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Digital media and learning

Emergent forms of participation and social transformation

Aprendizaje y medios digitales

Formas emergentes de participación y transformación social

English Edition

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SOCIAL SCIENCES CITATION INDEX: the top journal in Spanish in Communication since 2007.

SCOPUS

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SCIMAGO JOURNAL RANK: SJR 2017 (2018-19): 0.851; Q1 in Cultural Studies: the top 10% journal. Q1 in Communication: the 10% top journal. Q1 in Education: the 10% top journal.

RECYT (FECYT-MEC)

Seal of Quality FECYT 2016-2019 (12 indicators) (BOE 14-06-2016).

GOOGLE SCHOLAR

2018/19: Top 100 from Google: 1st position (from 100) in the Spanish ranking of all research journals areas. H5: 38. Mean H5: 50. In 2018-10-15: H: 63; H5: 57 (21.985 accumalated citations).
H5 Index (2012-2016), acording EC3 Reports, 2017 (UGR): 1st position in Education (out of 58; H5: 33); 1st position in Communication (out of 22; H5: 33).

JOURNAL SCHOLAR METRICS (EC3-UGR)

Q1 COMMUNICATION, 2016 (2017): 27th position (from 320).
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2018: 1st position among 943 select journals from all areas. Rating: 47.934

ERIH+

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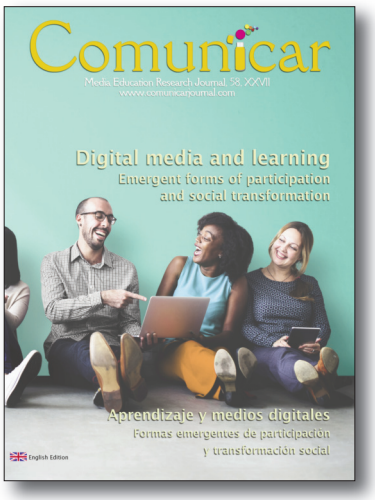

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"Comunicar", Media Education Research Journal, is published by Grupo Comunicar Ediciones (VAT: G21116603). This established non-profit professional group, founded in 1988 in Spain, specialises in the field of media education. The journal has been in print continuously since 1994, published every three months.

Contents are peer reviewed, in accordance with publication standards established in the APA (American Psychological Association) manual. Compliance with these requirements facilitates indexation in the main databases of international journals in this field, which increases the dissemination of published papers and therefore raises the profile of the authors and their centres.

"Comunicar" is indexed in the Social Sciences Citation Index (SSCI), Journal Citation Reports (JCR), Scisearch, Scopus and over 618 databases, catalogues, search engines and international repertoires worldwide.

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Subject Matter: Fundamentally, research papers related to communication and education, and especially the intersection between the two fields: media education, educational media and resources, educational technology, IT and electronic resources, audiovisual, technologies... Reports, studies and experiments relating to these subjects are also accepted.

Contributions: "Comunicar" publishes research results, studies, state-of-the-art articles and bibliographic reviews especially in relation to Latin America and Europe and regarding the convergence between education and communication, preferably written in Spanish although submissions are also accepted in English. The contributions to this journal may be: Research papers, Reports, Studies and Proposals (5,000-6,500 words of text, references included), State-of-the-art articles: (6,000-7,000 words of text, including references).

Unsolicited manuscripts sent in by authors are initially placed in the Miscellaneous section of the journal. The Topics section is organized by an editor through a system of call for papers and specific commissions to experts in the field. If we receive manuscripts within the deadline for a particular topic, the journal editor can refer the manuscript to the Topics editor for assessment and possible publication in this monographic section. The deadline for each Topic section is at least nine months before publication.

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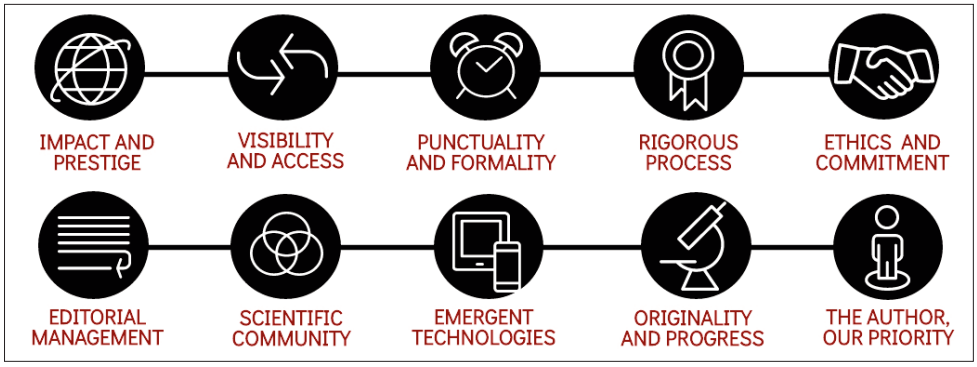

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• Number of research works received: 251; Number of research works accepted: 10.
• Percent of manuscripts accepted: 3,98%; Percent of manuscript rejected: 96,02%.
• Received manuscripts internationalisation: 33 countries.
• Numbers of Reviews: 174 (update: www.comunicarjournal.com).
• Scientific Reviewers internationalisation: 19 countries.
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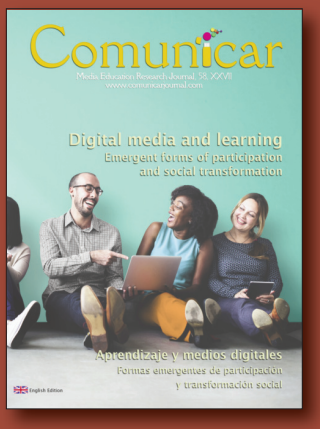

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Special Topic Issue

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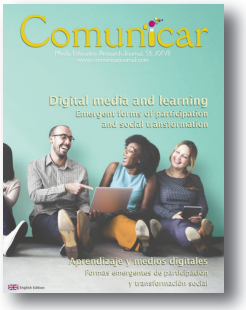

Designing for deep learning in the context of digital and social media

El diseño para el aprendizaje profundo en los medios de comunicación sociales y digitales

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ABSTRACT
There is today a great deal of controversy over digital and social media. Even leaders in the tech industry are beginning to decry the time young people spend on smartphones and social networks. Recently, the World Health Organization proposed adding "gaming disorder" to its official list of diseases, defining it as a pattern of gaming behavior so severe that it takes "precedence over other life interests". At the same time, many others have celebrated the positive properties of video games, social media, and social networks. This paper argues that a deeper understanding of human beings is needed to design for deep learning. For the purposes of this study "design for deep learning" means helping people matter and find meaning in ways that make them and others healthy in mind and body, while improving the state of the world for all living things, with due respect for truth, sensation, happiness, imagination, individuality, diversity, and the future. In particular, fifteen features related to human nature are suggested based on recent scientific developments to answer the question: What is a human being? Consequently, proposals that are linked to learning and transformation, as well as social improvement, should fit with the ways in which humans, as specific sorts of biological and social creatures, learn best (or can learn at all) and can change for the better.

RESUMEN
En la actualidad existe una nutrida controversia en relación a los medios de comunicación sociales y digitales que ha llevado, incluso, a censurar la utilización de las redes sociales y los móviles por parte de líderes en la industria tecnológica. En este sentido, la Organización Mundial para la Salud ha propuesto añadir el «desorden del juego» a su listado de enfermedades, definiéndolo como un modelo de comportamiento de juego tan severo que se impone como «preferencia sobre otros intereses». Al mismo tiempo, distintos académicos han enfatizado los aspectos positivos derivados de las redes sociales y los videojuegos. En este artículo se argumenta que es necesaria una mejor comprensión del ser humano para poder implementar lo que aquí se define como diseño para el aprendizaje profundo. El «diseño para el aprendizaje profundo» está encaminado al reconocimiento de las personas y el desarrollo de sentidos saludables, individual y colectivamente, así como la mejora, en general, del estado del mundo para todos los seres vivos, según principios de verdad, felicidad, imaginación, individualidad, diversidad y futuro. En particular, se sugieren quince características basadas en desarrollos científicos que responden a la pregunta: ¿Qué es un ser humano? Consecuentemente, propuestas vinculadas al aprendizaje y la transformación y mejora social deben ser coherentes con dichas características que permiten definir cómo las personas, en tanto que organismos biológicos y sociales, aprenden o pueden aprender óptimamente, así como cambiar para mejorar.

KEYWORDS | PALABRAS CLAVE
Digital media, social media, learning theories, deep learning, active learning, collective intelligence, social change, participatory culture.
Medios digitales, medios de comunicación sociales, teorías del aprendizaje, aprendizaje profundo, aprendizaje activo, inteligencia colectiva, cambio social, cultura participativa.

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1. Introduction

Today, our world faces many serious problems. We tend to approach these problems in terms of narrow silos of expertise. These problems are only amenable to deep understanding and possible solutions based on the intersection of a wide variety of areas of expertise. Over the last couple of decades, research in various disciplines has made significant discoveries about the nature of human beings, the human mind and body. When we put these areas together, we get a new picture of humans, one that is quite different from both our traditional academic views and our everyday ideas about ourselves.

In summary, this paper presents some findings about humans leading to a new answer to the old question "What is a human being?" based on contemporary research. In turn, this answer may well fuel a deeper understanding of digital and social media in society while enabling its effective use for deep learning. For the purposes of this study, "deep learning design" is defined as design that helps people matter and find meaning in ways that make them and others healthy in mind and body, while improving the state of the world for all living things, with due respect for truth, sensation (pleasure and pain), happiness, imagination, individuality, diversity, and the future. Much of the design in our world serves no such goal. Sometimes this is so because designers intended to design for "misguided purposes". In other cases, designers' intentions are good, but their design is aimed at a mistaken idea of what humans are, thus missing the mark.

2. What is a human being?

Based on contemporary research, some features of human nature are suggested. This is not an exhaustive literature review on this complex topic. Rather, it is a general picture that describes some human traits according to certain scientific developments.

1) Mattering: Humans have a deep biological and psychological need for mattering or counting, to feel that what they do and think matters to others. When they feel they do not count, mental and physical illness often arises, as well as violence to self or others in some cases (Gee, 2000; Marmot, 2004; Wilkinson & Pickett, 2006).

2) Tropic to meaning (not truth): Humans have a deep biological and psychological need to feel that things are meaningful, make sense, and happen for a reason. This need for mental comfort regularly trumps truth for humans (Bruner, 1990; Gee, 2017a; Lázaro & Esteban-Guitart, 2014).

3) Humans as complex systems: Humans have a brain in their head and another one in their gut (and wherever else the vagus nerve navigates, such as the heart and lungs). In fact, more signals go from the gut-brain to the head brain than vice-versa. The human body, and especially the gut, contains trillions of microorganisms that affect how we think and feel, but they are not "our" cells, though they make up 90% of "us". Human thinking, feeling, and physical/mental well-being are products of very complex interactions between our head and gut brains, our bodies, chemistry, microorganisms, and the myriad features present in the physical and social environments through which we move (Harris, 2018; Woolfson, 2016; Yong, 2016). In that regard, see the work on epigenetics (Sapolsky, 2017).

4) Lost without feeling: Humans attach affect to facts and choices. If they do not do so, then they do not retain or care about facts and cannot decide or choose. Therefore, thinking and feeling are integrally related; they function as a team and are often inert or dangerous when separated (Gray, Braver, & Raichle, 2002; Immordino-Yang & Damasio, 2007; LeDoux, 1998; Richards & Gross, 2000).

5) Limited insight: Humans are consciously aware of only a very small part of their motivations and reasons for acting and feeling. A great many modules in the brain process information and send decisions about actions and feelings (but not the reasons for them) to an interpreter module (the conscious part of the brain). In turn, the interpreter makes up a good story about our actions and feelings on the basis of quite limited overt information. Humans are good at confabulating reasons to explain their actions and feelings in the absence of any real evidence, a fact of which they are mostly unaware (Gantman, Adriaanse, Gollwitzer, & Oettingen, 2017; Gazzaniga, 2010; Pinto, de-Haan, & Lamme, 2017).

6) Brain bugs: Humans are prone to a number of "brain bugs", one of the most significant of which is "confirmation bias". Confirmation bias means that humans have a strong tendency to look for and only consider evidence that reaffirms what they already believe and discount evidence that disproves their beliefs. This effect is not lessened for educated people; education does not eradicate it and may even make it worse (Delgado, 2012; Legare, Schult, Impola, & Souza, 2016).

7) Poor memory: Human memory is more future-oriented than focused on the past. It is primarily used to plan

for future actions. Every time we use memory, we change it. As an accurate record of the past, human memory is quite unreliable, though we humans are often unaware of this fact, and its implications for society at large and the legal system in particular. Human memory resembles a simulation device to pre-plan and imagine rather than a recording device (Glenberg, 1997; Klein, Robertson, & Delton, 2010; Seligman, Railton, Baumeister, & Sripada, 2016).

8) Self-defeating optimization: Humans will usually try to optimize any situation to their short-term desires and benefit, right up to ruining the situation for others and even themselves. Examples: if a game is designed to teach reading, many young people will do all they can to play and win the game without actually reading. Cheating in a multiple-player game up to the point where no one plays it anymore; getting into college and then seeking the easiest courses, graders, and doing the least amount of work possible while avoiding any hard learning (Cosmides, 1989; Rhode, 2017).

9) Us vs. them: Humans are inherently prone to think and act in terms of "us" versus "them". This effect, which stems from human evolution, is very often exacerbated by culture and society, and it is intensified when people feel threatened or disdained (Gee, 2017b; Sapolsky, 2017; Taylor & Lobel, 1989).

This paper represents a contribution to contemporary debates on digital and social media. It advances a theoretical articulation about human beings in order to understand how deep learning works, and how to design for positive, effective deep learning experiences for humankind.

10) Pattern recognizers gone wild: Humans are pattern-recognizers par excellence. They can find patterns and act on them where none exist (think astrology; signs of the "end times"; gambling; stock pickers; stereotypes; and all the people who mistake correlation for causation). Without guidance, human pattern recognition can be dangerous to all concerned, no matter how creative it may seem. Teaching can, if not done well and morally, dampen innovation and "colonize" the learner (Lara-Dammer, Hofstadter, & Goldstone, 2017).

11) The difficulty with "Hard problems": The world today faces deep and hard problems stemming from dangerous interactions between different complex systems affected by human behaviors. These problems are not amenable to solutions based on anyone silo of expertise, though that is often how we try to approach them. Narrow experts over-trust what they know and discount what they ignore (Jenkins, 2006; Nielsen 2012).

12) Limitations of individual intelligence: A great deal of human thinking and deciding works best when it is off-loaded to good tools, collaborations with others, and human-engineered environmental structures and designs. Humans are "plug-and-play" devices that only work well when plugged into diverse people, smart tools, and well-designed environments. Left to their own devices, humans can be dangerous to themselves and others (Levy, 1999; Navarro, 2009; Ricaurte-Quijano & Álvarez, 2016; Perkins & Salomon, 1989).

13) School ineffectiveness: School is largely ineffective in terms of long-term retention by students. Skills learned in school are mostly forgotten once it ends, unless students practice them repeatedly. Humanities do not necessarily enhance life, considering that most people fail to engage them significantly after schooling. Moreover, there is seemingly no reason to believe that the humanities humanize human beings (Steiner, 1975). School largely serves to give people credentials that poorly correlate with their later success at work and in life, but get them in the door for a job or status (Arum & Roksa, 2011; Caplan, 2018; Pritchett & Beatty, 2015).

14) Corruption of powerful technologies: Technologies with great promise for learning, interaction, and activism tend to be corrupted by the marketplace –and human desires– to work in sub-optimal and even counter-productive ways. The setting into which technology is inserted (i.e., the capabilities and desires of people in situ) is more powerful in determining effects than the technology itself (Doyle, 2017; Hoffmann, 2017; Yudes-Gómez, Baridon-Chauvie, & González-Cabrera, 2018).

15) Diversity misunderstood: The ways in which humans think of diversity are largely factually wrong; however, they may be socially motivated and enforced. Groups like "black people", "white people", "African-Americans", "Jews", and many others, share fewer genes with each other than they do with people outside their group

(Rutherford, 2016). While humans think of diversity in binary terms (black/white; male/female; normal/abnormal; conservative/liberal), it is rarely truly binary. Real diversity exists at the level of people's everyday life experiences. People in socially constructed groups (like "races" or "genders") are different in several ways (Gee, 2017b; Jenkins, 2009; Marhiri, 2017; Sapolsky, 2017).

3. Relationships among human features

There are inherent connections among some of the fifteen features listed above. These connections point the way to how designers can use these features for either misguided design purposes or effective deep learning design. The most important connection exists among the first five features: mattering, tropic to meaning, humans as complex systems, thinking and feeling, and pattern recognition gone wild.

> Fifteen features regarding human beings are suggested to guide the design for deep learning. By "designing for deep learning" we mean helping people matter and find meaning in ways that make them and others healthy in mind and body while improving the state of the world for all living things, with due respect for truth, sensation (pleasure and pain), happiness, imagination, individuality, diversity, and the future.

People need to matter to others. Let's use "X" for any group or cause that makes a person feel they matter. X, in making the person matter, also enables the person to make sense and give meaning to things, thereby fulfilling feature 2. When humans lose their sense of mattering, they still seek meaning, but that search can become idiosyncratic, isolating, and even dangerous. When humans feel like they do not matter and cannot find meaning, their mind and body well-being suffers (feature 3), often due to stress and anxiety (Harris, 2018; Marmot, 2004; Wilkinson & Pickett, 2006).

Humans prefer mattering and meaning to truth in and of itself. Furthermore, they will value truth only when they can attach affection to it. What makes mattering and meaning-finding so crucial for humans is that it melds affect and information (whether it be true or false). Humans' super-power is pattern-recognition, and they actively seek out (however spurious) patterns that make them feel good (regarding mattering, meaning, and self-interest).

Feature 3 is crucial here. When we pay attention separately to the (head) brain, and treat the body (as "brainless"), and consider environments as out there, separate from us, we miss all the real action with humans. Each human is a "multiple-brained-genetic-cognitive-emotional-chemical-epigenetic-social-interactional-environmental complex systems" (Harris, 2018; Sapolsky, 2017). Everything interacts with and co-creates everything else. When humans feel they do not matter and are isolated from shared meaning, the complex system, as a whole, goes away, not just one piece of it. Chronic stress/anxiety is one of the outcomes, and its effects spread throughout the whole system with deeply negative results (Harris, 2018). It is barely helpful to design good schools, good learning, or good media for people who are highly stressed in this way. Such people pay little attention to anything other than the threats to their integrity as a worthwhile person.

The following three features are also profoundly connected: limited insight, brain bugs, and poor memory. Humans are complex systems (partially) run by a driver (consciousness, the interpreter) with minimal insight (too much else is going on under the hood of the system beyond a person's conscious awareness) and very poor memory in the sense of "a veridical record of the past". Brain bugs, like confirmation bias, work well for relatively stable environments, like the ones in which we evolved as creatures. In these environments, it is smart to trust what one already knows. Moreover, brain bugs do not work for the rapidly changing and complex environments of the modern world. The solutions to these problems are to be found in dealing with feature 12, which we will discuss below.

It is essential to see, regarding the feature set 5-7, that humans are built to be more future-oriented than past-oriented. If an inaccurate memory facilitates good future choices, then it is more valuable than an accurate one that does not. People store edited versions of their experiences in their long-term memories and use these memories (in

bits, pieces, and various transformations) to think, plan, and choose (Gee, 2017a; Seligman, Railton, Baumeister, & Sripada, 2016). People cannot think, plan, or choose well without a large amount of good, rich experiences to use as fodder for imagination and simulations in their minds. However, as they gain experiences and learn to use them fruitfully for imagination and simulations, they need help, in the form of good tools, good practices, and good teaching, to make up for their limited insight and brain bugs.

The following features are also integrally connected to each other: Self-defeating optimization and Us vs. Them. These are both features that are connected to human beings favoring short-term advantage over long-term advantage and favoring self-advantage over advantaging others, as well. Humans are selfish, though this selfishness often displays itself as favoring "kin" or "people like us" over others, and not just the self alone. They are also built to favor short-term gain over long-term gain. Both of these properties evolved in us because, under the conditions in which we evolved (as hunter-gatherers), they were good for survival (Tomasello, 2014). People do not engage in delayed gratification when food is scarce. Also, "us" is all important when there are not many "them" around, and we have no real idea whether "they" are "safe" or not. Neither of these features is particularly good in a world replete with short-term pleasures that will kill in the long run, which is much longer for modern humans, and replete with a massive array of "strangers" in "your" very own society.

Now, we arrive at a set of features that capture the problem with humans at the larger levels of society and institutions. Human intelligence is quite limited at the individual level, as we have seen. However, humans can accomplish mighty deeds (like bridges and wars) when they act collectively with proper tools. However, problems arise here as well. Since technology effects are largely due to the contexts (concerning human capacities, desires, and cultures) in which they are placed, technologies tend to become "corrupted" by the short-term desires of human beings (Coker, 2018). When we use technology to speak to a problematic situation, that situation itself often undoes the technology or recruits it to serve the problem and not serve as a solution to the problem.

Collective intelligence, in its modern sense, requires pooling diversity and using good tools to recruit as much knowledge, experience, and creativity as we can. Although human society and institutions are most often organized around silos of expertise protecting their boundaries and "rights". Furthermore, diversity in society and academic world, it is most often defined (and defended) in terms of big groups and binaries that do not represent the level of difference and diversity that fuels collective intelligence. That diversity level is achieved when a person has lived the interaction of all their social groups and identities, filtered through their unique personhood, in a myriad of diverse lived experiences that have given them their own quite situated and specific insights, knowledge, perspectives, and vital contributions to make (Gee, 2017b; Marhiri, 2017).

We often believe that it is the job of schools and schooling to speak to the issues we have been discussing. However, abundant work in economics has shown that the effects of school are quite transitory for the most part (Caplan, 2018). Students soon forget most of what they learn in school, unless they continue to practice it as part of their daily lives or on the job. Work leads to skills, not school, for the most part. Moreover, the humanities do not seem to humanize, given how few people make much use of them later in life, and how much damage well-educated people do in the world.

Economists have argued that a large percentage of the school system (though not all of it) functions only to signal to employers who will be intelligent, conforming, and conscientious workers, based on the amount of drudgery they could endure while in school, especially in the process of getting credentials and degrees. In reality, school speaks very little to the human problems we have surveyed. After all, the vast majority of people whose digital and social media habits we bemoan are or have been in school.

