, United Kingdom). Nonetheless, tutorials are not the only format. Teens also follow teachers who are YouTubers and have created their channels to share their knowledge with different kinds of videos. Will (aged 18, boy, United Kingdom) explained that he follows the channel of a particular math teacher who shares videos of him doing entire papers because the videos are similar to his teacher’s daily classroom practices.

Finally, there are teens that rely on YouTube to learn the school curriculum because they are not predisposed to learning during the class schedule. A clear example of this was given by Narea, a Spanish girl aged 16, who explained that sometimes she and her classmates do not feel attentive during the class and rely on YouTube for learning:

then, the teacher says ‘you have to learn this’, and of course we have to learn it but it feels like an obligation and me and my friends don’t really feel like it at that time. Sometimes it’s hard to concentrate. So later we go to YouTube and search for it.

This is a clear example of a continuum of learning (Sefton-Green, 2006) because YouTube makes it possible for adolescents to break with the classic ‘structure’ of the traditional school: space, time and learning strategies. On YouTube teens can find the content from the school curriculum quickly, easily and autonomously, and thus organize their learning processes at their own pace with the help of new actors (i.e. YouTubers). The predisposition to learning during school time becomes, therefore, not necessary. This highlights certain limitations and crises of the current school structure, which is still very focused on the teacher and textbooks playing the leading roles (Osuna Acedo, 2018). It also points to the need for the school to take advantage of the potential of digital media and introduce them into the classroom (Scolari, 2018; Ferrés, 2008).

Finally, it is also important to dedicate a space to exploring how teens select the school curriculum content from YouTube. Teenagers rely on the metrics of the platform for choosing content. As the participants explained to us during a workshop in Spain, they search and look at videos with the most views or rely on the recommendation system of the platform. This demonstrates that teens try to select materials that have some indication of quality, whether qualitative (recommendation system) or quantitative (number of views). This could be understood as another of the characteristics of YouTube that motivates teens to use it: the visualizations and recommendations become a discriminatory element that help adolescents to select the content. Finally, there is always an element of discovery: ‘I’d watch them [the YouTube videos] and they would teach me a whole new thing and it’s like “Wow, I never knew that before”’ (Luke, aged 16, boy, United Kingdom). This demonstrates how the search for something new (curiosity) is a fundamental trait for learning on YouTube. It seems as if on YouTube the way in which curricular contents are explained is always different, and therefore activates a kind of emotion related to discovery and having a new experience. Something that, again, moves away from more traditional experiences that

can be found in formal educational contexts. As Ferrés (2008) points out, formal education needs to introduce new communicative forms and styles (entertainment, surprise effects, short formats, humour, etc.) focused on the potential of emotions and storytelling. It is obvious that YouTubers have the capacity to tune into their audience's interests. A capacity that seems to escape most formal education experiences and that would surely be interesting to recover, since teens appreciate it.

Videogames and Technologies: learning about media through media

Similar to the school topics, the research team found that teens use YouTube to learn activities and improve skills in the area of video games and technologies. Adolescents' main learning objectives varied from learning how to play a video game to discovering how to use a software or a mobile app, among others. The interest in learning these topics is usually personal. Nonetheless, as we will see below, they use very similar strategies to the ones they use for learning school topics on YouTube. It could be said that they unconsciously transfer their learning experiences from one area of learning to another. Or, as Gee (2008) explains, people tend to store their lived experiences in their memory and use them for future problem solving in new situations.

In the case of video games, we detected two particular kinds of YouTube videos teens use to learn how to play a video game or overcoming a challenge, among others. These two kinds of videos are (1) gameplay and (2) tutorial.

In the specific case of gameplays, throughout the fieldwork the researchers were able to appreciate that gameplays were an essential element of learning about video games for the adolescents. As Postigo (2016) points out, teens understand gameplay as a YouTube genre in which a video game player records their performance and makes a running commentary as they are playing a specific game. During different workshops, the researchers asked teens why they were following gameplay videos, and their responses can be summarized in the following points: (1) they are an entertaining way of learning, (2) the teens identify with the YouTubers, (3) the sense of co-presence and (4) they are an immediate solution to continue playing.