The final set of connected features, below, are those that point to the beginnings of a solution: difficulty dealing with hard problems, limitations of individual intelligence, school ineffectiveness, corruption of powerful technologies, and diversity misunderstood.

If we want to use technology to design for deep learning –and therefore design for humans as they are rather than as we imagine them– we have to reverse features 11-15. We must stop new technologies from being corrupted in situ. We have to recruit the full range of actual diversity. We need to engage in transdisciplinary perspectives to deal with hard and complex problems, not just isolated narrow areas of specialization alone. We are required to supplement and expand –not contract– human intelligence via adequate tools, effective forms of collaboration and collective intelligence, and life-enhancing social networks. In addition, we have to realize that the solution is not at school –or only at school– at least, not remotely in the schools we have, have had, and probably, for the most part, will always have.

4. Design for deep learning: Our challenge

Having said all that, we would like to consider a tentative suggestion about how to think about designing (whether it is a blog, a game, an app, a video, a website) effectively for humans as they are.

Perhaps the most profound urge for humans is to affiliate themselves with an idea, a cause, or an endeavor that can give their lives meaning and make them matter to others and to themselves. Humans have a choice when faced with misguided, flawed design or effective, deep learning design. Designing for deep learning means enticing people to affiliate with something that enhances their lives and those of others, as well as our shared world. When people join a cause, idea, or endeavor, they usually do so in a social context as part of a group of people with whom they share this interest. Most people gain their sense of mattering socially, concerning others who also matter to them.

Indeed, learning and development are consequences of social participation in affinity spaces. By "affinity space" we mean a site/space that may be virtual, physical or both, where people interact with each other and have access to resources that enable their engagement in a shared activity in which participants have a common interest. Each of these spaces, for example, a social activism webpage, is part of a larger affinity space comprised by smaller ones (just like a state is made up of towns and cities). The linked spaces, or space of spaces through which people move to learn deeply and to become someone new, are a real ecosystem that changes over time and expands knowledge and identity. Not everything that happens in these linked spaces –and not every journey through them– is positive. The balance between good and evil is always shifting. Design for deep learning must be for the long haul, must be continuous and must eventually become a joint endeavor with a social push for good that can be self-correcting in the face of change and crisis.

People, for example, visit a blog or website to have an experience; essentially, they want to see if there is anything they can learn (and become) in the site that will add value to their lives. Humans do not learn well from "anything goes" experiences, especially when they are newbies. Therefore, the designer should create an experience that will lead to deep learning. This, of course, is not easy because good or deep learning involves effort and risk, so it is harder than trivial learning or learning that plays to our weaknesses and prejudices. According to Gee (2017a), humans dislike doing hard things, except under certain special conditions. In any case, the experience is good for deep learning for humans when:

a) They have a clear, but perhaps, changeable goal.

b) The goal requires an action (or set of actions) that the learner emotionally cares about (for humans, the most effective form of caring –for learning and thinking– is when something is "at stake" for them).

c) Something (i.e., stuff you design) helps them, especially if they are "newbies", to manage their attention in fruitful ways so that they are aware of what is important and useful amidst the myriad of elements that compose any human experience.

d) They are encouraged to try different things and to see failure as an important form of learning.

e) It helps them discover the appropriate values and judgments they can use to assess their progress through various tries, retries, and failures. This often means internalizing the norms of a group of people, some of whom have become adepts or experts at a given endeavor. This internalization process is necessary (though it can also be a type of "colonizing" or "policing"). However, the ultimate goal is to go beyond the internalization of norms to produce people who eventually learn how to improve and transform the norms.

Productive learning spaces allow participants to continuously co-design (customize, change, improve) the site or activity, what is in it, and the experience the site-activity affords (Esteban-Guitart, Coll, & Penuel, 2018; Jovés, Siqués, & Esteban-Guitart, 2015). The goal is for participants to become residents and co-owners (as well as "self-directed teachers" and "designers" in their own right). An experience for humans, when it is well designed, is placed into long-term memory in a way that is well-integrated with other memories. This memory and its elements are used as materials for simulating the future so that people can plan, dream, and make better choices to improve their future. This means that assessment of the site-activity success should not be based on how much people retain (or recall), but rather on how much better they get as choosers for better futures (Cutumisu, Blair, Chin, & Schwartz, 2015). In other words, space and/or activity fosters the construction of imagination, not (just) memories, by getting people to feel they matter (to others) and to find meaning (for things to make sense) through affiliation to a shared cause, idea, or endeavour connected to something good. In that context, the role of the "teacher" is to guide learners through a fruitful learning experience rather than to teach something. In other words, teachers become a resource for people's self-teaching and self-directed learning. Following early Vygotsky (1997: 47): "Ultimately, the child teaches himself", and the teacher's role becomes to direct and guide the environment as a way to promote certain

behaviors and reactions. According to the principles described above, it can be said that the space-site-activity should be full of resources with tools, technologies, and interactional social practices that supplement and transform the limits of human intelligence. This essentially involves designing for collective intelligence, a phenomenon that, of course, requires groups of people to take charge of their fruitful collaborations. There is now a large literature on different forms of collective intelligence and "wisdom of the crowd" (Levy, 1999; Navarro, 2009; Ricaurte-Quijano & Álvarez, 2016; Perkins & Salomon, 1989).

5. Conclusion

Deep learning and change are hard, and people will avoid them unless they are highly motivated to take on the challenge. The very basis of effective deep learning design is to attract and hold (some) people in space/site/activity through an emotionally-charged socially-shared "affinity" for a cause, idea, or endeavor and with the sorts of people who pursue that idea, endeavor, or cause. However, to truly motivate humans, that affinity needs "legs", it must offer to take them to better places, to transport them on a journey with others with whom they feel valued and vice-versa. To achieve this, it is necessary to connect the space/site/activity to other spaces/sites/activities, maybe many others that share, supplement, or enhance the affinity you are seeking to engender (Esteban-Guitart, Coll, & Penuel, 2018).

The space-site-activity should be full of resources with tools, technologies, and interactional social practices that supplement and transform the limits of human intelligence. This essentially involves designing for collective intelligence, a phenomenon that, of course, requires groups of people to take charge of their fruitful collaborations. There is now a large literature on different forms of collective intelligence and "wisdom of the crowd".

As people journey back and forth from the space/site/activity to others, they become fellow travelers on a path through life with others, a path they can share for a while or for a long time, a path from which they can branch off to new paths or a path they can take to the end. In the act, such design work can:

a) Make people matter to each other.

b) Direct their "us vs. them" urges as humans in wider and more meaningful directions -context is critical in how people think about who is "us" and who is "them" (Sapolsky 2017).

c) Get them to attach feeling (affect) to the truth by storying it as a cause, a journey, a direction, a shared mission for good.

d) Make people healthier in mind and body due to the connections between mattering, meaning, and health for people and society.

In the end, designs for deep learning are travel agents sending people on life-enhancing, world-enhancing journeys.

Although designing for deep learning is hard because humans often dislike effort, there is some hope here. Decades ago, Harry Harlow, the scientist who did the (in)famous wire monkey studies, was testing the intelligence of primates. This was done by giving a monkey a mechanical puzzle and seeing how well the monkey could solve the puzzle. Since psychologists at the time were good behaviorists, they placed an edible reward under each part of the puzzle, assuming that the reward for solving each part of the puzzle would encourage the monkey to keep working on the puzzle (i.e., they used continuous rewards to deal with the effort problem). However, one day, Harlow wondered what would happen if there were no food rewards (Harlow, Harlow, & Meyer, 1950). The assumption was the monkey would stop trying to solve the puzzle, and that working on it would not be worth the effort to the monkey yet. Harlow tried it anyway. He found that without rewards, the primates solved the puzzles quicker than they did with rewards. For primates, learning is a reward all on its own; primates, and particularly humans, have a biological urge to share, ask, learn and solve problems (Bruner, 2012; Tomasello, 2014).

Humans are primates. Schools and inequity in society have killed the psycho-biological love of learning, epistemological sensitivity (Bruner, 2012) and problem-solving for many people. We humans have lots and lots of hard problems to solve. Maybe the "designing for deep learning" problem is not really that humans do not like effort, but rather, that they need to discover who they are: beings that thrive on effort and learning when they sense rays of light and hope.

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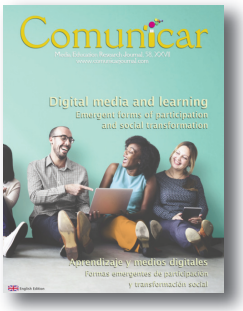

The 'danmu' phenomenon and media participation: Intercultural understanding and language learning through 'The Ministry of Time'

El fenómeno «danmu» y la participación mediática: Comprensión intercultural y aprendizaje de lenguas a través de «El Ministerio del Tiempo»

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ABSTRACT

While research on Western multimedia platforms, such as YouTube, is prolific and interdisciplinary, Asian portals remain unknown. We explore this field by analyzing the juvenile and intercultural uses of a popular visualization system in Japan and China, known as "danmaku" or "danmu". This technology inserts dynamic and contextualized comments on a photogram, with several typographical possibilities. Based on a corpus of 1,590 comments on "The Ministry of Time", collected from a fandom platform with millions of users, we analyzed the topics that arouse the most interest among Chinese fans. We combine content analysis, which incorporates coding and counting techniques of the categories with the most interventions (n>16), with multimodal discourse analysis (TV series, Asian platform and user comments). Results show that the viewers are most interested in the film genre (time travel), the characters, the plot, certain sociocultural contents, and the Spanish language. Their discussions address issues of interculturality, some topics that are taboo in China and the fandom culture in Asia. Our study illustrates the potential of participation, communication, and learning in Asian social media, and constitutes an interesting and innovative contribution to the field of media and digital literacy, with various suggestions to promote intercultural competence with the use of popular culture.

RESUMEN

Mientras la investigación sobre las plataformas multimedia occidentales, como YouTube, es prolífica e interdisciplinaria, los portales asiáticos siguen siendo desconocidos. El presente trabajo explora este campo analizando los usos juveniles e interculturales de un sistema de visualización popular en Japón y China, conocido como «danmaku» o «danmu». Esta tecnología inserta comentarios dinámicos y contextualizados sobre un fotograma, con varias posibilidades tipográficas. Partiendo de un corpus de 1.590 comentarios sobre «El Ministerio del Tiempo», recogidos de una plataforma de «fandom» con millones de seguidores, este artículo analiza los temas que despiertan más interés entre los fans chinos. El análisis de contenido, que incorpora técnicas de «coding and counting» de las categorías con más intervenciones (n>16), se combina con un análisis del discurso multimodal (serie de TV, plataforma asiática y comentarios de usuarios). Los resultados muestran que los espectadores se interesan por el género cinematográfico (viaje del tiempo), los personajes, la trama, determinados contenidos socioculturales y la lengua española. Sus discusiones abordan cuestiones de interculturalidad, algunas cuestiones que son tabú en China y la cultura «fandom» en Asia. El estudio ilustra las potencialidades de participación, comunicación y aprendizaje en las redes sociales asiáticas, y supone una aportación interesante e innovadora al campo de la alfabetización mediática y digital, con varias sugerencias para fomentar la competencia intercultural con el uso de la cultura popular.

KEYWORDS | PALABRAS CLAVE

Social networks, audiovisual media, audience, participatory culture, knowledge building, interculturality, informal learning, discourse analysis.

Redes sociales, medios audiovisuales, audiencia, cultura participativa, construcción de conocimiento, interculturalidad, aprendizaje informal, análisis de discurso.

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1. Introduction

1.1. "Danmu / danmaku" and participatory culture

While Western audiences are accessing a growing body of online video content through YouTube, in East Asia, another way of viewing called "danmu" is emerging. This technology uses a collaborative video annotation system (Howard, 2012), which allows viewers to post comments about specific frames. The comments are located on a text bar that runs across the screen from right to left (Figure 1). Each comment is synchronized and embedded in the image for subsequent visualizations. In this way a user can read and respond to previous comments, creating a sort of contextualized chat within the frame itself. Audiences can watch their favorite videos as they read, write and exchange opinions on a single screen, in a contextualized and dynamic instant chat.

This technology was first launched in 2007 on Nico Douga (meaning "Smiley Video"), a Japanese audiovisual platform that is popular among otakus (anime and manga fans). The military term 弹幕 (danmaku; fire curtain) was adopted to creatively describe it because sometimes an excessive number of comments covers the screen to the point of impeding easy viewing (Figure 1). After arriving in China in 2008, the term "danmu" (translated from the original term in Japanese) has become popular to designate both the system and each comment. Almost all video portals in China have now integrated this application; even cinemas stream comments sent from viewers' mobiles via wifi on the big screen. There is such a strong interest in this technology that many users prefer to watch videos with danmu rather than the traditional, danmu-free visualization (Chen, Gao, & Rau, 2017).

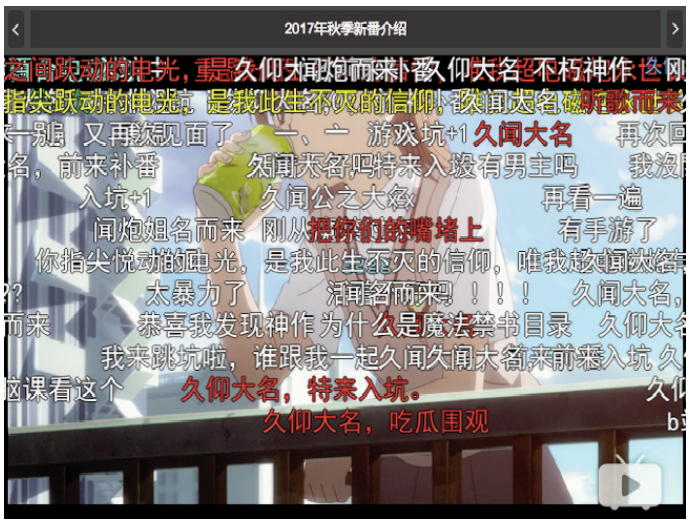


Figure 1. Anime frame with danmu.

Danmu constitutes a novel and illustrative example of participatory culture (Jenkins, 2006), in which young people take a proactive role in rewriting and transforming the audiovisual product in public, creative and powerful way. Comments serve several purposes: 1) to accompany the viewer into a "pseudo-synchronous" feeling (Johnson, 2013) of real-time interaction with other fans; 2) to provide information about the video content (e.g., background music and actors' names, historical background, etc.); 3) to entertain with humorous messages, such as complaints, parodies, and corrections (Hsiao, 2015); and 4) to express youth opinions by creating subcultural content that contributes to an authentic subculture of resistance and confrontation with the mainstream (Zheng, 2016). In the Chinese context, Zhang, Chang, & Chen (2014) have analyzed the novelty of danmu in relation to traditional media, and other studies have described the emergence of "the danmu community". In this sense, we highlight studies which understand it from a subcultural perspective (Chen, Cao, & Wang, 2013), gamification (Xie, He, & Feng, 2014) or parasocial interaction (Ma & Ge, 2014).

Finally, it is important to remember that another collaborative culture practice coexists within danmu platforms: amateur subtitlers or "fansubbers", which translate and upload television series and films to the website (Zhang & Cassany, 2016). Thus, Chinese fans read and publish danmu on frames previously subtitled and translated by another fan group (see bilingual subtitles in figures 3-5). Gee (2005) describes these affiliations as "affinity spaces" because they allow users to connect, interact and share their content in an informal, self-regulated and multimodal learning community (Jenkins, Clinton, Purushotma, Robison, & Weigel, 2009). Several recent studies confirm the potential of amateur subtitling ("fansubbing") for language learning and professional translator training (Orrego-Carmona, 2014), but there is still no research on the learning potential of the interactive practice with danmu.

In this article, we address this issue studying the danmu published by young Chinese followers of "The Ministry of Time", a Spanish television series subtitled by "fansubbers" and streamed on one of the most visited danmu platforms in China.

1.2. "The Ministry of Time" and "ministerics"

"The Ministry of Time" ("MoT"), created by Pablo and Javier Olivares ("Televisión Española", 2015-2017) is a science fiction television series that narrates time travels of various Spanish officials to preserve history. It has been critically acclaimed as the best Spanish series in history ("El País", 2017), inspiring the creation of the first Spanish "fanbase" with a level of development equivalent to that of other international fiction (Torregrosa-Carmona & Rodríguez-Gómez, 2017).

According to Rey (2015), this series constitutes a cultural item and a social phenomenon that goes beyond a mere audiovisual product. It proposes an original genre (time travel) that facilitates uchronias or alternative stories, with creative plots (Rueda-Laffond & Coronado-Ruiz, 2016) and frequent cultural and historical references, as well as complicated signs aimed at a niche audience. However, these authors also note that while the plot represents and reinforces the Spanish national identity, it is limited to summoning the traditional imagery ("Las Meninas", the aqueduct of Segovia, etc.) and academic figures (Lope de Vega, Lazarillo, Lorca, etc.), with a simplified, idealized and conservative view of the past.

In addition, "ministerics" or fans of the series are the real key players behind the series social impact on various physical and digital spaces (Scolari & Estables, 2017). Fan communities organized "ministerical gatherings" on the filming locations, published numerous "fan works" ("fanfic", "fanart", "gif", etc.) and created a number of transmedia narratives (Berlanga, Arjona, & Merino, 2018; Jenkins, 2003) to expand and complement the official production; they even launched campaigns to promote the renewal of the series. According to Estables & Guerrero-Pico (2017), many non-Spanish speaking fans became "ministerics" to learn the language and to follow its attractive time travel narratives.

The article addresses two current issues which have not yet been investigated: 1) The educational possibilities of "danmu"/"danmaku" technology (unknown in Europe) which enables users to comment and share a series by writing and reading dynamically in the frame itself; 2) Chinese fan's reception of "The Ministry of Time", within a fan platform with millions of followers, under the official censorship and aiming at learning Spanish language and culture.

The main fan activities occur on Twitter during the broadcast of certain episodes, with more than 50,000 tweets and several hashtags among the trending topics of the moment (Torregrosa-Carmona & Rodríguez-Gómez, 2017). Many viewers used a second screen (mobile, tablet, laptop) to share their emotions and opinions about what they were watching, leading to the emergence of a "social television" that enriches the audiovisual experience with the help of social media (Rodríguez-Mateos & Hernández-Pérez, 2015).

This social phenomenon coincides with our interest in investigating the impact of this series on China, where Hispanicism is developing strongly (Lu, 2008) with a growing number of young Spanish language learners. In this audiovisual scheme, and within the framework of participatory culture and fan studies, two research questions emerge: 1) Which aspects (knowledge, attitudes, and practices) arouse the greatest interest among Chinese "ministerics" and why they are relevant; 2) How Chinese fans use the potential of danmu technology to learn about Spanish language and culture.

We believe that "MoT" represents an ideal case study, given that 1) it is successful among international fandom with transmedia universes; 2) it evokes reactions towards the media portrayal of a linguistically and socioculturally distant country; 3) it serves as educational material in literary (Ruiz-Bañuls & Gómez-Trigueros, 2017) and interdisciplinary teaching (Rovira-Collado, Llorens-García, & Fernández-Tarí, 2016).

2. Materials and methods

2.1. Context

The data analyzed here originate from Bilibili.com, a Chinese platform created in 2009 and inspired by the

Japanese commentary prototype (Figure 2). Anyone can access the platform and view the content, but to publish danmu one must pass a test of 100 questions about fandom and cyber etiquette rules (to avoid ads, spoilers, personal attacks). Bilibili offers anime, comics, and video games, as well as television series and programs, movies, video clips of music and fashion. It also facilitates interaction among its members and encourages fans to show their talent by making fan art, editing fan videos or playing games. As of March 2017, there were 100 million active members, 75% of whom were under the age of 25 (https://bit.ly/2xMpAyy).

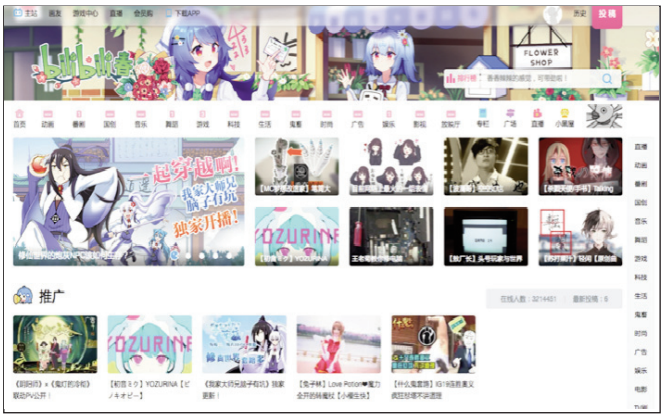


Figure 2. Bilibili home page.

Figure 3 shows Bilibili's interactive user interface. It features a media player, with a textual space underneath and a multifunctional control panel. Viewers can know how many people are watching the video in real time, the message history (right column) or the published danmu. However, these are always anonymous. They can also customize their viewing experience by adjusting the quantity, transparency, and speed of messages, sorting them by keyword, or hiding them to reduce visual distraction. There is also a separate comment section, with far less participation (Wu, Sang, Zhang, & Huang, 2018), which we have not considered.

Figure 3. Fansub for "The Ministry of Time" on Bilibili

2.2. Corpus

Using labels such as "Spanish" and "TV series", we found the Hispanic products on Bilibili, such as "Angel or Demon", "The Time Between Seams" or "Isabel", among others. Perhaps the most popular is "Grand Hotel", with almost one million views. For "MoT" we found the first two seasons, in addition to the "making of" program "The Ministry Archives", trailers, interviews with actors, etc. All the contents are "fansub", i.e., subtitled by fans; we even found two parallel versions of the series, produced by different fansub communities. Both incorporate Chinese and Spanish bilingual subtitles and have tens of thousands of danmu.

For our analysis, we chose the 70-minute pilot episode, released in Spain in February 2015 and uploaded to Bilibili in September of the same year. It is a representative sample, given that the first episode tends to attract a broader and more heterogeneous audience, beyond the Hispanic world. Despite the fact that there are eight subsequent uploads of the same episode, with different translations and resolutions (high or low) and around 1,000 danmu for each one, our study focused on the first publication, which contains the most danmu (1,590).

We collected danmu for this publication shortly after 7-15-2017, when foreign content on Bilibili was officially shut down due to the Chinese political censorship. We retrieved comments from the web source code using 'jiji' software (jijidown.com), a powerful tool designed by fans for fans, which enables the download of videos and danmu to recreate offline viewing. It is worth mentioning that the data collected is part of a larger corpus of the first author's doctoral thesis, which aims to investigate the role of danmu in linguistic comprehension and cultural understanding. The fact that the data we analyzed are no longer public does not affect the results or interest of this work, which recreates a technology used in many other series and contexts.

2.3. Methodology

To analyze the danmu, we combined content analysis and discourse analysis. Firstly, we used the "coding and counting" method, to classify the entire danmu corpus by subject and to quantitatively select the most representatives of the interests and reactions of the spectators. Secondly, we proceeded to analyze this selection globally (commentary within the frame, in the context of the series and the fan platform) using the theoretical apparatus of Computer-mediated Discourse Analysis (Herring, 2004), characterized by its linguistic approach and by the adoption of Discourse Analysis techniques to study online interactions. This combination enables the understanding of emerging issues and their statistical relationships, as well as the underlying phenomena behind the digital discourse (ideology, culture, among others).

The first step in the analysis was to identify the most frequently discussed topics among Chinese fans. To do so, we visualized the corpus three times in two weeks, identifying the interventions that refer to the same topic. We established a provisional inclusion criterion: if they constituted more than 1% of the 1,590 danmu we collected (i.e., n>16), we took an item of analysis and registered it for coding. To test the reliability of the technique, we conducted a pilot study focusing on the first 15 minutes of the episode, which resulted in 4 different topics with more than 16 danmu (similar products, main actors, learning and speaking).

We applied the same sampling method to the remaining corpus and obtained a total of 15 topics with 550 danmu (we are unaware of the number of participants because they are anonymous); we discarded 1,040 non-representative danmu, which dealt with issues that did not merit more than 16 comments. Some of the 550 selected danmu coincide in specific frames, discussing their content (e.g., a conversation); others disperse throughout the episode and are updated with some visual stimulus (e.g., an actor), but they are thematically related and have been counted conjointly. Since the original danmu use Chinese, with some interference from Spanish (e.g., character names), we translated the selected danmu into English. The first author is a danmu user and a follower of more videos on the platform, so she is familiar with the proper Chinese register used in this context. If in doubt, she consulted specialized dictionaries, for example, "Moegirlpedia" (an online encyclopedia that compiles and presents knowledge of Chinese and Japanese fandom). In order to verify the quality of the translation, a Spanish-Chinese translator checked the quoted danmu.

We classified all 550 danmu and the 15 topics into five categories using an inductive approach (Table 1). Our analysis was inspired by the work of Torrego & Gutiérrez (2016) on youth tweets posted during the viewing of two films. To reduce subjectivity, the first author coded and translated the doubtful fragments for discussion with the second author. Coding was conducted three times to achieve an agreement between the two researchers. Below we exemplify the categories with representative quotations, explaining the knowledge, attitudes and social practices that are assumed based on the portrayed reality, and the differences that caused these impressions or opinions. In some cases, we illustrate the case with an extract of key sequences, including our translation.

Table 1. List of 15 topics grouped into five categories

Categories	Topics	Number of danmu	Quotes
Film genre (time travel)	Similar products	63	"I cannot resist this topic".
	Cell phone	42	
	Time doors	34	
Characters	Physical appearance	40	"This is where the lead character in 'Isabel' appears hahahaha"
	Face confusion	38	
Plot events	Tampons	54	"The lesbian thing is great"
	Romance	36	
	Sex	50	
Sociocultural content	Velázquez	46	"The Velázquez painting!!!!!!!"
	Greetings	34	
	Crisis	17	
	Stereotype	22	
	Football	21	
Spanish language	Learning	35	"They speak so quickly"
	Speech	18	
Total		550	

3. Analysis and results

The categories that feature the most danmu relate to the sociocultural content of the series as well as the plot, with the same number of comments (140 of the 1,590 danmu; 8.8%). They are followed by the film genre category with 139 danmu (8.7%). With fewer entries, we find the characters category, which feature 78 messages (4.9%), and the Spanish language category with 53 messages (3.3%).

3.1. Film Genre

This film genre has captured the interest of many spectators and time travel fans. They associate the series with similar products, such as "Doctor Who" and its spin-off "Torchwood", "Warehouse 13", among others, as well as video games and web serials (literature available only on the web) of historical science fiction. They use East Asian emoticons like "QAQ" (crying), "_(:3」∠)_" (lying on the floor) and "╮(￣▽￣)╭" when they remember related narratives. This discussion contains 63 danmu, and it is the most popular topic in the corpus.

The audience also shows curiosity regarding the use of travel-related artifacts, such as cell phones (42 comments) and time gates (34 comments). There are questions about the telephone network, with messages like "Even the cell phone signal can travel in time? What a pirate technology this is" and "To my knowledge, the signal traveled with the person so that they can use their cell phone". They also question the logic of doors, for example, "Yes, being able to go back to the past means being able to go to the future, so the series has an error", even using jargon: "Time and history are nothing more than a form of matter vibrations, with a frequency converter you can travel as you like".

Meanwhile, other fans adopt a more open attitude ("If you can already travel, stop worrying about the details"), and they enjoy imagining ("Open the door and find me"), I have been expecting you for so long, why don't you come = = [Asian emoji that denotes disappointment]") or recontextualizing the adventure in Chinese history: "Perhaps you open the door, and you enter the era of the Fourth Prince, hahahaha". The Fourth Prince, or Yongzheng, is one of the emperors during China's last dynasty, and the main character of several popular television adaptations, including one featuring time travel.

3.2. Characters

Regarding references to the characters, 40 comments focus on the physical appearance of the main actors. Many viewers recognize the same actors from "Isabel" and "Angel or Demon" and compare their appearance between series; for example, "The dude has not even changed his haircut"... and "He has not even cut his beard. Maybe they filmed both plays at the same time and used the funds for drinking". It should be

Extract 1. 0:33:49-0:34:18 (Subtitles: What a shame, my God.)
(1) 留过学的就是没有底线
"Those of you who have studied abroad, of course you don't have limits."
(2) 左边直男癌吗请问关留学什么事了？？
"The male chauvinist on the left, is it possible to know how this relates to studying abroad??"
(3) 哈哈哈，没想到能看见活的"老古董"
"Hahaha, I didn't think I would see a live 'antiquity'"
(4) 什么叫没有底线？你觉得月经是很羞耻的事情吗？
"What does having no limits mean? Do you think menstruation is something very shameful?"
(5) 女性一个月要经历一次的事情，比受伤普遍多了，有什么不可以谈论的
"This is something that women experience every month, much more frequent than injuries. Why can't it be discussed?"

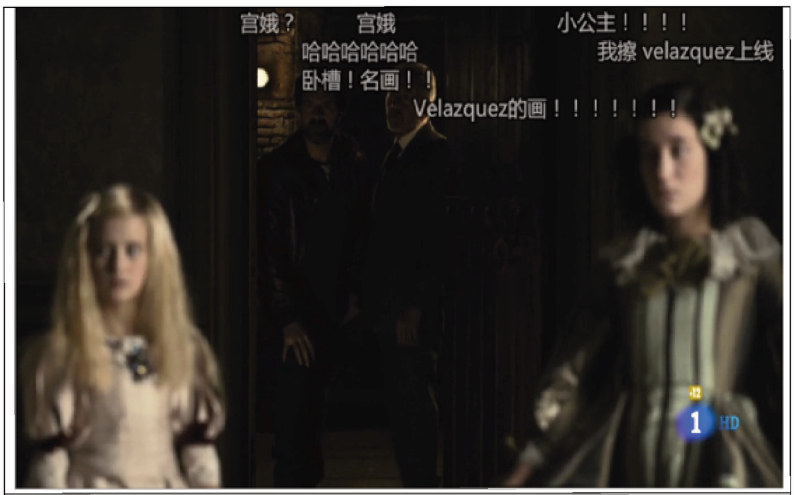
Figure 4. Tampon scene.

noted that in China, given its sheer size and cinematographic output, it is rare for the same actor to appear in many series. The comparison even extends to some stereotypes: "The protagonist has an American face", "But it is the prototypical Spanish beard" and "I should say that many Americans have a Spanish face".

However, for the other half of the audience (38 danmu), the faces seem similar, which causes confusion and hinders understanding of the plot. Thus, when the leading character returns to the past to live with his wife, a danmu asks "But does he realize that he was made a cuckold?" and other contributors correct and accuse him of "face blindness". This term comes from Chinese fandom and refers to the effect of consuming a lot of anime, in which characters usually have the same facial base and are distinguished only by their garments and hair.

3.3. Plot

Some specific events in the plot prompted numerous interventions. The subcategory with 54 danmu, the second highest, is a heated discussion about a present-day tampon shown to a nineteenth-century character (Figure 4). Its use is not common in China, and it is even less likely for it to appear on television. Thus, many contributors offer insights, sharing their experience and comparing different feminine hygiene products. Meanwhile, other viewers find its mention "incomprehensible" and even "horrible", which causes considerable displeasure and arouses criticism (Extract 1).



Extract 2. 0:21:07-0:21:28

(1) 宫娥？
"Las Meninas?"

(2) 卧槽！名画！！
"WTF! Famous painting!!"

(3) Velazquez 的画！！！！！！
"Velazquez!!!!!!! Painting by Velazquez!!!!!!!"

(4) 啊啊啊啊啊！！！！ las minas
"Ahhhhhh!!!! Las minas"

(5) 他俩居然正好在画最后门口画家的自画像位置
"Surprisingly both of them happen to be in the background of the painting, where the self-portrait of the painter."

(6) 那个不是画师把自己手画进去的作品么？
"Isn't that the piece in which the painter drew his own hand?"

Figure 5. Las Meninas scene.

Similarly, we found 31 reactions to a sex scene and 19 reactions to a joke about it. Sex is a taboo subject in China, and it is often censored in the media. Consequently, many danmu show astonishment ("My God, the plot twist"), use vulgarity ("Fuck, it is not even pixelated") or try to distance themselves from it ("Hahahahaha, I act as if I didn't understand", and "I may have seen something I shouldn't see"). There are also complaints about the personal viewing context, such as "Shit, I do not wear headphones in the subway, and there are people behind me"... and "The sex scene just now embarrassed me at the office watching it at noon".

Conversely, other fans express their enthusiasm using typical fandom expressions such as "High energy alert" and "Welfare ahead" to indicate a few seconds before that a surprising and welcome scene is about to take place in the plot; some even announce "The day we can see porn on Bilibili is just around the corner!".

Finally, 36 messages focus on the romance between characters, typical among fans of other fiction. They guess the "official coupling" based on plot details and request more "affectionate episodes". The most commented relationship is lesbian or its euphemism "Yuri", a Japanese word meaning lily. The term emerged in Japan in the 1970s and is now widely used in fan communities to refer to female homosexuals (Zheng, 2016). Although some contri-

butors say they are not prepared to see a kiss between two women, others point out that "I come to see the lily" or that they are excited: "Damn you! Leave the girl alone and allow me".

Along the same lines, we also found messages like "yoo" or "yooooooooooooooooo". This exclamation became popular thanks to a YouTube video ("Don't Watch An Anime Called Boku") and spread throughout Chinese fandom to express the excitement of watching homosexual scenes. Some people are unaware of it and criticize its use, wrongly stating that it corresponds to the first person pronoun in Spanish: "Oh, my God, don't those who said yooooooooooo know that yo means I (in Spanish)?".

3.4. Sociocultural content

A substantial group of comments goes beyond the plot and recognizes the sociocultural references incorporated in the series, decoding the signs for the audience. For example, when two contemporary characters attend the creation of Las Meninas (Figure 5), 16 messages recognize that it is the making of a masterpiece. As Extract 2 illustrates, they talk about the name of the painting and its painter, in Chinese and Spanish (sometimes incorrectly spelled), and provide information to understand the historical background. Later on, Velázquez appears, and 30 messages emerge laughing at the plot, confirming their suspicions ("Fuck it really is him"; "I was right, hahahaha") and expressing more interest towards the series ("Hahahahahaha, I have decided to follow the series").

Secondly, participants talk about Spaniards and their customs. Different greeting styles in different historical periods cause amusement (34 danmu), with various reactions such as the abbreviation "hhhh" (from "hahahaha", laughter in Chinese), typical fandom expressions such as "233" (or "23333333"; laughing out loud) or using ideograms. Among these, some indicate the corresponding social etiquette, such as "hand-kissing" and "kiss on the cheek", and contrast them with the Asian environment, which prefers another type of greeting: "There is no one who gives a handshake".

Likewise, a conversation about the so-called Spanish style (–"But what's the plan?", –"We are Spanish, aren't we? Improvise") produced 22 danmu. Aside from the laughter in different linguistic codes, some viewers are confused and ask for clarification, such as "True or false" or "Hahahaha, what the hell is this?"; but other fans understand the irony and confirm it: "This sarcasm is perfect" and "The Spanish national character".

Finally, fans are also aware of the news mentioned in the series. For example, from a newspaper headline "Atleti Champion", 21 football fans identify themselves (e.g., "I am merengue"; "That merengue don't you leave hahaha") with cheers of encouragement, such as "Visca el Barça" and "Aupa Atleti!".

The remaining 17 interventions comment about a dialogue between the main characters (–"The world was ours... Now... are we sovereign or do we pay homage to someone?" – "Yes, to the European Central Bank"). Some fans empathize with the situation, like "Hahahahahahaha, sadness of the old-time worldwide hegemony". However, more messages refer to the economic crisis, like "Hahahahahahaha who allowed you to have so many debts" and "The PIGS, hahaha", and they remember sociopolitical news: "United Kingdom has left Europe, haha-hahaha".

3.5. Spanish language

The last category consists of 53 language-related comments. 35 focus on learning Spanish as a foreign language, which constitutes a reason for many viewers to watch the series. They consider the series to be "one of the best materials for learning Spanish", and it is common to find messages such as "I have come to study" or "I also go over my Spanish by watching the series".

The conversation between learners strikes other participants as strange ("Everyone who watches the series learns Spanish. Is the series that unpopular?"). In response to them, many people point out that language is irrelevant to them, even though they are now more interested: "I do not study Spanish either, and I am watching the Spanish series for the first time, but now I kind of feel like learning". However, the given answers are negative: "Don't learn it, it will ruin you"; – "Can I master Spanish by watching series?" "No".

Another linguistic issue that raises curiosity is the spoken language (18 comments). While some are surprised by the speed of the conversation, such as "Damn, this girl, speak at a slower pace please", others point out the normality of the reaction: "The girl's speed is exactly that of the listening comprehension tests" and "That's why they say never argue with a Spanish woman". We also found a brief discussion in grammatical terms: – "Wow, Spanish sounds like labulalabulalabula" – "Because la is the female form of the definite article, and all the verbs end in R" – "Because in Spanish all nouns must come after el and la, and the direct and indirect objects also use la".

4. Discussion and conclusions

The above results answer our two research questions. First of all, these topics interest Chinese "ministerics" the most: 1) Doubts or misunderstandings about the series (plot, actors, cultural references); 2) Intercultural and sociolinguistic differences between Spain and China (stereotypes, speech speed, courtesy treatments, greetings); 3) Taboo issues in China such as sex (erotic scenes, public kissing, homosexuality), relationships (infidelities) or certain products (tampons). The longest exchanges occur because of disagreement among the fans, causing the danmu to extend beyond the corresponding frames. In these instances, the interest in the comment thread is greater than in the series itself.

Secondly, fans use the potential of danmu to "appropriate" the series in their fandom environment. Using danmu, they interpret the series from their ethos (Jenkins, 2010), helping less informed fans (integrating newcomers). They also emphasize the interesting points for a young Chinese audience that has not left the country and has little practical information about everyday life in Spain. They use the possibilities of the commentary on each frame and their shared knowledge of series and fandom to create ironies, opinions and a subculture that is an alternative to mainstream, avoiding censorship.

They write in colloquial Chinese, unusual in public communication, with short sentences, vulgar expressions, specific signs in their fandom, jumping into Spanish when necessary, reacting to a scene or another comment, creating brief exchanges. They use danmu as a contextualized chat, with deictic references to the photogram ("They are at the bottom of the picture", "That was not the piece") or to other danmu ("That merengue do not you leave"). We also observe other features of the quasi-synchronous digital conversation (Herring & Androutsopoulos, 2015), such as the separation of adjacent pairs, the "addressivity" ("the male chauvinist on the left"). Undoubtedly, danmu is particular in that it takes advantage of contextual information (photograms of the series) and the shared context (the fan platform) to facilitate commenting, that can be much more direct, brief and well placed.

Extensive literature corroborates the fact that subtitled audiovisual materials (television series and films) foster foreign language learning. Several experimental studies have inquired into the benefits of interlinguistic or standard subtitles, which translate the original into the viewer's native language, and intralinguistic subtitles, that is, transcriptions of the original soundtrack. Our study explores an even more complex new environment of bilingual, fan-made subtitles and free, dynamic, overlaid commentary.

Extensive literature corroborates the fact that subtitled audiovisual materials (television series and films) foster foreign language learning (Caimi, 2013). Several experimental studies have inquired into the benefits of interlinguistic or standard subtitles, which translate the original into the viewer's native language (Ghia, 2012), and intralinguistic subtitles, that is, transcriptions of the original soundtrack (Vanderplank, 2010). Our study explores an even more complex new environment of bilingual, fan-made subtitles and free, dynamic, overlaid commentary.

In a multimodal and informal context, Chinese youth construct meanings through media representation, confirming or rejecting their previous knowledge and stereotypes about Spain (Nikitina, 2017). Not only do they "respond to" or "understand", but they carry out complex activities such as comparing and identifying sociocultural similarities and differences, recontextualizing the plot in China, and even building collective intelligence about the projected reality. These practices provide good examples for promoting intercultural competence (Yang & Fleming, 2013; Benson, 2015). The fact that danmu are anonymous also facilitates collaboration, because it inhibits the responsibility to give correct answers or to be concerned about one' s personal image before the group.

Beyond illustrating the potential for participation, communication, and learning, our study also offers an

interesting and innovative contribution to the field of media and digital literacy. Popular culture products, such as "The Ministry of Time", are not simply entertainment, but embody cultures, values and shared knowledge of the other, eliciting reactions from adolescents (Torrego & Gutiérrez, 2016; Ugalde, Martínez-de-Morentín, & Medrano, 2017). As Tuzel and Hobbs (2017) point out, social networks and other virtual environments facilitate intergroup dialogue, which helps cultivate intellectual curiosity and develop a civic voice along with learning about people and cultures from around the world.

Finally, there are three limitations to this work. First, it uses a single episode of a series, which is insufficient to make generalizations about danmu uses. Despite that, we have pointed out an important function, that is, as a space for discussion and intercultural and language learning. We hope to contrast these observations and the danmu categorization undertaken with more far-reaching studies in the future. It will enable us to verify whether themes and categories are repeated (and whether this analysis is then sufficiently saturated and valid).

Secondly, like other papers on new digital genres, we run the risk of subjectively inferring the meaning of short, anonymous messages from multiple authors such as danmu. In order to gain an emic understanding of the emerging and collaborative practices developed by young people, we hope to triangulate our interpretation through ethnographic interviews with danmu authors on Bilibili, studying their viewpoints and their appropriation of technology in relation to language and cultural learning. It will also be suggestive to see whether skills acquired in a leisure context can be recontextualized, i.e., dissected, enriched and reused in authentic settings, leading to "seamless" learning (Wong, Sing-Chai, & Poh-Aw, 2017).

Furthermore, we have not addressed the barriers to the pedagogical use of this technology: 1) The visual disarray that it creates for some users; 2) The love-hate attitude of educators towards mass media, popular culture, and digital media (Tuzel & Hobbs, 2017); 3) The inadvertent consequences of media globalization (reinforcing/-breaking national stereotypes, highlighting social inequality, and reproducing ideological conflict) that urge the conscious and reflective participation of teachers and other social actors in digital literacy.

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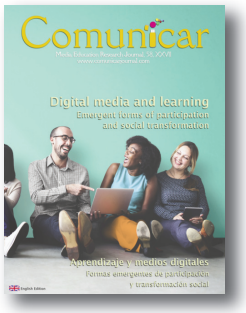

Connected learning ecologies as an emerging opportunity through Cosplay

Los entornos de aprendizaje conectado como oportunidad emergente mediante el Cosplay

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ABSTRACT

Connected learning explains how people can build learning pathways that connect their interests, relationships, and formal learning to lead toward future opportunities such as careers. However, most learning systems are not set up ideally for connected learning; for instance, most schools still teach disciplines as discrete units that do not connect to students' interests outside of school. We do not yet know enough about the structure of naturally occurring connected learning ecologies that do connect youth learning across contexts and help them follow pathways toward careers and other desired outcomes. Learning more about what works well on these pathways will allow us to design connected learning environments to help more youth have access to these desired opportunities. This paper analyzes two case studies of cosplayers –hobbyists who make their own costumes of media characters to wear at fan conventions– who benefited from well-developed connected learning ecologies. Cases were drawn from a larger interview study and analyzed as compelling examples of connected learning. Important themes that emerged included relationships with and sponsorship by caring others; unique pathways that start with a difficult challenge; economic opportunities related to cosplay; and comparisons with formal school experiences. This has implications for how we can design connected learning ecologies that support all learners on unique pathways toward fulfilling futures.

RESUMEN

El aprendizaje conectado explica cómo las personas pueden construir rutas de aprendizaje conectadas a sus intereses, sus relaciones y al aprendizaje formal que lleven a oportunidades de futuro en una carrera profesional. Sin embargo, la mayoría de los sistemas de aprendizaje no están diseñados para una experiencia de aprendizaje conectado. Por ejemplo, casi todas las escuelas siguen enseñando asignaturas como unidades cerradas que no conectan con los intereses de los alumnos fuera de la escuela. Todavía no sabemos lo suficiente sobre la estructura de los ambientes naturales de aprendizaje conectado que sí activan la experiencia de aprendizaje con diferentes contextos y llevan a los alumnos hacia un camino de crecimiento. Aprender más sobre lo que funciona en estas rutas de aprendizaje nos permitirá diseñar entornos de aprendizaje conectado para ayudar a más jóvenes a obtener los resultados deseados. El presente trabajo analiza dos casos prácticos de «cosplayers» –aficionados que crean sus propios disfraces de personajes ficticios y los llevan a convenciones y eventos– que se beneficiaron de entornos de aprendizaje conectado correctamente desarrollados. Aspectos importantes que surgieron en el estudio incluyen las relaciones con el apoyo y cuidado de y hacia los otros: dos caminos únicos que comienzan con un difícil desafío: las oportunidades económicas derivadas del cosplay y las comparaciones con otras experiencias escolares formales. Todo ello afecta la manera de diseñar entornos de aprendizaje conectado que apoyen a todos los alumnos en sus caminos únicos hacia el futuro.