Teens consider gameplay an entertaining way of learning about video games: 'When you watch somebody else it is a completely different experience. More enjoyable' (Gemma, aged 15, girl, United Kingdom). They also highlight that YouTubers are fun because they explain things beyond the game (like anecdotes and personal things). Teenagers see gameplay videos as enjoyable because they usually search for YouTubers who play similar games and have similar tastes and age as they do, so it is usually easier to relate and identify with them. As many teens explained, when a YouTuber is doing a gameplay he/she is not always only speaking about the game, he/she can talk about different topics. As Lange (2019) pointed out, on YouTube people can choose what they want to engage with, and this 'facilitates a sense of fun and self-paced exploration of numerous topics' (Lange, 2019: 1). Furthermore, using gameplays, teens can learn as they can identify with their peers playing and commenting on the same games they play. Teens learn with gameplay videos because they can see others 'talking about why and how things worked' (Gee, 2008: 22) and

how they accomplished a particular task or goal. Therefore, gameplay videos are a fundamental type of video for apprenticeship because teens are encouraged to reflect and interpret through this shared practice of playing, which is widespread on YouTube.

Although teens explained to researchers that they also sometimes use tutorials to learn about video games, their preferred format is gameplay. Alex, a Spanish boy aged 13, explained gameplays tend to be less serious than tutorials because they are made by normal people or YouTubers that are playing with their friends. Alex said, 'watching them is fun because you learn how to play and can imagine that you are one of them'. Therefore, gameplays can generate a 'sense of co-presence' with imagined peers that catches the adolescents' attention. This is because co-presence can be understood as occurring when people develop a shared understanding of the context they are living through the same interface with visual information or, via temporal, spatial and conceptual references that are mostly similar and shared by people (Steier, 2020).

As in the previous section, the search engine is the key YouTube affordance used by teenagers to explore and select content. When they have specific problems during the game, teens tend to look at the first videos that appear in the search results: 'I literally search in YouTube for the specific problem I was having in the game and whatever comes up first, I click on' (Zack, aged 16, boy, Australia). They do this because, for them, what counts is spending the least possible time on learning by watching and then starting to play it again. It is here where we can observe another reason why teens use gameplays: they are an immediate solution to continue playing. Consequently, they spend more time on learning by doing or learning by playing. This is different from what we observed in the section on school curriculum content, since in these quick searches the number of visits is not important for selecting the content. It seems, therefore, that to solve specific problems while gaming, the YouTube content does not need this kind of quantitative quality validation (granted by views) that is crucial for curricular content. It just needs to be on the top of the search results.

In contrast with the performative nature of gameplay, tutorials tend to be more structured and focused on how to do a specific task. Therefore, YouTube tutorial videos can help teens to improve and gain skills because by watching them adolescents can apply what they learn in other games and social settings due to similarities and previous embodied experience (Gee, 2008) because the primary goal of watching these videos is to perform a similar task through 'imitation' (Masanet et al., 2019). An example is the case of José (aged 14, boy, Spain), who explains that he learned how to do a mod (alterations players can do on the game that can vary from small to complete changes) in the game Minecraft by watching YouTube tutorials because you can 'go following step by step' and learn how to make these software alterations in your favourite games.

In relation to the area of technology, tutorials are the main format used to learn topics related to computer software, mobile apps (mainly social media) and hardware. Barbara (aged 18, girl, Italy) uses tutorials to solve problems with a computer programme: 'The people who make the video tutorials are people who understand or have been using this software for a long time'. Similarly, Martín (aged 14, boy, Uruguay) uses YouTube to

learn how to create a video game in 3D: ‘I watch tutorial videos there [on YouTube] I’ve learned a lot about Blender’. And Ross (aged 14, boy, United Kingdom), who wanted to learn how to build a personal computer, said that YouTube is the ideal place to learn because it is a lot easier to understand as it is possible to see the steps the YouTubers take.