KEYWORDS | PALABRAS CLAVE

Connected learning, cosplay, learning trajectories, lifelong learning, participatory culture, case study, qualitative analysis, cultural studies.

Aprendizaje conectado, cosplay, trayectorias de aprendizaje, aprendizaje permanente, cultura participativa, estudio de caso, análisis cualitativo, estudios culturales.

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1. Introduction

Learning researchers have long studied learning that takes place in authentic communities outside of schools, whether that be apprenticeships of tailors and midwives (Lave & Wenger, 1991) or rocket-building hobbyists (Azevedo, 2011). The learning that takes place within the context of extracurricular interests and hobbies is not always valued in the wider society; however, it is often viewed as less important than school learning (Lave, 2011), even when these engagements lead to additional learning opportunities and are sometimes the main way that young people learn about modern media (Barron, 2010; Jenkins, Purushotma, Weigel, Clinton, & Robison, 2006).

Connected learning (Ito & al., 2013) provides a framework that helps to conceptualize learning related to youths' interests and relationships with others in a way that connects to future-oriented opportunities like school, higher education, careers, and political clout. However, we know very little about how learners navigate these pathways in ways that could inform the future design of learning environments. While the connected learning pathways of youth have been studied (Ito & al., 2013; Barron, 2010), we know much less about those of adults who have successfully built on their passions toward meaningful, lasting career opportunity. One way to learn more about this is to turn to retrospective case studies (Maltese & Tai, 2010) to gather adults' histories of what worked well for them, so this can be applied to the intentional design of connected learning environments.

Cosplay (Bender, 2017) –the depiction of characters from media properties through costumes and roleplay (thus the portmanteau "cosplay"), usually at fan events like conventions– provides a case of how learning can be connected to future opportunity. As part of this hobby, cosplayers are motivated to pursue their interests, learn numerous skills, connect with mentors and networks, and enrich their experience of life. Sometimes they are fortunate enough that they are able to navigate pathways toward career opportunities that are relevant to cosplay. In these cases, cosplayers have benefited from a successfully connected learning ecology. However, the system is not always set up to legitimize the skills they are learning in their hobby, connect their school learning to it or broker career opportunities related to their skills. By looking at differences between positive connected learning in cosplay and contrasting examples of disconnected learning in schools, we may glean insights into how we can redesign learning ecologies at all levels to support unique pathways toward future opportunity for all learners, especially those who have been systematically disenfranchised by lack of access to resources or sponsors who can legitimize their out-of-school interests.

In investigating the perspectives of cosplayers on their practice, we ask: What sorts of learning pathways exist in cosplay? How can this hobby connect cosplayers to future opportunities? How can we make it –and learning ecologies in general– work better for those who do not experience connections between their extracurricular interests and future opportunities? Interviews with two cosplayers provided particularly positive examples of connected learning: with caring adults acting as sponsors and providers of resources, both were able to follow pathways toward careers relevant to their hobby, and they continue to pursue life opportunities like freelance work and mentorship of others that enrich their lives and connect to their hobby.

1.1. Connected learning

In a networked, digital world, today's youth need ways to connect the networks, interests, and skills they are building both on and offline, in and out of school, to sites of opportunity. Legitimizing the interests and experiences of youth will help all youth to tread their own unique paths. In their 2013 report, Ito, Salen, and Sefton-Green introduced the framework of "connected learning" to describe and explain phenomena that connect various spheres of learning in a synergistic way that leads to future opportunities. Since then, Ito and others (2013) have been editing a new report that reformulates some aspects of the framework. At the time of this writing, the updated framework puts a new emphasis on connected learning environments as not only being interest-driven and participatory but also following the principles of being "production-centered", organized around a "shared purpose", and inclusive of opportunities for "sponsorship" and "pathway building" for youth. The new report also describes how connected learning environments thrive at the intersection of three spheres: "relationships" (e.g. with peers, family, and mentors), "interests" (e.g., in fandom), and "opportunity" (expanding beyond the original report's focus on "academics" to include careers, political enfranchisement, etc.).

Each of these contributes uniquely to an environment that connects and legitimizes learning between different settings throughout the lifespan. Interest tends to provide the spark that leads to long-term engagement in connected learning activities (Hidi & Renninger, 2006). Production helps encourage active learning as young people make, share, remix, and reflect on artifacts (Papert, 1980). A shared purpose ensures community cohesion as everyone

works toward common goals, regardless of age or other demographic differences. Relationships with peers provide a context important to youth, and relationships, in general, are important for building a shared purpose. Sponsorship, in particular, whether by providing resources or opportunities to delve further into an interest, is a special sort of relationship that will be explored further in the data. Sponsors help provide access to pathways that let youth explore interests and move toward opportunities for positive outcomes in academics, careers, and life enrichment in general. Each of these spheres and principles is applied to the context of cosplay below.

1.2. Why study pathways?

Many connected learning scholars call for studying learning pathways (Barron, 2010; Kumpulainen & Sefton-Green, 2014) to help us better understand the way learning works over the long-term ("learning lives"), and because short-term learning interventions do little good when systemic barriers prevent youth from pursuing a fulfilling future (Philip, Bang, & Jackson, 2017).

This calls for studying how youth learn skills that are applicable to future goals, how mentors broker opportunities for them, and how we can facilitate this for all youth. An enriching life should be the goal of all education, going beyond the walls of the school into people's futures as contributing members of society (Bell, Bricker, Reeve, Zimmerman, & Tzou, 2013 for another perspective on studying learning pathways). This is why a connected learning framework that reaches beyond the school day to connect it to young people's hobbies, home lives, and jobs is particularly well suited for the study of learning pathways.

> Connected learning describes learning related to youths' interests and relationships with others in a way that connects to future-oriented opportunities like school, higher education, careers, and political clout. While the connected learning pathways of youth have been studied, we know much less about those of adults who have successfully built on their passions toward meaningful, lasting career opportunity. Studying them can help us derive principles for designing connected learning ecologies that work well for all youth.

Some similar previous work has traced the paths of youth through "technobiographies" of their interest-driven, outside-of-school engagements with technology (Barron, 2010), but this work is limited to youth and possibilities for future economic opportunities, rather than adults who have achieved these opportunities. Barron, Gomez, Pinkard, and Martin (2014) reported on the Digital Youth Network, an attempt to cultivate a connected learning ecology, and traced how youth within the program became proficient with new media over time and across settings, but this also focused on youth. The original connected learning report (Ito & al., 2013) also traced the paths of several young people to illustrate examples of connected learning, but except for one, these were all youth as well. A recent survey operationalized the connected learning spheres and principles as did the present study, in order to measure youths' experiences with connected learning, but it was again limited to youth (Maul & al., 2017). Bell and others (2013) traced STEM-related learning pathways of youth through in-depth ethnographies, identifying ways that youth engaged in STEM, such as learning about biology through health-related behaviors, over time in various settings. While this study went a long way in legitimizing youths' outside-of-school STEM-related activity and how it connects across settings, it again focused on youth. A gap remains in tracing the paths of adults from their youthful engagement in interests, supported by relationships and sponsors, toward opportunities such as careers.

Maltese and Tai (2010) interviewed 116 graduate students and scientists to determine the experiences that sparked their interest in science. Like the present study, this research involved interviewing adults to determine retrospectively the experiences that set them on their current path toward science careers. However, it did not trace their entire path, and it focused only on science.

Recent work also tells us that most coordinators of youth-serving programs conceptualize ways for youth to connect to more advanced opportunities within their programs, rather than between programs (Akiva, Kehoe, &

Schunn, 2017), implying that we need more examples of how caring adults can help youth connect interests and opportunities between settings. An analysis of connected learning pathways that led to favorable outcomes can help provide the guidance these youth-serving organizations are seeking.

1.3. Cosplay: Connected learning in action

Cosplayers vary greatly in their engagement, from those that create "closet" cosplays from combinations of ordinary clothes that could be found in a closet, to those that buy professionally made costumes, to those that make their own from scratch. They could copy a character's outfit exactly as it appears on TV, in a movie, video game, comic, etc., or they might design an alternate version of the outfit, such as "steampunk", a faux-Victorian aesthetic complete with trinkets that look like they are "steam-powered". Most cosplayers wear their costumes to fan conventions ("cons"), where they can pose for pictures, meet other fans cosplaying from the same fandom, shop for goods from their favorite fandoms, and attend panels celebrating geeky topics. In this sense, cosplay is a participatory culture that both celebrates media as it is and "poaches" and reinterprets it through wearing costumes that allow fans to be the characters (Jenkins, 2012). Like other participatory cultures, cosplay is open to creative participation by all who are interested, it supports creation and sharing, it involves informal mentorship either in person or through online tutorials/resources, members believe their creations matter, and members have a social connection with each other (Jenkins & al., 2006). These all help to support the learning process in cosplay, which is robust as it is in other participatory cultures (Jenkins & al., 2006).

Cosplay fits in well with a connected learning framework, especially for those who follow a pathway involving learning how to make their costumes. It may start from an "interest" in fandom or from "relationships" with friends who wish to put together a cosplay group at a con. The skills developed and relationships built both online and offline can provide "pathways" toward "opportunities", such as design skills applicable to a career, or meeting people who may become future business clients. Since cosplay is an expensive hobby, "sponsorship" is important, and many young cosplayers rely on parents and other caring adults to financially sponsor their first forays into cosplay by paying for materials, con attendance, etc. Sometimes these adults also provide lessons in skills needed for cosplay, like sewing or sculpting. Otherwise, cosplayers can build their pathways through online resources such as tutorials, demonstrations, and online discussion groups where they can ask questions and receive advice. The "shared purpose" of the cosplay community –to make or otherwise acquire costumes of characters to wear at fun events like cons– means that members of the community are willing to help and welcome each other, both online and in person at cons. This is a "production-centered" practice because of the production of costumes and performances "in character".

However, not every cosplayer manages to access economic and enfranchisement opportunities through their hobby. Most environments are not set up to allow such access, even if it is desired. So while cosplay, in general, is successful at connecting interests and learning, we must study exceptional cases that also connect to economic opportunities if we wish to find principles for pathway design that can lead all youth toward such opportunities.

In approaching this research, we were guided by the following questions: What sorts of learning pathways exist in cosplay? How can this hobby connect cosplayers to future opportunities? How can we make it –and learning ecologies in general– work better for those who do not experience connections between their extracurricular interests and future opportunities?

2. Material and methods

To explore cosplayers' pathways, the lead author was situated as an embedded ethnographer in the cosplay community as part of a research project on the math inherent in textile crafts funded by the National Science Foundation in the United States (Peppler & Gresalfi, 2014). After obtaining informed consent, ten cosplayers participating in regional fan conventions were interviewed, using a semi-structured interview protocol that asked how the participants had learned the skills needed for cosplay, what drove them to participate in this hobby, stories about particular projects, and how online and in-person communities were involved in their practice. Throughout each interview, cosplayers discussed their experiences with their current occupation, and with school, particularly focusing on math classes because of the larger math-related research project. The interview protocol was intended to determine aspects of the community and craft context that led to learning of crafts (in this case, the craft of cosplay), as well as to contrast math used in crafts with math used in school. While the interview did not ask about connected learning principles specifically, it is perhaps unsurprising that they emerged from discussions of interest-

driven hobbies, relationships with a community, and academic and occupational opportunities.

The cosplayers were interviewed individually, except for one case in which three cosplayers spoke with the interviewer at the same time. Interviews took place in person, over the phone, or via video conference and lasted approximately 45 minutes to an hour. Two interviewees were male, and eight were female. They were selected through a process of convenience sampling –cosplayers the interviewer knew personally—that led to snowball sampling– friends of the first wave of cosplayers. They ranged in age from 21 to 33 at the time of the interview, and all were White Americans living in the United States.

All interviews were transcribed and reviewed by the lead author in order to identify cases of compelling connected learning pathways. In analyzing the interviews, we found that the cosplayers described cosplay as a worthwhile force in their lives and described thorough learning pathways of how they learned to cosplay and continued to engage in their hobby. For many of the cosplayers, their hobby remained disconnected from any economic opportunities like their careers. Two interviews stood out as exceptional cases of connections between cosplay and careers, from which design insights for connected learning pathways could be gleaned. These acted as models of positive deviance (Pascale, Sternin, & Sternin, 2010) and extreme cases (Flyvbjerg, 2006) that, among all the interviews, provided the most information and suggestions for how a well-developed connected learning model could be scaled, such as showing how cosplay could lead to economic opportunities. The other interviews either did not show direct connections between cosplay and careers, or, in one case, was missing crucial details due to time constraints placed on the interview. Extreme cases often provide the richest information about how a phenomenon works and thus are justified for inclusion (Flyvbjerg, 2006). This was the case here.

Interviews were split into analytically relevant chunks (usually a sentence or a few sentences on the same topic). Each chunk was inputted into Microsoft Excel and coded a priori according to the connected learning spheres and principles; then the data was further consolidated into themes. The coding remained open to emerging themes. Each code is described in Table 1 below.

In addition to the connected learning framework-related codes, another theme emerged related to the discussion of disciplinary topics traditionally taught in schools (e.g., math). Those instances that mentioned disciplinary learning were sub-coded as "connected" or "disconnected" to interests, projects, etc., depending on how the interviewee discussed it.

Codes were combined into themes detailed in Results below, and anecdotes and quotes related to the themes were drawn from the interviewees' reports to illustrate design principles for making learning pathways more connected to interests, relationships, and opportunities.

Table 1. Codes applied to the interview cases

Codes: Connected Learning Spheres	
Relationships	When family, friends, mentors, on- and offline community members, or others who played a role in their cosplay experiences were mentioned. It often overlapped with "sponsorship" and "shared purpose".
Interests	Anything engaging the interviewees' interests, including anything they called "fun".
Opportunity	Academic (e.g., college majors) and economic (e.g., jobs or freelance work) opportunities
Codes: Connected Learning Principles	
Pathway building	Anytime interviewees mentioned something they did to build skills (or that demonstrates their current skill) along their cosplay pathway. It often overlapped with "production-centered" and "opportunity" because opportunities are parts of pathways.
Shared purpose	Whenever doing something with others, such as a cosplay group; often overlapped with "relationships".
Production-centered	Working on a specific project, as well as when they had something to say about the benefits of making something
Sponsorship	Whenever someone helped the interviewees do something that they could not do on their own, or the interviewee acted as someone helping others; often overlapped with "relationships".
Emerging Code: Disciplinary Learning	
Math, literacy	Mentions of a disciplinary topic traditionally taught in schools, such as math; sub-coded as "connected" when related to, for instance, a cosplay project, and as "disconnected" when decontextualized and school-bound only.

3. Results

The following presents a summary of each of the two cosplay cases, followed by the themes derived from the coding of the interviews.

3.1. Introducing connected cosplay cases

Lexi (all names are pseudonyms) had been cosplaying for nine years and was 31 at the time of the interview. With her artist mother as a sponsor of learning new craft skills and her friends encouraging her to join their cosplay group, Lexi dove right into the hobby with a costume that was a big challenge to sew. Now, she uses the knowledge she gained about clothing from cosplay in her job for a large intimate-wear company. She continues to seek opportunities to express fashion creatively through designing for local fashion shows and freelance fashion consulting work. Lexi often cosplays from video games she enjoys, and almost always cosplays with a group of friends from the same series, such as when she cosplayed from the TV show "Avatar: The Last Airbender" and also helped to make costumes from the same show for non-sewers in her group. She almost always cosplays male characters, partly because it makes it less likely for men to show a romantic interest in her. As a woman who has been in a committed relationship with another woman for many years, this is a desirable outcome but also allows her to play with gender in ways she enjoys. See Figure 1 for an example of Kuja, a male video game character Lexi has cosplayed. Kuja wears a revealing costume, and Lexi delightedly reported receiving confused reactions about her gender when wearing this cosplay. For her, cosplay is "just kind of nice to step outside of yourself for a bit".

Tim's interest in entertainment design was supported early by his enrollment in a performing arts middle and high school that he now, at 33 during the interview, works for as a sculpture teacher. Like Lexi, he began to cosplay in order to join friends at fan conventions and to express his love for particular characters. Now he is paying forward the sponsorship he received, and is encouraging others' interests in art and cosplay; he lets students bring cosplay projects into his class, sometimes even brings his own to class, and allows friends to use his studio at home to work on cosplay and learn techniques from him. He is well accomplished at both sewing and prop design. Figure 1 shows one of Tim's cosplays, that of Captain Harlock, a character from various TV shows and movies, including "Space Pirate Captain Harlock". Tim has always loved this character, ever since he first encountered him in one of the first animes he ever watched. He described Harlock as "dark" and "mysterious" and went into great detail about how he made this "dream" costume, from molding Harlock's gun out of silicone to attaching snaps to the cape so it will not tear. He also described the costume as "never finished", detailing his plans to add an animatronic bird to it, to represent Harlock's pet parrot. His passion for cosplay manifests as a continuous challenge to himself.

Figure 1. Lexi as Kuja from Final Fantasy IX (left) and Tim as Captain Harlock from "Space Pirate Captain Harlock" and other works (right).

Results of the analysis of the two cases showed that while all aspects of the connected learning framework played a role in the participants' paths, relationships (particularly peers and sponsors), challenging

starts, and economic and enriching opportunities were particularly strong themes. Both interviewees also discussed math classes as a disconnected experience that contrasted with their experience of learning how to cosplay.

3.2. Themes

3.2.1. Caring others: Friends, family, sponsors

As a combination of the codes of "relationships", "shared purpose", and "sponsorship", this theme emerged as very common in the data and was consequential in motivating initial and continued engagement in cosplay. Both Lexi and Tim, like most cosplayers, got into the hobby because friends wanted them to join their cosplay group at conventions, so their relationships with peers who also shared their interests provided initial motivation. Shared interests in a fandom and the shared purpose of celebrating those interests at conventions were also catalysts for making new friends. As Tim put it, "There's a big difference in cosplay by yourself and cosplay in a big group. It is so much more fun… Whenever you have like two or three people, and then you are like, 'Oh hey, you are from our show,' you grab them, and they spend the day with you; like, you are making friends the whole time". Peers are vital to the lives of youth and young adults, and cosplayers are no exception.

Sponsorship by caring adults (Barron, Martin, Takeuchi, & Fithian, 2009) played an important role too. In Lexi's case, her mother is an artist who always encouraged her, growing up, to learn new skills by doing, and is the one who gave Lexi her first sewing machine when she expressed interest in sewing her cosplays. Later, Lexi received sponsorship and legitimization of her interests from the realm of formal education in her Human-Computer Interaction (HCI) master's program, where she learned how to integrate electronics into clothing. Tim received sponsorship from formal education as well, such as when he attended a performing arts school for middle and high school, where he learned costume design for theatre, and his undergraduate program in Entertainment Design, where he learned skills like resin-cast molding that he can use to make cosplay props. Beyond these formal routes, both cosplayers learned a great deal from online sources and in-person mentors.

3.2.2. Pathways: Starting big

"Pathway building" was the most common code, but an interesting finding emerged in terms of how cosplay pathways tended to begin. While all ten cosplayers followed unique pathways, a common theme that emerged across most of the interviews was that of taking on huge challenges early in the process of becoming a cosplayer. For instance, the first costume Lexi ever sewed involved sewing bias tape along the curves of an underbust corset-like garment. It was not easy; she said, "If you are ever wanting to learn how to sew, don't do bias taping on a curve". She was motivated to take on this challenge because she wanted to join her friends' group of steampunk-style characters from the video game "Final Fantasy VIII". She says she has not backed down from a challenge ever since: "I kind of started on a hard one and kind of haven't stopped since then. Literally every time I make something, I learn something new about how to sew".

Tim, as well, took on challenges that were beyond what his skill level "should" have been. For the first cosplay he wore at a convention, he chose a version of his character's costume that was not very popular among cosplayers, meaning he had fewer online resources to draw from in order to figure out how to make it. Though he had a great deal of formal training in costume design for theatre, cosplay turned out to be altogether different, and he engaged in trial-and-error to develop skills needed to complete his cosplays. Now he is expert enough that he can make his own sewing patterns and tell how to construct a costume just by looking at it.

3.2.3. Opportunities: Beyond school and jobs

While a less frequent code, "opportunities" helped identify the two cases as outstanding because of the way both Lexi and Tim use skills they learned in cosplay in their jobs and opportunities outside their careers. Lexi continues to learn a great deal about clothing in her job for the digital division of a well-known brand of intimate-wear. However, she gets to do more creative work outside of her job, such as designing a line of interactive, electronically-enhanced clothing for a local fashion show. She does freelance fashion consulting, and her cosplay and fashion design work allow her to get her name on the map for potential clients. This allows her to be a sponsor for others by sharing her knowledge of creative clothing design.

Tim is a sculpture teacher at the same performing arts school he attended as a child. He regularly incorporates cosplay props into his classroom both by bringing in his own and letting students bring in theirs. This sponsorship of others' interest in cosplay is one of his passions; he hopes to one day establish a permanent cosplay studio in his

hometown where cosplayers can gather for lessons and collaborative work. He already takes a leadership role in organizing social events for his local cosplay community as well as volunteering for the local anime convention.

3.2.4. Disconnected learning: A contrast

This code emerged from the data, largely from the interview's occasional focus on math. Many interviewees –not just the cosplayers– in the larger research project expressed dissatisfaction with their experience with math classes. Lexi and Tim were no exception. Lexi struggled with the highly theoretical math classes she took as part of her undergraduate program in aerospace engineering, saying she would have preferred applications to concrete contexts. She said these math classes "had no basis in reality… It was completely based in a weird surreality that certain people enjoy and I'm not terribly fond of". In contrast, she said math in cosplay is applied directly to the project the cosplayer is working on.

Most of Tim's experiences with math classes seemed similarly disconnected from his interests. He lamented that math is not often taught in a way that connects to topics of relevance to students' lives, contrasting a problem about a train needing to coordinate speed with schedules and passenger numbers, with a problem that involved his interest in cosplay: how could he appropriately budget to buy materials for multiple costumes. It seems that people who have experienced connected learning can recognize how disconnected traditional school learning tends to be.

This study used the connected learning framework to analyze the hobby of cosplay – creating and wearing costumes of media characters at fan events. Two cosplayers were selected from among ten interviews as compelling cases of connected learning pathways leading to cosplay-relevant careers. Analyses of the interviews showed the important role of caring others, starting with a large challenge, economic opportunities inside and outside of schools and careers, and school learning related to interests rather than disconnected from youths' concerns.

4. Discussion and conclusion

The data addressed our research questions by showing us how Tim and Lexi's unique learning pathways in cosplay worked well for them, how their hobby connected to economic opportunities both within and outside careers, and how we can design for connected learning that works well for all learners. Tim and Lexi's experiences with cosplay learning pathways led to positive outcomes primarily because they connected to important aspects of their lives, as the connected learning framework would suggest. Relationships with peers motivated their initial engagement, and adult sponsors provided access to materials and skills, whether in person or online. They both began their cosplay journeys with a challenge that "should" have been beyond their current skill levels, but they managed it and continued to challenge themselves. This contrasts with conventional views of learning as following a step-by-step trajectory from easier to more difficult, suggesting that when appropriately motivated, learners will surmount challenges "beyond their level". Both cosplayers were also fortunate to be able to apply their cosplay experiences to their careers, but they also felt a sense of fulfillment from opportunities beyond their careers in which they could sponsor others' interests in cosplay and clothing. Finally, they both recognized how disconnected their math classes had been from their lives and contrasted that with the way math in cosplay did connect to their interests and goals, suggesting that school should do the same.

These findings help validate the emerging updated connected learning framework's focus on opportunities in general rather than on "academics" only. Tim and Lexi's careers and outside-career economic opportunities were important results of their connected learning pathways that would have been missed with an exclusive focus on school. Additionally, this work shows the value of tracing the pathways of adults, in order to see how opportunities play out successfully and how we can help all learners access similarly successful pathways. These cases also help

to show the variety of meaningful opportunities that can exist, beyond both school and careers. Future work on connected learning should take all this into account.

To create a more effective connected learning system that values all learners' interests and skills, and orients them toward economic and political opportunities, these cosplayers show us that we need to 1) Legitimize learners' interests rather than dismiss them as frivolous. 2) Support their relationships with peers as positive motivators. 3) Act as sponsors who provide access to skills and resources. 4) Support youths' goals even if they seem beyond their current skill level. 5) Recognize opportunities both inside and outside of careers as ways to enhance creative expression and meaningful relationships with others. Considering how disconnected most traditional schooling is from the rest of youths' lives, these cosplayers also suggest that 6) School learning should be applied to contexts that matter to students' interests and future plans.

One way schools have been integrating interest-driven learning into the curriculum is through the growing trend of makerspaces (Wardrip & Brahms, 2016). By providing space and materials for the open-ended making of student-choice projects, schools can sponsor students' interests, whatever they might be, while students develop production-centered design skills that could be applicable to future opportunities. With a makerspace, a school does not have to be centered on arts like Tim's was in order to support student interests, nor will students have to wait for graduate school as Lexi did, before learning an interesting hands-on topic like e-fashion. If provided with the proper resources and sponsorship, students could even work on cosplay in a school makerspace, and perhaps set out on a path from there toward a career, just like Tim and Lexi. Even if the makerspace or other interest-driven activity is outside of school, schools could still provide legitimization by, for instance, giving class credit or taking it into account in college applications.

Only when we create supports for unique pathways both in and out of school, throughout the lifespan, will equitable connected learning be accessible to all.

Notes

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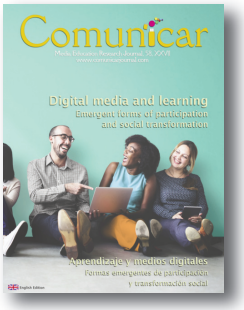

Young people learning from digital media outside of school: The informal meets the formal

El aprendizaje de los jóvenes con medios digitales fuera de la escuela: De lo informal a lo formal

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ABSTRACT

The dissonance between what teenagers learn in classrooms and their everyday lives is not a recent phenomenon, but it is increasingly relevant as school systems are unable to follow the evolution of media and society beyond traditional concerns regarding the protection of young people. An overly scholarly view of learning continues to prevail in our society, which seems to marginalize the knowledge that young people develop with and through media and digital platforms. Based on questionnaires, workshops, and interviews conducted with Portuguese teenagers, aged 12 to 16 years old (N=78), attending an urban and a rural school in the North of the country, this paper aims to understand how these teens are learning to use the media, what motivates them, and if their media practices contribute to the acquisition of skills and competencies useful to their lives inside and outside school. The research main results confirm the existence of a gap between formal and informal education. Informal education is mainly motivated by their needs and peer influence. Colleagues and family, alongside the Internet and self-discovery, appear as important sources of knowledge. Another important conclusion is that informal learning strategies contribute to the development of skills and competencies that are useful from a school viewpoint.

RESUMEN

La disonancia entre lo que aprenden los jóvenes en clase y en su vida cotidiana no es un fenómeno reciente, pero es cada vez más relevante, ya que la escuela no es capaz, evidentemente, de acompañar la evolución. En nuestra sociedad, sigue prevaleciendo una visión demasiado escolarizada del aprendizaje, que parece marginalizar los conocimientos que los jóvenes desarrollan con y a través de los medios y de las plataformas digitales. Basado en cuestionarios, entrevistas y talleres realizados con jóvenes portugueses entre los 12 y los 16 años (N=78), de una escuela urbana y otra rural del norte del país, este artículo pretende comprender cómo están estos jóvenes aprendiendo a usar los medios, lo que les motiva y si lo que hacen con ellos contribuye a la adquisición de capacidades y competencias útiles para sus vidas dentro y fuera de la escuela. Los principales resultados de la investigación confirman la existencia de un foso entre la educación formal e informal. La educación informal es sobretodo motivada por sus necesidades y por la influencia de sus pares. Los compañeros y la familia, junto con Internet y con lo que descubren por ellos mismos, aparecen como importantes fuentes de conocimiento. También se concluyó que las estrategias informales de aprendizaje contribuyen al desarrollo de capacidades y competencias útiles desde un punto de vista escolar.

KEYWORDS | PALABRAS CLAVE

Young people, digital media, transmedia, informal learning, skills, school, media literacy, qualitative research.
Jóvenes, medios digitales, transmedia, aprendizaje informal, competencias, escuela, educación en medios, investigación cualitativa.

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1. Introduction and theoretical framework

This article is centred on young people's media uses and perceptions, namely the ones related to learning. Within the scope of the international project "Transmedia Literacy", 78 Portuguese youngsters were enrolled in ethnographic-based research about their media-related informal learning strategies and practices. These youngsters, aged between 12 and 16 years old, are part of a generation with abundant contact with different media –old and new (Delicado & Alves, 2010; Pereira, Pinto, & Moura, 2015b)– and subject to diverse expectations regarding how they are using them and for what. The ways schools are keeping their pace and relevance in their daily lives are also approached, namely by the students' views on the connection between formal and informal learning sites. Before moving to the presentation of the research and its outcomes, the connection between school and media, formal and informal learning, are briefly discussed.

Schools are sociocultural institutions: their organization and the accreditation of their role are "culturally and historically dependent on societies' visions of the purposes of education" (Livingstone & Sefton-Green, 2016: 30). Therefore, multiple actors intervene in the definition of what school, as the most relevant instance of formal education, is about. Among those actors are the students; however, their voices are recurrently the least heard. According to Gonnet (2007: 70), "the children's questions stay outside schools". Livingstone & Sefton-Green (2016: 3) sustain this same argument based on research with a class of 13 to 14 years old students. The researchers "were struck by the lack of close attention to young people's voices and experiences" (Livingstone & Sefton-Green, 2016: 31-32). As stated by Sarmento, schools deal not with children and teenagers, but with students: "In a certain way, in front of the institution, the child "dies" as a concrete subject, with its own knowledge and emotions, aspirations, feelings and desires, to give place to the learner, receiver of the adult's action, agent of prescribed behaviours by which he/she is evaluated, rewarded or punished" (Sarmento, 2011: 588).

Therefore, adults –and broad societal and cultural values– are traditionally the key players that define the purposes of formal education and, alongside it, the very concepts of children and teenagers. Within the traditional school model based on curricula, unidirectional communication and individual assessment (Jonnaert & al., 2006; Erstad & Sefton-Green, 2013; Livingstone & Sefton-Green, 2016), youngsters are too often seen "through the lens of who they might or should become" (Livingstone & Sefton-Green, 2016: 33). According to Pereira (2013: 175), despite more than three decades of growing acknowledgment of the importance of youth's voice, young people are still recurrently framed "as the adults they will become" and conceptualized by the adults themselves, based on their values and worldviews, often neglecting the ones from youth. Teachers and parents play a crucial role. The first when they comply –reluctantly or willingly– with the broader educational system; the latter due to their expectations of what school is about– much based on the prospects of reproducing their own experience – and what they believe that should be done as a way of preparing their children to the future. Gonnet (2007: 81) wrote that "the child, the adolescent, inside the classroom, willing or not, brings with him their parents, in his mind". Those whose voice is left aside (young people) may also accept the externally defined system. For instance, Livingstone & Sefton-Green (2016: 242) "saw young people's ready internalization of [schools organization towards] standards and metrics, into their everyday talk, interactions, and sense of self", despite their own concerns seldom being part of what was evaluated. Nevertheless, worries regarding the inadequacy of the traditional school system are recurrent. The expected lack of appeal of the school amidst students, the loss of its hegemonic position as a learning site or its outdated –because inflexible and unidirectional– structure, which neither corresponds with the needs of late modernity nor is synched with the young people's practices, are frequent arguments (Perrenoud, 1999; Jonnaert & al., 2006; Pérez-Tornero, 2007; Jenkins & al., 2009; Livingstone & Sefton-Green, 2016). According to Erstad & Sefton-Green (2013: 89), the beliefs regarding the effects of digital and online media –allegedly capable of creating a new generation, born within it and being their main users– gave strength to the expectations about the gap between "what is expected in terms of guiding and teaching the young and what they are presented with on a day-to-day basis".

Analogic and digital media are "the new support for public knowledge" (Pérez-Tornero, 2007: 33). As stated by Buckingham (2003: 189), "there has been a growing acknowledgements that the school is not the only preserve of education; and that learning can and does occur in the workplace, in the home and the context of leisure activities". According to Gee (2004: 77), "people learn best when their learning is part of a highly motivated engagement with social practices which they value", and digital media makes it possible. It can easily bring people together based on shared interests and purposes, forming affinity spaces, and their affordances also allow more relational and realistic learning situations (Gee, 2004; Costa, Cuzzocrea, & Nuzzaci, 2014; Aaen & Dalsgaard,

2016). As stated by Barrett (1992: 2), who wrote before the widespread availability of ICT, "the work we do in and outside the classroom involves people reading and talking and writing to each other in order to synthesize their thoughts about various topics using lots of information available to them". This was stressed by digital media as it supposedly facilitated the emergence of a participatory culture characterized by affiliations in online affinity spaces, networking, and participation, production, and circulation of contents, from and among their members, and collaborative problem solving (Jenkins & al., 2009). Young people are key elements of this culture, engaging in a great diversity of informal learning situations (Scolari, 2018), which have been, according to Buckingham (2005) or Erstad & Sefton-Green (2013), too many times presented in competition or opposition to formal learning and as the elixir for its problems. However, as Buckingham (2005) remembers, there should be caution with utopian discourses regarding informal learning, overlooking youth's own uses and questions for the sake of adults' hopes and beliefs. Formal attributes of learning can also be present in digital media and the risks of neglecting the learners' voices are real, despite the media's affordances (Greenhow & Lewin, 2016).

> In our society, there is an overly scholarly view of learning, which marginalizes the knowledge acquired by young people in their leisure time, in digital platforms, in peer communication. Curricular learning does not intersect with what they learn outside. Therefore, to respond to the multiple and constant appeals of the digital universe, young people develop learning strategies on their own and with peer groups. The media continue to be a subject only for break time and are hardly recognized as a source of learning; they are seen mainly as a source of entertainment and leisure, also by students.

Warschauer & Ware (2008) systematized three main tendencies amidst the discourses relating ICT, learning, and literacy. The main one is related with schools' conservativism and the gap between formal and informal learning; another one is related to youth empowerment through ICT; the last is concerned with its use as another educational tool, "interpreted in terms of how they fit into the system of standardization that regulates educational practices" (Erstad & Sefton-Green, 2013: 95). According to Buckingham (2005), how media is used in and outside of school is so different that it constitutes a new digital divide. Livingstone & Sefton-Green (2016) and Snyder (2009) found a gap between popular culture and media evoked by teachers in school and the one preferred by their students. Therefore, youth questions and practices regarding the media continue to stay outside of most classrooms, despite their pervasiveness in everyday life. Besides, Pereira, Pereira & Melro (2015a), who studied the Portuguese One Laptop per Child Programme, found a simplistic focus on access, rather than on pedagogical or critical uses; the computers had a scarce presence in classroom routines. As the official Portuguese Media Education Guidance noted, "children and young people are becoming more and more intensely identified as consumers and producers of media" (Pereira, Pinto, & Madureira, 2014: 5), and schools can neither ignore the learning outcomes of these practices nor the questions they stimulate.

2. Material and methods

Short-term ethnography was the approach followed in the "Transliteracy European" project, where both quantitative and qualitative methods were applied[1]. For this specific paper, data provided by questionnaires, workshops, and interviews were used in order to gain "several perspectives on the same phenomenon" (Jensen, 2002: 272). This triangulation of methods allows a richer and multi-layered analysis, acknowledging practices and giving account of students' perceptions and motivations, which are at the centre of the analysis.

The sample consisted of 78 teens, aged between 12 and 16 (the average age is 14 y/o; 46 are girls and 32 boys), from two public schools in the northern part of Portugal – one situated in a mostly urban county (Braga, 43 students

involved) and the other in a mostly rural area (Montalegre, 35 students)[2]. In each school, two classes participated: one from the 7th and the other from the 10th level of schooling.

77 students completed a questionnaire whose main objective was to collect general information about teens' socio-cultural backgrounds and media access, uses and perceptions. The workshops involved the total sample (78) and consisted of 8 sessions (2 sessions by workshops and by classes). Each class was divided into two groups according to students' preferences –video games or participatory cultures– and each group performed an activity related to these topics. The workshops enabled the immersive exploration of the teens' transmedia practices and their informal learning strategies, engaging them in gameplay and media production. For the interviews, five students from each workshop group were invited, totalling 40 interviews. The aim was to deepen the adolescents' understanding of transmedia practices, with special emphasis on the creative skills and informal learning strategies they perform in video games, content production, and social media.

The study methods are represented in Figure 1.

Based on the data provided by these three methods, this paper aims to contribute to a better understanding of how teenagers are using media in their everyday life and what perceptions they have about media use in the classroom, seeking to understand the relation between informal and formal learning. It also intends to find out how they are learning with media and to what extent their informal learning strategies have an impact on formal education.

This analysis is part of the "Transmedia Literacy" project, whose general goals were to identify teenagers' transmedia practices from eight European and non-European countries and exploit their transmedia skills and informal learning strategies to improve formal education. The research was not intended to be representative, given its eminently qualitative nature.

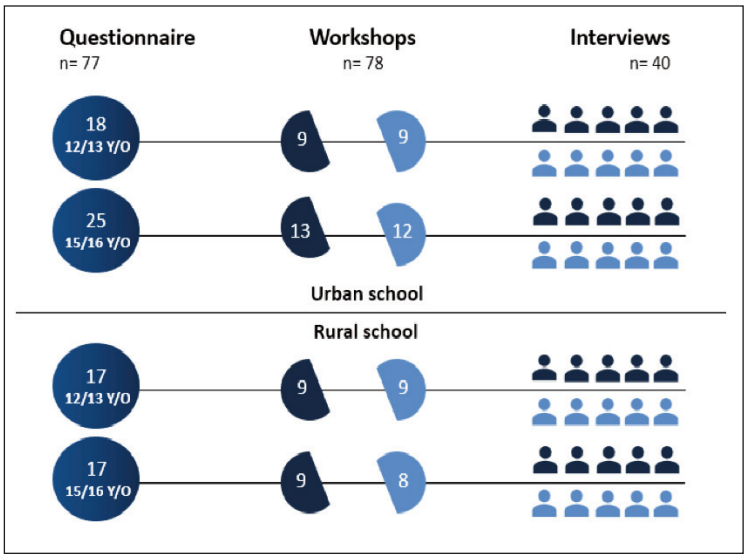

Figure 1. Portuguese research methodology within the "Transliteracy Literacy" project.

3. Analysis and results

3.1. Teen's media access and uses

The questionnaires confirmed that the youngsters are part of a connected generation: all respondents report having a television at home, a mobile phone and a computer. These are also the three most used devices, with mobile phones taking the lead. A huge majority (74) report having a wi-fi connection and, on a five-point scale –ranging from 1 (totally disagree) to 5 (totally agree)– the statement "I always like to be connected" receives an average score of 4.19. This connection is, for most of them, a synonym of being logged in social media. A great number of students (68) claim that they use social media on a daily basis. That is a frequency of use that only television can approach, with 64 respondents reporting that they watch it every day. The prominent role of social media is corroborated by the answers to the questionnaires' open-ended questions. Social media was mentioned 38 times when they were invited to complete the sentence "What interests me the most on the Internet is…".

Regarding social media, Youtube (music and YouTubers'/Gamers' videos) and Facebook are their favourites. Just two respondents do not use YouTube regularly, and six do not use Facebook. Less used, but still popular, are Instagram (56 users), Snapchat (52) and WhatsApp (48).

Considering variables such as geographical area (urban/rural), age and gender, significant differences were not found. The exceptions were playing video games (mostly a boys' practice) and creating content intended for online publication (made more frequently by girls). Digital services and platforms have broken somehow the disparities of media access by young people from the urban and the rural areas, although they have not erased inequalities in terms of uses, practices, and opportunities (Pereira & al., 2015a). This brief characterization of the sample's media

access and uses allows framing the analysis below, focused on the role of media at school and in the learning process of these teenagers.

3.2. Media presence at school: Teenagers' perceptions

Despite being regular media users, their use is mostly confined to the youngsters' leisure time, being away from school – or rather, from the classroom, because they remain present during breaks. During the interviews, just two students mentioned having learned something about media with their teachers in the classroom. A 15 y/o boy recalled the day his teacher taught him how to create a profile on a social network. A girl of the same age considered that the ICT subject helped her "to work with computers and software". She goes on to say, "if we want to go a little further, ICT classes are not enough". So, according to these students, at school, media are only present at recess, rarely becoming a subject of exploitation, conversation or analysis with teachers. The students themselves do not expect too much from their teachers in this sense, drawing a line between these two realities: "They are two different worlds. School is work; videogames are leisure", stated a 16 y/o boy. Youngsters notice a gap between the reality inside and outside the classroom, but they consider it natural. So natural that it seems they have never thought that media messages and their media practices could be discussed and analysed at school.

The only point of contact between school and media is confined to online safety issues. This approach at school has an impact on the way students behave on the Internet, showing concern and care in publishing contents and in contacting strangers. A 13 y/o boy remembered a talk at his school about precautions in using the Internet, where students were advised: "not to talk with strange people, not to arrange meetings with people they do not know". A 12 y/o girl answered the question "Have you ever heard about social media at school?" by replying: "Just about dangers".

These talks mirror a protectionist vision that school still has about media – one that does not necessarily match the youngsters' concerns regarding online dangers (Giménez-Gualdo & al., 2018). Teenagers did not mention any activity or conversation with teachers aimed at preparing them to critically deal with media, that is, work based on an empowerment perspective.

3.3. Teens' informal learning strategies with media

Despite few or even no opportunities in the classroom to learn about and with media, wich constitute a daily component of their lives, young people learn with media through informal strategies. Through interview and workshop analysis, three main informal learning strategies were often mentioned: trial and error, to imitate/be inspired by someone and search for information, as represented in Table 1 and explained below.

While at workshops about video games, participants were unanimous about the best way of learning about them: through trial and error, that is, playing. They were sure that experience is the best way to learn, as illustrated by these statements: "To know about video games I simply play them" (boy, 16 y/o); "I bought the game, and I started playing, and playing, and playing. I often lost, but after a while, I did it" (boy, 14 y/o); "It was by trial and error [that I learnt]" (boy, 12 y/o). Trial and error was also a popular strategy to deal with other media products (Table 1).

Table 1. Informal learning strategies developed by teens

Strategies	Examples
Trial and error	To learn how to create audiovisual contents by using it.
	To learn how to work with an app by using it.
	To learn how to play a game by playing.
	To learn how to use a social network by using it
To imitate/be inspired by	To see family and friends actions and be inspired by it
	To see a professional in action and try to replicate it (to watch a professional makeup artist and try to replicate it, etc.)
	To see a youtuber do something and become curious about it (playing a video game, etc.)
	To seek for help (friends or family), when in doubt or trouble
Search for information	To use apps to search for information
	To use fan pages and contents to know more about something.
	To use forums to learn about something (programming, etc.)
	To research within the media for information.
	To search for information on official sites (make-up brands sites, etc.)
	To search for information on social media pages.
	To read users' reviews as a source of information
	To search for information on Google, Wikipedia, YouTube, etc.

Besides, imitation is also a recurrent strategy. Following YouTubers –gamers, in particular– was a useful mean to learn to play or progress in video games for many teens. As a boy (14 y/o) stated, "Now, everything I've learned, so to speak… on YouTube was thanks to him [Tiagovski, a Portuguese YouTuber]". Another boy, 15 y/o, also claimed that he learned by observing other players: "When I started I didn't know anyone who played. I started watching videos, watching live streams of people playing, I started doing research and trying to learn". Another boy, 16 y/o, went further: "That's where YouTube's magic begins. I always search on YouTube, there are always YouTubers giving advice about how to play".

Students also use the Internet for other purposes: they go online to search, for example, how to solve problems with mobile phones, apps, and video production. In this context, the Internet (mainly YouTube) allows them to learn more about video games and other leisure activities, but also about school topics or to complete assignments from their teachers.

This conclusion is reinforced by questionnaires. Considering the answers given to the open question "What I learn from the Internet is…", the important role Internet plays as a source of both theoretical ("learn things") and practical (learn "how to do things") knowledge stands out. The Web emerges as something that students can summon to clarify an issue, satisfy a curiosity, expand their knowledge and learn how to do something, review and further discuss school topics. Inside the category "learn things", there were ten specific references to the Internet has as a source of learning for school topics (about specific subjects, to clarify concepts they didn't understand in the classroom).