As in the study by Utz and Wolfers (2020), teens see YouTubers as instructors who they perceive as experts and trustworthy. Therefore, they follow the apprenticeship model (Bates, 2015) to learn about technologies on YouTube with these instructors, who are experts and who sometimes can also be their peers.

Finally, both in the case of video games and technology, we have found that teens tend to select content linked to the specific YouTuber that presents and guides the content.

Wellness and Culture

Teens also use YouTube videos to learn about different themes related to wellness and culture, like cooking, doing exercises, putting on make-up, crafting, literature, beauty-related tips, music (i.e. learning how to play an instrument) and son on. In this area, we mainly found similarities with the previous areas: (1) tutorials are widely used because their linear content structure facilitates copying it; (2) teens rely on the YouTube affordances of video reproduction (pause, forward, rewatch, etc.); (3) they select YouTubers that have demonstrated that they have expertise in the topic they are interested in or were recommended by YouTube. However, in this case, adolescents also look for videos like vlogs, particularly when looking at content about make-up and hairstyles. Rooted in the ‘bedroom culture’ that emerged through the popularization of webcams in the early years of the internet, a vlog normally features a person talking directly to the camera using the first-person point of view (Balleys et al., 2020) and has been framed as YouTube’s ‘emblematic genre’ (Burgess and Green, 2018).

In addition, we have observed that teenagers revive practices that can be traced back to television practices (watching a cooking show to learn recipes). Nonetheless, with the affordances of video-on-demand platforms like YouTube, while watching cooking videos, teens can pause, skip or rewatch parts of the recipes if they didn’t see or understand something properly. This helps them to ‘write it all out’ (Lilac, aged 17, girl, Australia).

Furthermore, teens combine different learning objectives. The motivation for learning cooking sometimes comes accompanied by other skills, such as learning a language. Petter, a Finnish boy aged 17, explained that he likes to learn cooking from different places, such as England, and this requires him to learn more about the language because he needs to check that he has understood correctly before trying out the recipes. Therefore, teens tend to search for videos that have a clear and closer explanation:

If I want to make a coulant I search on YouTube. I type ‘how to make a coulant’. Then a lot of videos come up. I usually try the ones that are simple and the explanation is given in a friendly way. (Cosima, aged 13, girl, Spain)

Similarly to the previous areas (school, video games and technology) teens mainly opt for tutorial videos due to the same reasons discussed in the previous areas (easy to understand, information presented step by step, etc.).

In the cases of vlogs, teens relate to the YouTubers because they are a model of inspiration. For example, Alice, a 13 year old girl from Italy, searches for beauty-related tips and follows famous beauty YouTubers that teach her how to put on make-up using the vlog format. Like in the area of video games, teens follow specific YouTubers that become references or aspirational models (Masanet et al., 2020). Moreover, when looking at something so intimate as personal appearance ‘YouTubers and viewers alike seem to seek a common belonging to adolescence through a feeling of shared intimacy’ (as Balleys et al., 2020: 8). That is why we had cases of teens that search for YouTubers to change their appearance. Masanet et al. (2020) have observed that in recent years we are experiencing an increase in celebrities, such as YouTubers with whom adolescents identify, since they have the same age, goals, tastes and media practices. This makes teens feel closer to them because YouTubers talk about topics that are of interest to teenagers, share experiences that adolescents feel close to and explain and give advice that they can apply in different activities of their day-to-day life.

These are just some of the many examples we found during the research of teens who look for tips, instructions and advice on various topics about wellness and culture from YouTubers. In all these cases, as in the previous examples concerning the school curriculum, video games and technologies, we can find different actors. We could define these actors as ‘YouTube experts or enthusiasts’ who specialize in different fields and function as instructors for the teens who are their digital apprentices (Masanet et al., 2019).

Conclusions

The objectives of this article were to detect teens’ main areas of interest and motivations for learning on YouTube, to understand their main goals related to learning about a particular topic and to determine the aspects of YouTube (affordances) that prompt teens to choose this platform for informal learning.

Regarding the first objective, the research team identified teens’ three main areas of interest: (a) the formal school curriculum, (b) video games and technologies and (c) wellness and culture. These three areas had different learning motivations or what we have called learning objectives that are related to different learning strategies and also to different types of videos.