Aside from self-learning, social relationships represent a crucial informal learning strategy. Teenagers resort to schoolmates/friends and family (mainly those who are closer in age: brothers, sisters, cousins) asking for help in diverse subjects. When online, students showed a preference for being in touch with people from their everyday life. Therefore, family and friends also have a great influence on young people's interest in learning more about a specific topic/application/video game. In the interviews, a lot of examples support this idea: "When I realized all my friends, and a lot of people were playing it, I got more interested" (boy, 15 y/o); "At that moment everyone already had one [account on Facebook]. Among my friends I must have been the last" (boy, 16 y/o); "My friends also had a profile, and I wanted to have one to publish my things and so on" (boy, 12 y/o); "Because here in school everybody started playing [8 Ball Pool]. Then, I got addicted" (girl, 15 y/o).

Teens understand the digital media possibilities for socialization, but also their potential contribution to learning. Social media appear in the interviews as an important tool to communicate about school items: "90% of the conversations [he has on Messenger] have to do with school" (boy, 16 y/o); "before tests we take photos of summaries and share them there [on Messenger]" (boy, 15 y/o). A girl, 15 y/o, agrees that social media are useful for school: "Some of us had private tutors, and we were always sharing photos of the notes we took or of the tests we did to practice. It was really nice. [And useful?] Yes, quite a lot. Sometimes, before tests, I send messages to the teachers asking for help… and they help!".

3.4. The informal meets the formal: Using skills acquired out of school

Considering formal learning as synonymous of school learning in the classroom context and associating the term informal to knowledge and abilities acquired outside the school, it is interesting to see that there are many respondents who consider that they learn with video games and that what they learn is useful to them in a school context.

In this respect, there's a difference in the sample concerning their geographical context. Students from the rural area have more difficulty realising what they learn with video games, in line with the perception that school and media are two worlds apart. However, the contribution of video games for English improvement is a common perception amongst the sample:

- "I have learned more English with video games than with English classes. Because I need to keep in touch with people on my team, I felt the need to improve my English. Even before League of Legends (LOL), in other games, I used to speak English a lot (…). To study for my English tests I play, LOL" (boy, 16 y/o).
- "Most of the games are in English without translation into Portuguese" (boy, 12 y/o).

Students from the urban school (mainly from the 10th grade) are able to identify other learning skills they develop while playing video games, besides English learning:

- "I think they help in school… In sciences, we are speaking about minerals, and in Minecraft there are a lot of caves with minerals - diamonds, emeralds, gold, iron, charcoal… Before I played Minecraft, I didn't know charcoal even existed. Then, when we spoke about it in Chemistry and Physics, I immediately remembered Minecraft because I'd already seen there that charcoal comes from wood" (girl, 12 y/o).

• "I think we can always learn something with them. For example, with LOL maybe it is more about reasoning speed and things like that because we need to make fast decisions. With FIFA the learning is more about football. Each video game teaches us something according to its context" (boy, 16 y/o).

• "Because they make you think about different things at the same time, video games improve reflexes" (boy, 15 y/o).

For a 16 y/o boy, video games are a springboard to find out more about their themes. Shogun 2 fostered his curiosity about the history of Japan, and other games have done the same for World War II. He had been investigating the types of weapons used in that period, their names, and the most important generals of that conflict. However, this was not consonant with the school curriculum. "It is always History of Portugal", he regretted, adding: "If someone asks me the names of the generals and so on, I know almost everything. What I have been looking for more recently is German tanks because of the game itself".

To some students, games also constitute a way to develop abilities like resilience, curiosity and surpassing oneself that can be helpful in their studies and in other dimensions of their lives. Different respondents present the self-learning strategy mentioned before not only as an informal learning strategy, but also as a challenge:

• "I don't feel good when I do it [going online looking for the solution]... then I feel the credit for getting to the end of the game is not all mine" (boy, 15 y/o).

Media uses, practices, experiences and learning enter school with students but are not explored or discussed inside the classroom. This educational, cultural and technological gap between the lives of young people inside and outside the classroom is not a recent phenomenon, but it became even more pronounced in the digital era, with the presence of media everywhere, even carried by students in their own pockets.

• "I don't think it is ever really acceptable to use codes because a game is to be unveiled, the goal is to find out a strategy, it is up to us to solve the game ourselves" (girl, 15 y/o).

• "It used to be fun [use tricks] because I couldn't do anything. Now I can. I also lose but I've become better at thinking, and I want to try a little bit" (boy, 16 y/o).

Although students consider they can learn by playing video games, no one has spoken about learning as a motivation to play. They play because it allows them to have fun, to relax, to socialize and to assume different roles.

4. Discussion and conclusions

More than 40 years after Porcher (1974) considered the media an authentic parallel school and Jacquinot (2002) spoke about a perpendicular school, the media continue in many schools outside of the classroom. The data from this study shows a large gap between formal and informal learning practices. As in the past, these two worlds remain separate. The exception seems to be where issues regarding the protection of young people from "inappropriate content and online predators" (Hartley, 2009: 130) are concerned. As boyd (2014) emphasized, most formal education systems do not see digital literacy as a priority because they mistakenly assume that teenagers already know everything as if they were born knowing.

Media uses, practices, experiences and learning enter school with students but are not explored or discussed inside the classroom. This educational, cultural and technological gap between the lives of young people inside and outside the classroom is not a recent phenomenon, but it became even more pronounced in the digital era, with the presence of media everywhere, even carried by students in their own pockets.

In our society, there is an overly scholarly view of learning, which marginalizes the knowledge acquired by young people in their leisure time, in digital platforms, in peer communication. Curricular learning does not intersect with what they learn outside. Therefore, to respond to the multiple and constant appeals of the digital universe, young people develop learning strategies on their own and with peer groups. The media continue to be a subject

only for break time and are hardly recognized as a source of learning; they are seen mainly as a source of entertainment and leisure, also by students.

One of the astonishing aspects of this project was the realization on the fact that students themselves also consider natural the gap between those two worlds. They also identify school as the world of work, learning and effort; and media as the world of entertainment, fun, pleasure. It is not in a natural and immediate way that they regard media as sources of information and learning. However, when these issues are discussed with them, they realize the important role the media play in their lives as a source of information, and they recognize the skills they develop within and from media.

Because of their importance in young people lives, video games deserve a particular mention. Teens perceive video games as positive, allowing them to develop several skills, particularly for learning English as a foreign language, but also for other subjects: Physic and Chemistry, History or Geometry. There are still teens that underline the importance of video games for behavioural and cognitive behaviour, for example, self-improvement, resilience, and reasoning, arouse curiosity and teamwork.

It should be noted that the practices and preferences of those who are closer to teens have a great influence on the interests they develop. Thus, family and friends are still important sources of motivation for the informal learning experienced by young people.

Although these data are related only to this sample and cannot be extrapolated, they confirm and help to explain the data from other studies (Pereira & al., 2015a; 2015b) that do not mirror only the Portuguese reality. There are, evidently, interesting media literacy projects in schools, but they are usually punctual and episodic, lacking a policy that supports them. From the data analysis, some explanatory hypotheses for this situation are raised, but they can also be defined as recommendations for effective implementation of media literacy in schools:

• Regarding media and technology, the concerns of educational policies (at least in Portugal) have been essentially related to access (Pereira & al., 2015a) and technical skills. In other words, the emphasis on functional literacy has come at great expense to critical literacy that values aspects such as critical thinking, communication and culture, as recommended by the Portuguese Guide to Media Education (Pereira & al., 2014) promoted by the Ministry of Education itself. Therefore, educational policies should be more precise and more effective in the implementation of media literacy in schools. If school should prepare students for life, for an increasingly digital environment, and the demands of the 21st-century labour market, it is necessary to qualify them not only from a technical point of view but also from a humanist perspective. Also, fostering their critical thinking and empowering them to understand the intensely mediated world in which they live, implementing and going beyond the "The European Digital Competence Framework for Citizens" (Carretero, Vuorikari, & Punie, 2017).

• Strong educational policy in this field has to foresee and be accompanied by a teacher training plan, either initial or in-service training. Teachers teach what they know, the subjects they are trained for and the ones for which they are sensitized and motivated (Pinto & Pereira, 2018). A significant number of documents are produced annually, drawing attention to the importance of conducting Media Literacy programmes and projects, some targeting the young public, other directed at other generations, in a lifelong learning base. This is the case of the recent disinformation phenomenon that could represent a risk for democracy. Teachers should play an important role in empowering students to face the problems of the digital information age, but for that, teacher's training should be supported and media literacy needs to be integrated into all subject-learning, which could demand a new school curricula reform. The present study showed how the media remain outside the classroom and how they continue restricted to break times at school.

• The third and last point is related to the previous two. It defends the need to produce and disseminate resources that support and motivate the development of Media Literacy competencies. In recent years, there has been a significant increase in media literacy resources directed mainly at teachers, as it is the case of outcomes of the European project *e*MEL – *e*-Media Education Lab that promoted an innovating and online resource centre for Media Education teacher trainers in (https://e-mediaeducationlab.eu/en/). Also, the Teachers Kit produced within the "Transmedia Literacy" European project that aims to exploit transmedia skills in the classroom (http://transmedia-literacy.upf.edu/en). Resources are undoubtedly crucial for conducting projects and initiatives, but they are unlikely to succeed unless they are held up to a policy framework that encourages and supports Media Literacy.

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Notes

[1] For more detailed information on the project methodology, please consult: https://bit.ly/2BgqMzX

[2] Following the classification made by Statistics Portugal (Relatório Tipologia de Áreas Urbanas, 2014), related to the organization of the Portuguese parishes as mostly urban, averagely urban and mostly rural.

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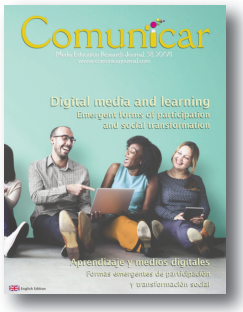

Distributed digital contexts and learning: Personal empowerment and social transformation in marginalized populations

Entornos digitales distribuidos y aprendizaje: Empoderamiento personal y transformación social en colectivos discriminados

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ABSTRACT

The role of digital media and learning has often been synonymous with the use of open education resources in formal institutional settings. Further, open and distance learning has been criticized for focusing narrowly on educational objectives, ignoring socio-political issues of access and participation by marginalized populations. This study examines the lived experiences of female migrant domestic workers (N=20) in Singapore attending Open University. Mobile and social media supplement open and distance learning resources to allow for open practices of consumption, production and sharing in distributed contexts of digital learning. Marginalized students engaged in participation and collaboration activities, with specific privacy practices due to their social positions. Digital learning led to substantive learning for personal empowerment and social transformation, with aspirational strategies often involving digital skills. The discussion reflects on identity management across formal and informal digital settings as a means of transforming societal discourses of discrimination.

RESUMEN

El rol de los medios digitales y el aprendizaje a menudo ha sido sinónimo del uso de recursos educativos abiertos en entornos institucionales formales. Además, el aprendizaje abierto y a distancia (ODL) ha sido criticado por centrarse estrictamente en los objetivos educativos, ignorando las cuestiones sociopolíticas de acceso y de participación de las poblaciones marginalizadas. Este estudio examina las experiencias de vida de un grupo de trabajadoras domésticas migrantes (N=20) en Singapur que asisten a Open University. Los medios móviles y las redes sociales complementan los recursos ODL para permitir prácticas abiertas de consumo, producción e intercambio en contextos distribuidos de aprendizaje digital. Los estudiantes marginalizados intervinieron en actividades participativas y colaborativas, con prácticas de privacidad específicas de acuerdo a sus posiciones sociales. El aprendizaje digital condujo a un aprendizaje sustantivo para el empoderamiento personal y la transformación social, con estrategias de aspiración que a menudo involucran habilidades digitales. La discusión reflexiona sobre la gestión de identidades en entornos digitales formales e informales como un medio para transformar los discursos sociales de discriminación.

KEYWORDS | PALABRAS CLAVE

Digital media, identity, open development, distance education, marginalization, migration.
Medios digitales, identidad, desarrollo abierto, educación a distancia, marginalización, migración.

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1. Introduction

The flexibility of open educational resources (OER) partially addresses time-space constraints and allows for collaborative, constructivist learning. However, the employment of digital tools in open and distance learning (ODL) has been criticized for the neglect of both substantive learning and broader societal impact. The impact of digital media and learning (DML), employed in open systems, has been criticized for a device-centric emphasis and focus on narrow educational achievements in formal environments rather than a holistic assessment of life outcomes. We argue that a contextual perspective on open technologies in learning is required in relation to achieving the goals of personal empowerment and societal transformation. Before proceeding, we note our focus on open education in development, where open development denotes "the free, networked, public sharing of digital (information and communication) resources towards a process of positive social transformation" (Bentley, Chib, & Poveda, 2017: 99).

This study is premised on the lived experiences of Indonesian migrant domestic workers (MDWs) attending the Open University (OU) in Singapore. MDWs in Singapore are bound in marginalized identities which deny them educational, professional and economic opportunities, first due to the poverty and patriarchal structures of their homeland, and secondly, caused by the legislative and normative conditions of the host country (Chib, Malik, Aricat, & Kadir, 2014; Huang & Yeoh, 2007). Low-income migrants from the surrounding regions are sometimes perceived as a threat to the economic security of Singaporeans, which has led to growing public resentment and marginalization (Chib & Aricat, 2016).

In a world with increasing levels of income inequality (Galbraith, 2016), these migrant workers recognize the limitations imposed by their social positionality. In response to economic and social disparities, MDWs aim to obtain an education to improve their lives substantively, not merely as a means towards financial gain. In accordance with Srinivasan and Chaudhuri (2016), this paper argues that substantive learning can be viewed as both personal empowerment and as social transformation, particularly for vulnerable sections of society. This combination of constrained conditions of migrant domestic labor and a desire for digital skills leads them to enroll in OU, encountering a range of formal DML tools.

1.1. Problem

The reality of DML is quite different from associated aspirations, with Gee (2013: XIII) arguing that digital tools "can make things worse just as easily as they can make things better", and Hilbert (2014) demonstrating second-order digital divides in terms of differential communication capacities. Consequently, less than half of the students enrolled completed degrees within Indonesian ODL programs (Perraton, 2007). Prior investigations into OER offer technological proposals or evaluation of student perceptions (Harsasi, 2015), yet fail to suggest any improvement in their lives and livelihoods. Guitart and Moll (2014) argue instead for an examination of the micro, lived experience of student's lives outside of institutional environments.

From the perspective of lived experience, there has been a socio-political neglect of participation in the literature. For example, Forte and Lampe (2013) view participation as entirely reliant on individual will, such that each individual has the freedom and ability to learn such skills, and barriers are quite low. Unfortunately, none of these assumptions can be made where marginalized people are concerned. Participation, especially by the marginalized, is a contentious and political process that extends far beyond a binary state (Cooke & Kothari, 2001; Sachs, 2009). The use of DML has depended heavily on the power of those in control, such as technology developers or program implementers (Nelson & Wright, 1995). It is no surprise that an examination of OER in developing countries found that a majority of the studies claiming improved learning outcomes focused on the perspective of teachers rather than students (Bentley & Chib, 2016). We argue that distributed contexts, beyond the institutional classroom and formal OER, allow marginalized people opportunities to shape their identities as well as engage with powerful socio-structural forces.

Contextual gaps in the existing literature on DML for marginalized populations are present. First, the view of digital learning needs to extend to informal environments outside of educational institutions, as well as incorporate a multi-device perspective. The ubiquitous availability of mobile phones in daily life, labeled the Mobile-Centric Society (MCS) by Patiño and Guitart (2014), has transformed the institutional perspective of OER as reliant solely on classroom delivery (Chib & Wardoyo, 2018). For marginalized migrants, mobile phones have provided access to livelihood information (Cuban, 2014) and reduced social exclusion due to language learning (Webb, 2006).

Second, a broader view of the impact of open systems of learning would include practices of collaboration and

sharing within communities to produce a wider range of non-functional outcomes, including personal wellbeing and social transformation. For marginalized populations, positive impacts can comprise identity management and social support as dual mechanisms, firstly, for coping to deal with social marginalization and secondly, as a means for empowerment and aspiration. From a societal perspective, migrants use mobile phones to receive social support and establish entrepreneurial businesses (Chib, Wilkin, & Mei-Hua, 2013). We propose to examine participation and social transformation within the arena of open practices associated with digital learning.

1.2. Open practices in digital media and learning

We take a situated view of a learner's context to understand how openness practices shape identities and social transformation as outcomes of digital learning. In contrast with OER, we understand openness as public and non-discriminatory sociotechnical practices of consuming, producing and sharing digital resources (Smith & Seward, 2017) aimed at reducing socio-structural inequalities. Three key issues need further investigation.

> This paper argues that substantive learning can be viewed as both personal empowerment and as social transformation, particularly for vulnerable sections of society. This combination of constrained conditions of migrant domestic labor and a desire for digital skills leads them to enroll in OU, encountering a range of formal DML tools.

First, it is vitally important for students to feel socially and academically integrated into pursuit of their online studies. However, it is not clear how to support marginalized students who may face severe challenges to participate in online contexts. We investigate open practices of participation and collaboration as a means towards social inclusion for marginalized populations. The contextual barriers to effectiveness in open systems initially focused on accessibility issues, but with the ubiquitous spread of personal mobile devices, attention has shifted to socio-political concerns of power relationships. Open practices thus support structural change by presenting a subversive force to existing power dynamics in social systems. Seen from the perspective of social transformation, Wikipedia, oft-cited as a role model for digital learning, is seen to under-represent marginalized perspectives, such as gender and race (Konig, 2013). Our first research question examines how the lived experience of marginalization determines the adoption, usage, and outcomes of DML.

Secondly, technology can indeed enable people to build sites of participation for themselves, with Cornwall (2002) arguing that the power to do so directly relates to their capacity to participate, distinguishing invited from claimed contexts of participation. An invited context, such as formal OER in the classroom, is a polite and orderly context where stakeholders are invited to come and contribute; whereas, a claimed context refers to when marginalized people take control of political processes without an invitation to do so. Further, collaborative open practices, such as sharing and reusing, can take place in a variety of online contexts, yet contemporary research tends to focus on specific academic contexts even when learners can hone and practice open skills across social and academic contexts. Viewed from these perspectives, OER in an open university would not allow for student participation in the production of learning materials, would not be able to be distributed beyond those enrolled, and students/teachers would be the only ones to consume it. In contrast, mobile and social media allow for wide access to production and broad distribution of learning materials beyond the confines of the educational curriculum, the institution, and OER systems.

Alternatively, open collaboration has focused on the value of social interaction in open contexts. Knowledge-building models (Scardamalia & Bereiter, 2014) take situated views of learning, examining knowledge outcomes that transpire through group interaction in online contexts. This perspective emphasizes the added value of social interaction to collective knowledge generation (Zhao & Chan 2014). However, these theories do not address the unique characteristics afforded by open practices to expand and transcend social and academic contexts. Open collaboration systems enable people to engage in a non-restrictive and distributed manner online, enabling distinct forms of social

interaction (Forte & Lampe, 2013). Open practices take shape across contexts, yet as van-Alst (2009) argued, collaborative learning and knowledge building require a great deal of interaction, ideally within a close-knit community. Ryberg and Christiansen (2008) found that learners often engaged across several sites of interaction simultaneously, which enabled them to expand their access to knowledge resources. Open contexts thus need not be attached to a single environment but can also refer to distributed contexts spanning institutional and social environments and across digital tools, OER and mobile and social media. Our second research question thus investigates how participation and collaboration are enacted via distributed contexts of digital learning, in conditions of marginalization.

Third, a situated view of learning (Lave & Wenger, 1991) suggests that the cultural-historical settings of communities and broader conceptualizations of learning outcomes need to be considered. The notion of substantive learning in the context of open information systems considers aspects of user identity that contribute to outcomes across a number of life domains. Examining the lived experience of marginalization, we focus on substantive learning strategies of aspiration and identity management as a means towards social transformation.

Early research considered how people could adopt multiple identities in online contexts in flexible ways, which potentially affords them power over belonging within multiple contexts simultaneously. This premise has been important in framing the debate regarding whether such freedom helps people to overcome social inequalities (Turkle, 1995) or undercuts underlying race, class and gender issues altogether (Nakamura, 2002). Gee (2000) foregrounds participation and sharing practices in the formation of affinity-identity groups. Within educational technology research, these groups have been variously referred to as 'liquid communities of interest' (Guitart & Moll, 2014: 70), 'communities of practice' (Lave & Wenger, 1991. p. 98), and learning networks (Sloep & Heerlen, 2011).

> Developing digital skills involved discrete periods where the women practiced collaboration and sharing in order to develop confidence and negotiate between personal constraints and community-focused production goals. We argue that participation and collaboration should be conceptualized as a set of relations, as a means to account for the interpersonal and networked properties identified in this research. The women engaged in identifying, researching, sharing, and discussing content that related to their aspirational, and adaptive, identities. Such meaningful learning and identity management was absent in their formal OU institution, due to a lack of understanding of their life experiences by the institution.

Indeed, Kreijns, Kirschner, and Jochems (2003) argue that group cohesion, trust, and belonging are vital ingredients for social interaction while factoring in the social psychological needs of individuals. Cresswell (2009) argues that the material qualities of a place are inseparable from the emotional and social aspects of it. Although Creswell refers to physical places, one's physical environment is not the only source of experiencing or interacting with a place. For example, Adams and Warf (1997) argued that cyberspace conjures a place in its own right because it offers different modalities and possibilities for interacting and belonging. If we consider open contexts of DML as distributed, emergent places, then we might inquire whether these foster (or alternatively neglect) belonging and how these contexts create different conditions for belonging. We might further inquire whether openness practices allow for resistance to the societal discourses of marginalization by the production of alternate aspirational identities. Therefore, our third integrated research question inquires whether participatory and collaborative practices of open systems, within the lived experiences of marginalization, contribute towards personal empowerment and social transformation.

2. Method

2.1. Participants

The study engaged twenty Indonesian foreign domestic workers enrolled at the Universitas Terbuka (Indonesia OU), primarily studying courses such as accounting, English literature, and management. The university provides limited resources in the form of physical books and online materials accessed through a virtual library. Assignments and activities occurred online in the absence of physical classes; end-semester exams require physical attendance at a partner educational institution in Singapore. All the respondents were female, a requirement for MDWs in Singapore. Their ages ranged from 24-38 years old, with 30 years as the median age.

2.2. Measures

The focus group guide was structured around topics such as participants' experience online, their general use and familiarity with information and communications technologies (ICTs), motivations for enrollment, their open practices and activities, and how these open activities impact their learning and perceived employability in the future. We asked our participants about their open practices in order to understand why they may, or may not, choose to participate, in what kinds of environments they participate in, and their perceptions surrounding the meanings of contexts and practices.

2.3. Procedure

Data collection was conducted at the OU via focus group discussions conducted in Bahasa Indonesia language. Respondents were selected based on their availability from the students present. Each session ranged between 60 and 75 minutes and was recorded with the participants' consent. We obtained ethical approval from the Institutional Review Board of Nanyang Technological University, and all participants provided informed consent. Participants' names have been changed to maintain confidentiality agreements. Respondents were reimbursed for their participation with a grocery voucher worth SGD 5 (USD 4). As the area of marginalization and this respondent group comprise a long-term research trajectory, the researchers are cognizant of our hierarchical position vis-à-vis our respondents. To allay concerns, the co-author conducting fieldwork was an Indonesian female graduate student who could both relate to respondents as well as interpret the cultural nuances.

2.4. Analysis

Interview notes were analyzed based on Owen's (1984) thematic analysis that was used to identify and interpret the shared and prominent meanings of participants. Specifically, we incorporated three criteria of recurrence, repetition, and forcefulness. This process led to the emergence of the three themes outlined in the findings. Different co-authors contributed to identifying specific quotations related to each theme.

3. Results

We situate the process of digital learning within the lived experience of marginalized individuals. We find that there is both convergence and tensions of distributed context along three dimensions that reveal outcomes of personal empowerment and social transformation.

The first dimension concerns their marginalized status within the sociocultural hierarchies of both national and transnational contexts which, while constraining them, simultaneously offers motivation for digital learning. The second dimension examines their usage of DML tools in both formal and informal contexts. We note both personal achievement and social collaboration in close-knit communities, along with particular private-public practices ascribed to their marginalization. The third dimension suggests that substantive learning occurs as personal identity growth, which often aspires for social transformation and application of acquired digital skills.

3.1. Situated context of marginalization

An intersectionality perspective (Crenshaw, 1989) suggests that there are multiple axes of marginalization, occurring in complex transnational contexts, which might limit respondent's educational aspirations. First, there are socio-cultural constraints, including age, education, gender, that constitute the patriarchal norms that apply in their homeland. Cultural norms influence migrant women to fulfill their traditional caregiving duties, remitting money to support the family in Indonesia instead of advancing their education in Singapore. "Probably because my mom is old-fashioned, she thinks that women will and should end up in the kitchen. She complains because I reduced the amount of money I send home [due to OU expenditure]".

The intersection of age with gender further complicated the situation, with a respondent's mother reportedly scolding her, "You're old already, why do you need to go to school? Just save your money or send it home". Some respondents internalized these biases, lowering their expectations of social advancement, which resulted in sacrificing personal aspirations for family wellbeing. One respondent stated that "If you look at my age, I think there's a really small chance of me getting an office job. If I get an education, I can share that knowledge with my child or others".

Low educational attainment and lack of familiarity with technology inhibit their adoption of digital technologies, suggesting a barrier to participation in DML. However, these issues are ephemeral.

Now that I know how the computer works, it is easy to use. My first time, I was scared. Will it explode? Will I break it and everything goes blank if I press this key? That was fear because I didn't know.

Secondly, their status as low-income domestic workers create both logistical issues as well as avenues for social discrimination by locals. Work-life balance was usually off-kilter, with little time available to dedicate to school work, with a participant stating, "I just go online when I have spare time", Many participants spoke about the rigors of domestic labor for migrants and the resultant physical fatigue hindering their attention span.

– "Sometimes we are so busy that we do not have time to do our assignments. Sometimes we fall asleep. I tend to only do assignments that are based on books. The other assignments that require me to go online (e.g., discussing online, answering tutor's questions online), I just want to skip them".

In Singapore, the respondent's migrant status made them vulnerable to discrimination by locals, with one respondent sharing a story about her friend's employer saying, "What school? Why do you need to go to school?" Their marginalized position in society made them susceptible to social hierarchies, with participants preferring to seek out peer support rather than Open University personnel, with one stating, "I don't directly ask the teachers, I consult with friends first. Then if we still cannot solve the issue, we note the difficult parts and ask our teacher during tutorial".

3.2. Distributed contexts of digital learning

Respondents engaged in open practices via digital learning tools in both formal and informal contexts. OER systems developed for classroom situations converged with mobile and social media in informal contexts as sites for learning. Open practices of consumption, sharing, and production occurred in both institutional and personal situations, as a form of social collaboration in close-knit communities.

OU computer centres provided access to OER resources, where participants could enhance their skills and lose their inhibitions, with one declaring, "After learning computer basics, I was more confident, and now it's easy". OER allowed for both distribution of content to distant locations as well as collaboration amongst students across formalized formats.

– "In the Financial Management course, there are 30 students online and commenting in the forum. We do not know if they are our peers here or if they are from different countries. The important thing is the discussion, comments, and answers going on".

However, informal open systems available via mobile phones not only supplemented OU material but supplanted formal OER as the main source of learning. Participants used basic calling features of mobile phones to seek peer support, with a participant stating that, "Discussion with friends through mobile phone helps me a lot in understanding the materials". We note that their constrained material circumstances did not allow all participants to enjoy advanced features of online, mobile and social media, with one participant saying, "Perhaps with one of those advanced mobile phones it will be even easier, so you can go online. I have a normal phone, so I rely on the laptop". Others recognized the monetary tradeoff being made in order to access educational material through informal open systems via mobile devices.

– "I have more friends and more knowledge, but I use more mobile top-ups now. Previously I could save a lot, but I was alone with no friends. My expenses for mobile top-ups have tripled since enrolling".

Participants bridged the formal educational environment, as represented by the OER, and the informal context by using social media to establish personal contact with their colleagues.

– "Before having a laptop and Facebook, even though we're in the same jurusan [stream] we don't know each other. Now with discussion forums and Facebook, I know who my peers are, so I can ask questions and make new friends".

These open digital systems allowed for collaboration and community aspects, such as social media and chat applications, which were exceedingly popular.

– "There was one student who proposed to create a BBM [BlackBerry Messenger] group for government science major. If we have any doubts or questions, we can ask questions or share in this platform".

We note that the situated marginalized context of these migrant domestic workers emerged as particular open practices of consumption and sharing. Consumption practices sometimes played out privately by individuals, particularly when encountering new material online via websites and applications, in order to reduce the possibility of social shaming.

– "I like watching YouTube to learn English, to know the sound, pronunciation, and grammar. With Google Translate too, it's easy to know how to say a word, and I just click 'sound' then I know, oh, that's how it's pronounced… I like looking up for information I do not know".

Another interesting practice was the tendency to seek assurance by sharing contexts in private before turning to open contexts. Private contexts are those that participants shared with particular friends or colleagues in smaller WhatsApp groups, private Facebook groups or message threads, such as the participant who "created two groups, one is public, and another is private... We don't have to meet in person, but we can interact and communicate in a cyber-context". The rationale perhaps stemmed from a desire to mask their embarrassment in divulging their unfamiliarity with educational material.

> Conceptualizing digital and media learning as a set of relations provides researchers and educators with a means to understand the limiting and enabling conditions that marginalized people face, and allow for the design of meaningful and substantive learning for their lived experience.

– "I prefer to ask my friend in a private chat. In WhatsApp group, some members would say 'how come you don't know the answer!' or 'you ask questions a lot.' So sometimes we ask friends first, then if the problems are still unresolved, we post our questions to the group".

3.3. Substantive learning for personal empowerment and social transformation

Digital learning became a source of transformation in individual identities, providing participants with confidence to negotiate their marginalized social contexts. Enrollment at OU was viewed as a means towards not only personal capacity building, but to make a strong social statement in response to their structural conditions. As an example, one participant was motivated "to get a higher degree certificate and to prove to my family that I can work and study at the same time". We note that instrumental outcomes such as economic advancement persisted, yet manifested in aspirations in both the home and host contexts.

– "Right now I'm a domestic worker. When I go home [Indonesia], I hope to get a better job. If possible, I want to look for a job here [Singapore]. Otherwise, I will look for a job in this field, as an accountant in Indonesia".

Digital learning became a tool not only for acquiring technological skills but to demonstrate desire and drive. Therefore, participants intended to change social opinions about themselves, while simultaneously aspiring for achievement.

– "I hear about people, even graduates with high qualifications from good schools, unable to get a job and I feel down because if they can't get employment, how can I? I believe it is not just the qualifications; employers are looking for people with drive. I need to look further than that, I can't wait to find myself a job, but I need to use the opportunity to create my own business and be an entrepreneur".

This quote was from a respondent who used her mobile phone and laptop daily to produce 23 articles for Kompasiana (a citizen journalism forum facilitated by a major media group in Indonesia). It is important to note that these articles shed public light on the life of MDWs, thus combining themes of personal achievement and social transformation.

A common observation is that confidence as a result of leadership roles within the student union was accompanied by a desire to share in open contexts. Thus, participants created academic contexts that fostered social belonging, doing so by engaging in open sharing practices.

– "I'm trying to manage the Facebook group …to regularly write something in the group and share. I'll ask whether they have studied. I posted papers so that they are motivated to study".

For some there remains interplay between the aspirational identity of the student and the marginalized identity of the migrant domestic worker. Digital learning skills get applied as part of their domestic chores, complicating whether this new knowledge challenges or exacerbates existing inequalities in challenging socio-structural conditions.

– "My employer usually asks me in the morning to cook some food which I didn't know before. That is why I looked up the recipe online".

On the one hand, we can view personal empowerment in direct relation to the instrumental learning imparted via formal OER at the OU. On the other hand, we can regard aspirational narratives as an endeavour to challenge the social hierarchy, i.e., for these low-income migrants at the bottom of the social order to climb to the very top of the global neoliberal market economy.

– "I want to be a banker or be a manager in a company. I learn from the IT class that I can input data with Microsoft. I can also go online to look up information pertaining to my job in the future".

– "I intend to work back in a factory where I choose the design of logo and color for Nike shoes…now that I know how to look up information through the internet

Participants betrayed a desire for social transformation, describing strategies through which the Internet could be used to achieve their collective goals in collaborative ways, for instance, through information sharing, crowdfunding, and research.

– "I want to open a business, a playgroup for children in Indonesia… I can create blogs to look for sponsorship, make brochures, ads. So when registration opens, we can disseminate the brochures from schools, from Facebook, from computers".

A final note about substantive learning concerns the broadening of social and geographical boundaries due to encountering student colleagues on OER forums. The ability to engage in global citizenship has little immediate, particularly monetary, benefit, yet it is an example of identity management that challenges social identities of marginalization.

– "I talked to someone from the Philippines and found out that the Tagalog language shares some words with Bahasa Indonesia... From my friend in Egypt, I also learned that some words are similar but mean different things. My friends here make fun of me and ask me what for, why I'm wasting time with fandoms. But I've made new friends, I now know what it's like in other countries and other cultures".

4. Discussion and conclusion

Normative claims found in the literature argue for the rights and power of individuals to lead their lives autonomously (Sen, 2001). The situated/sociocultural view of learning emphasizes the relationships between individuals and their environment (Gee, 2008), allowing them affordances, or action possibilities. Examining the lived experience of marginalized migrant domestic workers, we can discern the limited capacities for action that can be afforded to them by the existing socio-structural milieu, both in their home and host countries. For example, women's ownership or use of technology may be restricted within patriarchal homes (Gurumurthy & Chami, 2014), or in migrant situations (Nguyen, Chib & Mahalingam, 2017). On the other hand, Zelezny-Green (2014) viewed mobiles as a means for girls to mitigate access to school when social and cultural norms dictate that these girls should abstain from attending school during their menses. Both cases demonstrate how access and participation are embedded within highly political and contentious processes that are significantly influenced by power relations in a given context. These examples are important considerations because it is often assumed that digital media and learning contexts are universally appropriate and that users have the power to represent themselves and their interests.

We argue that, despite finding that digital skills do not translate into employability and economic gains, respondents engaged in practices that allowed for the restricted agency (Peter, 2003). When faced with limited action possibilities, these women reframed their aspirations downwards accordingly. For many, personal advancement and social upliftment aspirations were less tangible goals than challenges to prevailing societal discourses of their identity. We find the strategic usage of DML, which unlike traditional views of the literature, included particular private-public consumption and distribution practices, as well as the shrinking of social networks. Production of material was often aimed at an identity management technique, rather than as a form of traditional learning outcomes. We find that substantive learning is taking place, in which the ability to negotiate complex life circumstances is manifested, in this case multiple intersections of marginalization, as opposed to the instrumental learning skills present in the OU curriculum.

The generalizability of the study is limited by the particular characteristics and circumstances of the respondents and their lived experiences. We nonetheless argue that the study reveals particular strategies related to marginalization and gender in the context of digital media and learning. We encourage further research to expand the examination both to other marginalized communities, as well as beyond the confines of the classroom to other life domains.

Developing digital skills involved discrete periods where the women practiced collaboration and sharing in order to develop confidence and negotiate between personal constraints and community-focused production goals. We argue that participation and collaboration should be conceptualized as a set of relations, as a means to account for the interpersonal and networked properties identified in this research. The women engaged in identifying, researching, sharing, and discussing content that related to their aspirational, and adaptive, identities. Such meaningful learning and identity management was absent in their formal OU institution, due to a lack of understanding of their life experiences by the institution (Guitart & Moll, 2014). Likewise, their access to a plethora of resources via the distributed context of their physical, cultural, historical, and digital environments, including social and mobile media, was a parallel universe to the formal OU system. Conceptualizing digital and media learning as a set of relations provides researchers and educators with a means to understand the limiting and enabling conditions that marginalized people face, and allow for the design of meaningful and substantive learning for their lived experience.

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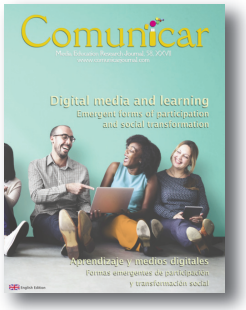

Conflicts in the professional roles of journalists in Spain: Ideals and practice

Conflictos en los roles profesionales de los periodistas en España: Ideales y práctica

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ABSTRACT

Based on a survey of 122 journalists from four Spanish newspapers carried out from 2015 to 2016, this paper analyses to what extent these professionals perceive a disconnection –a gap– between their role conception and their perceived role enactment, that is between their professional ideals and their journalistic practice, and which are the most "conflicting" roles in a Polarized Pluralist media system. According to the perceptions of the professionals surveyed, journalists in Spain hold a role conflict when they work in a newspaper. The findings show significant differences between the role conception and the perceived role enactment in six of the seven professional roles. The biggest divergences are located in the watchdog, civic and disseminator roles. The conflict between the professional ideals and their implementation in the news is always resolved in favor of the media organizations. Our results are consistent and support the previous studies that have defined the Polarized Pluralist media system as a media ecosystem where journalists accumulate little power compared to the media organizations, which are in financial debt and dependent on political and economic powers. Results are discussed according to the literature review as well as the context in which the study was developed.

RESUMEN

A partir de una encuesta realizada entre 2015 y 2016 a 122 periodistas de cuatro diarios españoles, el artículo estudia en qué medida estos profesionales perciben una desconexión –una brecha– entre sus ideales y su puesta en práctica, y cuáles son los roles más «conflictivos» en el contexto de un sistema de medios de pluralismo polarizado. Los resultados indican, a tenor de la percepción de los profesionales encuestados, que los periodistas presentan un conflicto de roles ya que se hallaron diferencias significativas entre la concepción de seis de los siete roles profesionales y la percepción de la puesta en práctica de dichas funciones. Las mayores divergencias se localizan en los roles vigilante, cívico y diseminador. Los conflictos de roles se resolvieron en todos los casos a favor de los intereses de quienes detentan el poder y en contra de los ideales de los periodistas. Estos resultados son congruentes y apoyan los hallazgos de publicaciones previas que retratan al sistema de medios de pluralismo polarizado como un ecosistema mediático donde los profesionales del periodismo, como colectivo, acumulan poco poder frente al ostentado por las organizaciones de medios, endeudadas por una excesiva «financierización» y dependientes del poder político y económico. Los resultados se discuten de acuerdo con la literatura existente, así como con el contexto en que se realizó la investigación.

KEYWORDS | PALABRAS CLAVE

Journalism, professional roles, professional attitudes, conflict, press, media system, quantitative research, survey.
Periodismo, roles profesionales, actitudes profesionales, conflicto, prensa, sistema de medios, investigación cuantitativa, encuesta.

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1. Introduction and state of the art

The watchdog function is part of the DNA of journalists' professional culture. However, the media –which are sometimes allies of political and economic actors– may favour information whose function is to support those in power instead of keeping watch over them. A journalist identified as having a watchdog role may in practice be compelled to play the status quo promoter role. That is the starting point of this article: journalists' perceptions of the existence of role conflicts that give rise to a gap between their aspirations and their professional activity in practice.

The individual ideals by which journalists define and legitimize their functions in society are called 'role conceptions' (Weaver & Wilhoit, 1996; Vos, 2005; Hanitzsch, 2007). Roles are therefore central factors of their professional identities (Deuze, 2005). According to role theory (Burke & Reitzes, 1981), journalists try to enact their ideals when constructing their news stories ('role enactment'). Tandoc, Hellmueller, and Vos (2013: 541) stated that "if a journalist perceives his role as being a disseminator, the desire for consistency will lead him to enact the same disseminator role" in society.

However, professional practice goes beyond the individual dimension since journalistic work is the outcome of a collective and relational process subject to negotiation (Mellado, 2015). It is influenced by organisational, political and economic factors (Shoemaker & Reese, 2013; Hanitzsch & Mellado, 2011), and the vagaries to which a journalist's professional autonomy is prone (Mellado & Humanes, 2012; Reich & Hanitzsch, 2013). The news is shaped in that negotiation, with roles manifesting themselves in news content (role performance) (Mellado, 2015; Mellado & al., 2017). Journalists ultimately perceive how near or far such manifestation is from the enactment of their ideals (perceived role enactment).

Based on these assumptions, this article studies the extent to which Spanish journalists perceive a gap between their ideals (role conceptions) and their enactment thereof (perceived role enactment), and what the most conflicting roles are within the context of a Polarised Pluralist media system like Spain's, which is characterised by weak professionalisation and high levels of political parallelism and instrumentalisation (Hallin & Mancini, 2004). To that end, the conceptualisation of journalistic roles into three dimensions (Mellado, 2015) is taken as the starting point. The dimensions are the presence of journalistic voice in the news item, journalism's power relations, and audience approach. Each of these three dimensions comprises different roles. The first refers to the presence (interventionist role) or absence (disseminator role) of the journalist as an actor in the news. The second refers to relations between the media and economic and political powers and includes the watchdog and loyal-facilitator roles. The third (audience approach) is about how journalistic practices build relations with the audience through three roles: the service, infotainment, and civic roles. Details of the operationalisation of each role can be found in the Materials and Method section (Table 1).

This article is part of the international project entitled Journalistic Role Performance Around the Globe (www.journalisticperformance.org), which brings together researchers from more than 20 countries worldwide with the aim of comparing journalistic performance in different media systems.

1.1. The gap between ideals and practice within different contexts

The tensions and discrepancies between individual and collective aspects may give rise to "role conflict" when journalists feel that there is an inconsistency between their perceptions of what they ought to do and the work they think or say they do for their media outlets (Mellado, Hellmueller, & Donsbach, 2017). As a result of role conflict, it is possible to speak of a perceived gap between ideals and news that is conceptually different from a "real gap" between them (Mellado & van Dalen, 2014). While the former implies a perceived gap between journalists' ideals and the enactment thereof, the latter represents a tangible and certain gap between their ideals and the manifestation of their work in news. Although there is no reason why the discrepancies and the perception of a gap by journalists should inevitably imply that a media outlet is malfunctioning (Mellado, Hellmueller, & Donsbach, 2017), the consequences of such perceptions may damage the profession in the long term (Nord, 2007). Indeed, they may generate frustration among journalists (Sigelman, 1973; Stark, 1962) and chip away at their commitment to a media outlet, causing an inevitable loss of quality in the news they produce (Pihl-Thingvad, 2015).

Regarding the object of study of this work, the perceived gap between a journalist's ideals and the perceived enactment thereof, a number of examples within different contexts can be found.

In the study by Ramaprasad and Hamdy (2006), Egyptian journalists asserted that there was a mismatch between the importance placed on journalistic functions and how often they could manifest such functions in their work. For example, the democracy-sustaining function (second in order of importance) was the one they least

enacted. Weaver, Beam, Brownley, Voakes, and Wilhoit (2007: 233) found a modest link between the roles that American journalists said they defended and the roles present in what they themselves considered their best works. Oi, Fukuda, and Sako (2012: 57) found that Japanese journalists placed considerable importance on the watchdog role. Despite that, they believed they were unsuccessful at "investigating the activities of the government". In Denmark, more than 60% of journalists considered the watchdog function important or very important, but only 30% of them perceived that they could carry it out to the same levels (Pihl-Thingvad, 2015). Recently, Raemy, Beck, and Hellmueller (2018) found that Swiss journalists established a strong relationship between role conception and the perception of the work they thought they routinely did, with an apparent lack of influence from organisational factors, except in the case of the watchdog role.

None of these studies has specifically explored the perceived gap between journalists' professional ideals and the perceived enactment thereof in a Polarised Pluralist media system like Spain's.

The Spanish press system, as a prototypical case of the Polarised Pluralist media system, is prone to creating professional role conflict between journalists and the newspapers for which they work, especially within a context of political and financial crisis. The conflicts were always settled to the detriment of the journalists' ideals, and the widest gaps were found in the watchdog role (curtailing control over those in power), the disseminator role (lessening impartiality), the civic role (discouraging their social catalyst role) and the service role (curtailing their capacity to advise on day-to-day matters). Likewise, the journalists were compelled to enact more than they considered necessary the loyal-facilitator role –promoting a positive image of the powerful– and the infotainment role–boosting entertainment.

1.2. Professional roles in Spain: from their conceptualisation to their materialization

Following on from studies on professional role conceptions (Cohen, 1963; Johnstone, Slawski, & Bowman, 1972; Janowitz, 1975; Weaver & Wilhoit, 1996; Weaver, 1998; Patterson & Donsbach, 1996; Hanitzsch et al., 2011; Weaver & Willnat, 2012), many works have helped to shape what we know about Spanish journalists' ideals (Humanes, 1998; Canel & Sánchez-Aranda, 1999; Martín & Amurrio, 2003; Roses & Farias, 2010; Berganza, Lavín, & Piñeiro-Laván, 2017).