Adolescents’ learning objectives are related to their everyday school curriculums and personal hobbies and activities (playing video games, learning to play the guitar, to cook or to put on make-up). Most of these learning objectives follow specific learning strategies related to the apprenticeship model of learning: learning by watching, imitation (learning by doing) and repetition. These learning strategies are prompted by the affordances of the YouTube platform and the characteristics of its videos that can be instructive like a tutorial or more entraining like the vlog of the gameplay.

Teenagers highlight a variety of YouTube's affordances: (a) using YouTube's search engine as a way to find specific content; (b) using popularity markers (like number of views or subscribers) to validate the importance of the information they find; (c) the video reproduction controls, which allow them to stop, rewatch and learn at their own pace; and (d) the video repository and archive in different languages, which allows them to store and share the videos they like and return to them when needed. The uses of these affordances are similar in the three areas of interest.

In addition, actors were identified to play a fundamental role in this preference: YouTuber teachers, expert users, enthusiasts, famous gamers, common people and peers. That the adolescents could identify with and were curious about these actors were also important factors for the teenagers' learning processes and motivations.

As it can be seen, YouTube is an important learning space for adolescents to learn in a continuum. Teens use it both to complement their formal school curriculum and to explore their own interests. That is, it is a space that blurs the boundaries between classic oppositions like formal/ informal learning. In fact, the level of complexity, variety and promiscuity of contemporary learning practices is so high that a new approach is needed to go beyond the opposition between formal/informal learning. An alternative model could come from Lotman's conception of 'border' (Lotman, 2005). Following the Russian semiologist's categories, 'formal' and 'informal' learning could be considered as two spheres, on one side the territory of organized learning centralized on the school, and on the other side, the wild and chaotic territory of non-organized and decentralized learning practices. The border, in this context, separates and limits the penetration of elements from the other sphere, but at the same time it works as a translation device:

it is the area of accelerated semiotic processes, which always flow more actively on the periphery of cultural environments, seeking to affix them to the core structures, with a view to displacing them (...) The translation of information through these borders, a game between different structures and substructures; the continuous semiotic 'invasions' to one or other structure in the 'other territory' gives birth to meaning, generating new information. (Lotman, 2005: 212–214)

This description is not far from the reality of schools and social media like YouTube: there is an acceleration of knowledge exchanges between them, a continuous 'translation of information' that is giving birth to hybrid learning practices. These borders are, therefore, diluted in the adolescent practices of apprenticeship that are carried out on YouTube, but also through other actors that work as instructors (teachers, experts and knowledgeable peers) and video genres (tutorials about the most varied topics we can possibly imagine as well as vlogs and gameplays).

Finally, as we explained in the introduction section, in this article, we have mainly focused on the similarities in YouTube learning uses. Despite this, differences were also observed throughout the research. For example, it was observed that gender roles and stereotypes still persist between adolescents' media uses (Masanet et al., 2021). In the specific case of learning through YouTube, we found that some learning areas and

environments are predominantly male and others female. For example, the video games area is a masculinized space where the presence of girls is occasional and exceptional. The opposite is true for learning about ‘beauty’, within the area of wellness and culture, and with videos about books, where the presence of girls is practically hegemonic with a few exceptions concerning sports and music. Other differences detected during the research are those related to social class. During the fieldwork, the team found some teens that could not afford to pay for private lessons or certain non-curricular training, such as guitar lessons. These teens found non-formal training on YouTube quickly, easy and ‘for free’. Therefore, for some teens, with specific social class conditions, YouTube becomes a space where they can find content that usually has a high cost for ‘free’. We have not explored these differences (gender and social class) in the present study; however, they are key elements for future research. Therefore, we consider that in future research it is necessary to approach the phenomenon by paying particular attention to the possible differences and oppressions that can take place within it. This means we should study the learning dynamics and uses of YouTube from an intersectional perspective (Crenshaw, 1991), which can help us to understand the categories of difference and oppression (gender, race, ethnicity, social class, etc.) that can occur in these situations and dynamics.

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