Focusing on the most recent publications, Spanish journalists have been found to identify themselves with the citizens' spokesperson role more readily than they do with other functions such as the disseminator, adversary, watchdog, audience instructor, infotainment or status quo promoter ones (Berganza, & al., 2017). However, studies on the manifestation of roles in news suggest that the Spanish press is characterised by the prominence of the interventionist role. Roles like the watchdog one are determined, for example, by thematic beats, yet keeping watch over economic issues is dodged in practice despite the ideals that the surveyed journalists habitually manifested (Humanes & Roses, 2018).

Based on the differences found in research projects related to the importance placed on journalistic roles and their presence in news content, this study analyses –for the very first time in Spain– the perceived gap between journalists' role conception and role enactment.

1.3. A context prone to "role conflict"

Is Spain's media ecosystem prone to confronting journalists with professional role conflict? Previous studies have noted a number of characteristics to suggest that this may be the case.

The Spanish media system has been categorised as a Polarised Pluralist one (Hallin & Mancini, 2004). The press is characterised by political parallelism, external pluralism, and an underdeveloped market; the press audience is elitist and ideologically polarised; and the journalistic profession combines an opinion-based style with limited power and autonomy from lawmakers and media firms. To these empirically verified features (Humanes, Martínez-Nicolás, & Saperas, 2013; Casero, 2012), it is necessary to add several others that have become more prominent since the global financial crisis, such as media instrumentalisation and clientelism. The Spanish media are firms indebted to and dependent on economic powers because banks and investment groups are their main shareholders or creditors (Fernández-Fernández & Campos, 2014). Besides this economic weakness, the watchdog function has been eroded due to political pressure on journalists, which has been brought to bear by media groups and media outlets themselves (Casero, Izquierdo, & Doménech, 2014). Indeed, 79% of the news writers who are members of the Federación de Asociaciones de la Prensa de España (FAPE, Federation of Press Associations of Spain) acknowledge that they have been put under pressure while doing their job, with three-quarters of them succumbing to it. Moreover, 55% of the time such pressure comes from the directors of their respective media outlets, and 50% of the time the goal is to get them to change the orientation of a news item (APM, 2017).

All the described variables suggest that the framework of action of journalists in Spain is a hotbed of professional role conflict, especially in those roles related to the dimension of detachment from power, such as the watchdog and loyal-facilitator roles. Thus, we have formulated the following hypothesis: H1: The perceived gap between role conception and perceived role enactment would be wider in those roles related to detachment from power, such as the watchdog, status quo promoter and civic roles. In this respect, we expect journalists to perceive that, in journalistic practice, role conflict is settled in favour of those in power.

2. Materials and method

2.1. Sample

To test the formulated hypothesis, journalists working for the Spanish newspapers "Abc". "El País". "El Mundo" and "La Razón" (N=122) were surveyed between April 2015 and February 2016. As mentioned previously, this study forms part of an international project, the aim of which is to measure the gap between perceptions of professional roles and the enactment thereof, as analysed through news content (see instrument validation in Mellado & van Dalen, 2014). The sample design strategy was framed by the above. The journalists surveyed were selected from those who were the authors of news items analysed in the study on the materialization of journalistic roles in the four Spanish newspapers (Humanes & Roses, 2018). In total, there were 526 journalists in the news content analysis. The questionnaire was sent to all the aforementioned professionals, and the response rate was 23%[1]. Of the respondents, 55.1% were men, and they had a mean age of 41 years.

2.2. Measurements

The questionnaire contained 17 questions on indicators about journalistic practices, the functions of journalism, level of professional autonomy, and news production techniques, as well as questions about occupational status, educational level, demographic characteristics, and political leaning. This article focuses on the two questions where the respondents were asked to rate—on scales from 1 to 5—firstly, the importance they placed (1=not at all important, 5=extremely important) on each professional role (role conceptions) and, secondly, how often they believed (1=very seldom, 5=very often) those functions were present in the news they wrote (perceived role enactment). Table 1 shows the 23 indicators corresponding to the seven journalistic roles for which the gap between the importance placed on them and their perceived enactment was measured. 17 of the 23 items were developed by the 'Worlds of Journalistm Study', lead by the Professor Thomas Hanitzsch. The rest of them are based on the previous research of David H. Weaver and colleagues.

To perform the statistical analyses, Cronbach's alpha was used to calculate the internal consistency of the indicators of both role conception and the perceived enactment thereof.

In the disseminator role, only one item was considered (being an impartial observer), so reliability was not calculated. In interventionist role conception, three indicators (influencing public opinion, defending a particular point of view and influencing decisions on public policies) reached an acceptable level (α=.7). In interventionist role enactment, the same three items (influencing public opinion, defending a particular point of view and influencing decisions on public policies) had a value of α=.62. In watchdog role conception, two items were considered (monitoring political leaders and keeping watch over economic powers (α=.63). In the perceived

enactment of this role, the same two indicators plus a third one were considered (monitoring political leaders, keeping watch over economic powers and acting as a watchdog for civil society (α=.71). In the loyal-facilitator role, Cronbach's alpha reached a value of 0.86, including the four indicators related to the importance placed on this function, and a value of .92 for the four indicators on role enactment frequency. In civic role conception, the six indicators had a Cronbach's alpha value of .74. In the perceived enactment of this role, the same indicators had an acceptable value (α=.71).

Table 1. Professional roles and indicators

Roles	Indicators
Disseminator	To be a detached observer
Interventionist	To provide analysis of current affairs
	To influence public opinion
	To advocate a particular point of view
	To influence public policy decisions
Watchdog	To monitor and scrutinize political leaders
	To monitor and scrutinize business
	To act as a watchdog on civic society
Loyal-facilitator	To champion national values
	To support national development
	To support government policy
	To convey a positive image of political leaders
	To convey a positive image of economic leaders
Service	To provide advice and direction in matters of daily life
	To provide the audience with the information that is most interesting
Infotainment	To provide entertainment and relaxation
	To provide the kind of news that attracts the largest audience
Civic	To educate the audience
	Let people express their views
	To motivate people to participate in political activity
	To provide information people need to make political decisions
	To promote tolerance and cultural diversity
	To be an advocate for social change

In the infotainment and service roles, the Cronbach's alpha values were below acceptable values. We therefore decided to use only one item for each of these two roles: offering the audience news that a more interesting to them –to measure the service role– and offering the type of news that attracts the largest audience to measure the infotainment role.

3. Analysis and results

Taking the data as a whole, the roles on which the surveyed Spanish journalists placed most importance were the watchdog role (M=4.60; SD=.618) and the disseminator role (M=4.05; SD=1.164), followed by the service role (M=3.76; SD=1.137) and the civic role (M=3.47; SD=.751). They placed the least important at the normative level on the interventionist role (M=2.94; SD=.652), the infotainment role (M=2.48; SD=1.180) and the loyal-facilitator role (M=1.72; SD=.729).

Figure 1 (next page) shows in more detail that the indicators rated most important were monitoring and investigating political leaders (M=4.67; SD=.612) and economic elites (M=4.53; SD=.839), providing a current affairs analysis (M=4.50; SD=.699), being an impartial observer (M=4.09; SD=1.145), and promoting tolerance and cultural diversity (M=4.31; SD=.955).

When considering how often the journalists said they enacted the seven roles, the most frequent functions were the disseminator role (M=3.46; SD=1.287), the watchdog role (M=3.37; SD=.618) and the service role (M=3.30; SD=1.137), and the least frequent ones were the civic role (M=2.96; SD=.751), the infotainment role (M=2.85; SD=1.299), the interventionist role (M=2.84; SD=.652) and the loyal-facilitator role (M=1.96; SD=1.033). Among the specific indicators (Figure 1), four correspond to those rated most important: monitoring and investigating political leaders (M=3.79; SD=1.092), providing a current affairs analysis (M=3.95; SD=1.049), being an impartial observer (M=3.45; SD=1.280), and promoting tolerance and cultural diversity (M=3.47; SD=1.256)[2].

Our hypothesis proposes that the perceived gap between professional role conception and perceived role enactment will be wider in those roles related to detachment from power, such as the watchdog, status quo promoter and civic roles. To accept or reject our hypothesis, the Student's *t*-test was performed for paired samples to establish which journalistic roles had statistically significant mean differences between the importance placed on

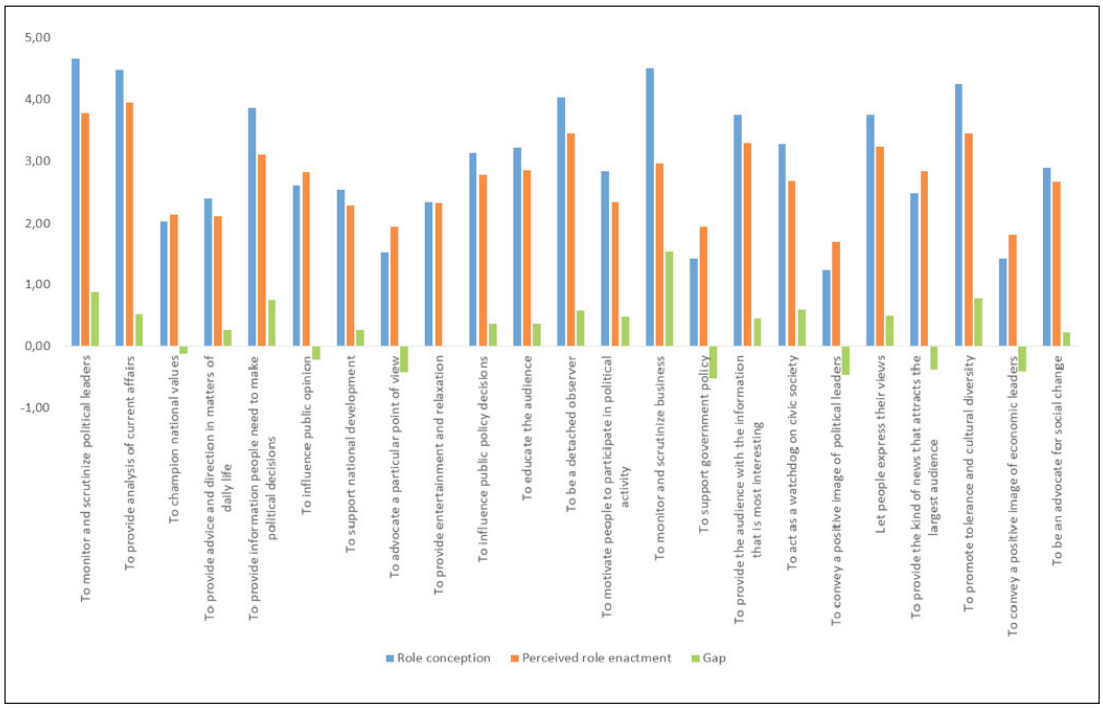

Figure 1. Differences between role conception and perceived role-enactment (indicators mean)..

them and the perceived enactment thereof. Table 2 shows that, in six out of the seven roles, the hypothesis test was significant; it was only in the interventionist role that the gap could not be corroborated.

The biggest differences were found in the role of watchdog over political and economic powers (M=1.23; SD=1.06), followed by the disseminator role (M=.588; SD=1.33), the civic role (M=.504; SD=.503) and the service role (M=.453; SD=1.26). In these four functions, the journalists surveyed expressed the same tendency: they perceived that they enacted these four roles less often than they ought to, according to the importance they placed on them at the normative level. The exact opposite tendency emerged in the loyal-facilitator role (M=–.235; SD=.875) and the infotainment role (M=–.368; SD=1.32), in which the respondents stated that the frequency of their enactment thereof in news production was not commensurate with the little importance they placed on them.

These results corroborate our hypothesis because the journalists perceived that the role conflict was settled in favour of those in power in news production. If we take a look at the specific indicators, we find that the journalists always manifested bigger differences in those roles that related the media to those holding power more directly. Figure 1 shows that the biggest differences can be found in monitoring political powers (M=.899; SD=1.09) and, in particular, the economic elites (M=1.54; SD=1.37). Despite the fact that the journalists believed that such functions were quite important or very important, they only seldom enacted them when producing news. In contrast, the journalists perceived that their news bolstered functions such as supporting government policies (M=–.512; SD=1.176) and giving a positive image of political leaders (M=–.453; SD=.966) and of economic elites (M=–.391; SD=1.027), despite not placing that much importance on them as professional ideals.

Also worthy of note is that the journalists manifested conflict between the normative and practical aspects of the functions that connected them to citizens. For example, the two indicators with the widest gap were: offering information that people needed to make political decisions (M=.761; SD=1.061) and to promote tolerance and cultural diversity (M=.793; SD=1.268), both of which pertain to the civic role of journalism.

4. Discussion and conclusions

This research project is the first to systematically and empirically study journalistic role conflict among press journalists in Spain. It quantifies the size of the perceived gap between ideals and journalistic practice. The data provided will help to gain a better understanding of the news production process in Spain, although the results should be interpreted in line with the characteristics of the media ecosystem within which the journalists surveyed

work: daily newspapers in a polarised pluralist media system. Equally important is the need to consider the features of the time period in which the study was conducted: the financial crisis and political corruption scandals, among others.

Regarding the context, it is worth discussing the results of the disseminator/interventionist dimension. On the one hand, the fact that the gap between disseminator role conception and the perceived enactment thereof is one of the widest is consistent with a media system characterised by political parallelism. The journalists placed considerable importance on being impartial observers (persistence of the objectivity myth in the professional culture of Spanish journalism) but acknowledged that the role was not often enacted. Some journalists from the sample felt that although they wanted to inform impartially, they did not always manage to do so because they gave free rein to their own subjectivity. Others were unable to do so because their bosses imposed a certain point of view, thereby stopping them from producing impartial information.

Tabla 2. Differences between role conception and perceived role enactment

	M	SD
Interventionist role conception	2.94	.65
Interventionist perceived role enactment	2.87	.82
Gap in the interventionist role (t=0.906; p≤ .367)	.069	.71
Disseminator role conception	4.05	1.16
Disseminator perceived role enactment	3.46	1.29
Gap in the disseminator role (t=4.078; p≤ .000)	.588	1.30
Watchdog role conception	4.60	.62
Watchdog perceived role enactment	3.37	1.10
Gap in the watchdog role (t=10.779; p≤ .000)	1.23	1.06
Loyal-facilitator role conception	1.72	.73
Loyal-facilitator perceived role enactment	1.96	1.03
Gap in the Loyal-facilitator role (t=-2.477; p≤ .015)	-.235	.87
Service role conception	3.76	1.14
Service perceived role enactment	3.30	1.08
Gap in the service role (t=3.33; p≤ .001)	.453	1.26
Infotainment role conception	2.48	1.18
Infotainment perceived role enactment	2.85	1.30
Gap in the infotainment role (t=-2.596; p≤ .011)	-.368	1.32
Civic role conception	3.47	.75
Civic perceived role enactment	2.96	.83
Gap in the civic role (t=6.950; p≤ .000)	.504	.50

On the other hand, we found a significant gap between ideals and practices in the interventionist role overall. However, this finding can be nuanced if we take a closer look at the items forming part of the measurement index of the variable. For example, the news writers perceived that they enacted the function of defending a particular point of view more often than their ideals would otherwise have dictated. This finding is logical when considering the interpretative and opinion-based tradition of the Spanish press, as well as the hypotheses on clientelism and on the instrumentalisation of newspapers. This nuance suggests that journalists and the media share a similar vision of the importance of functions such as influencing public opinion, influencing decisions on public policies, and providing a current affairs analysis. The root cause of the conflict is therefore located in either defending or not defending particular points of view. It may be the case that journalists attribute negative connotations to this function because of the normative strength of the objectivity myth.

Finally, regarding the initial hypothesis, the results are also consistent with the description of the Spanish media system, in which the main owners of newspaper groups are banks and/or investment funds and where clientelism and media instrumentalisation by political parties is rife. In a period of economic crisis –mainly financial and bankin– and the proliferation of political corruption cases, the journalists surveyed perceived a gap between professional role conception and their perceived enactment thereof was wider in those roles related to detachment from power, that is to say, in those functions connected with the media's independence and social responsibility. Furthermore, according to the journalists' testimonies, role conflicts were settled in favour of those holding power in all cases.

A clear example is the role of watchdog over economic and political powers, in which the journalists perceived the widest gap. Within a turbulent political and economic context, the professionals stated that they enacted the watchdog role less often than they wanted to. Similarly, they claimed that they were compelled to write news giving a positive image of political and economic leaders –status quo promoter role– more often than their ideals would otherwise have dictated. In the study by Raemy, Beck, and Hellmueller (2018), Swiss journalists also stated that, while placing considerable importance on the watchdog role, they were ultimately unable to enact it as often as they would have liked to. The tendency was the opposite in the loyal facilitator-role, in which the journalists asserted that they enacted it more often than they considered appropriate. In the absence of data for other countries, we can

nevertheless glimpse a tendency for the perceived gap in the watchdog role to be the widest. This may be due to the fact that the watchdog myth gives rise to greater expectations among journalists, who consider it one of the key values of their professional culture overall (Hanitzsch & al., 2011).

Equally revealing is the perceived gap in the civic role. Again, we find that news writers wanted to enact functions such as encouraging people to take part in political activities and decision-making, defending social change and promoting tolerance and cultural diversity much more often than they did. Nor were the journalists' expectations met in relation to their service role conception since the job of guiding and advising consumers was curtailed in practice. This highlights a tension between a professional culture interested in empowering citizens –at a time when inequalities had become more acute, and the abuses of the powerful had been uncovered– and certain journalistic firms who were inclined not to fuel the critical momentum against those holding power. Indeed, it is striking to find that the journalists acknowledged that they enacted the infotainment role more often than they wanted to. This finding can be interpreted in several ways: first, that those in power –through the instrumentalisation of the media– were interested in "dulling the senses", in distracting the critical consciousness of citizens during that period by offering entertaining content; and second, that it was a symptom of the tendency towards commercialisation (the hypothesis of a shift from a Polarised Pluralist media system towards a Liberal media system introducing by Hallin and Mancini in 2004). However, regardless of the possible interpretations, the study data provide evidence of the fact that, at the height of the financial and political crisis and according to the news writers' own accounts, journalists were not the citizens' spokespersons as much as they would have like to be. Indeed, they mobilised citizens, politically educated them and promoted social change (civic role) less often than their ideals would otherwise have dictated. Conversely, they were compelled to entertain citizens more often than they considered fitting for their role in society.

We can conclude that the empirical tests support the assertion that the Spanish press system, as a prototypical case of the Polarised Pluralist media system, is prone to creating professional role conflict between journalists and the newspapers for which they work, especially within a context of political and financial crisis. The conflicts were always settled to the detriment of the journalists' ideals, and the widest gaps were found in the watchdog role (curtailing control over those in power), the disseminator role (lessening impartiality), the civic role (discouraging their social catalyst role) and the service role (curtailing their capacity to advise on day-to-day matters). Likewise, the journalists were compelled to enact more than they considered necessary the loyal-facilitator role –promoting a positive image of the powerful– and the infotainment role–boosting entertainment.

Among future developments of this line of research, the following should be considered: a comparative analysis of the gap in other countries; a replication of the design with a sample of professionals working in other media (radio, television, native digital newspapers and social media); and an observation and analysis of the real gap between professional role conception and role manifestation in content.

Notes

[1] The sample is comparable to those used in national and international studies on professional roles. For example, Berganza, Lavín, and Piñeiro-Laván (2017) surveyed 390 journalists working in 26 native digital media and 98 traditional media (newspapers, agencies, radio, television, and magazines). Mellado and van Dalen (2014) interviewed 75 Chilean journalists. And Tandoc, Hellmueller, and Vos (2012) used a sample of 56 American journalists.

[2] Linear regression analyses were performed, taking into account sociodemographic variables (gender, age, educational level) as well as the perceived level of autonomy, ideology and professional experience to determine potential variations in the dependent variables. No acceptable models with explanatory power were found.

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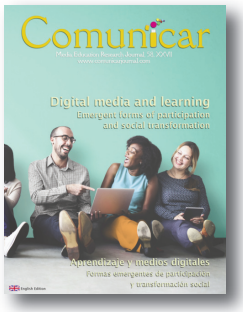

Exploring the influence of the teacher: Social participation on Twitter and academic perception

Explorando la influencia del docente: Participación social en Twitter y percepción académica

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ABSTRACT

Analyzing the influence of social media on the learning process is no longer a novel idea; however, due to its importance for students and consequently for teachers, research continues to explore the pedagogical potential of social media. The main objective of the present study was to analyze the influence of teacher roles (guide or facilitator) on students' social participation in Twitter and their perceived academic experience. The sample consisted of 525 future teachers, all of the Master's degree students at Spain's National Distance Education University (UNED). We used a mixed triangulation design, a theoretical model, quantitative methods (descriptive analysis and contrast of means) and qualitative methods (content analysis following the principles of grounded theory). Our results showed that the teacher's role as a facilitator exerted a more positive influence on how students assessed their experience and on their participation on Twitter than the role as a guide. We conclude that the use of social media sites in education offers a motivating and satisfying framework that is not provided by other more traditional means such as forums, and that a role that facilitates independent learning is a better strategy when using social media in the classroom.

RESUMEN

El análisis de la influencia de las redes sociales en el proceso de aprendizaje ya no es una novedad. Sin embargo, debido a su importancia para el alumnado y en consecuencia para el profesorado, la literatura científica sigue prestando atención al potencial pedagógico de las redes sociales. El objetivo principal de esta investigación fue analizar la influencia del rol del profesorado (guía y facilitador) sobre la participación social en Twitter y la experiencia académica percibida de los estudiantes. La muestra estuvo formada por 525 futuros profesores, estudiantes de posgrado en la Universidad Nacional de Educación a Distancia. Se utilizó un diseño mixto de triangulación, un modelo teórico, una parte cuantitativa (análisis descriptivo y contraste sobre medias) y otra cualitativa (análisis de contenido, siguiendo los principios de la teoría fundamentada). Los resultados mostraron que el rol facilitador del profesor influye positivamente en la valoración de la experiencia por parte de los estudiantes y en la participación en Twitter, en mayor medida que el rol guía. Por un lado, se concluye que el uso de las redes sociales, en el ámbito educativo, proporciona un marco motivacional y de satisfacción que no lo aportan otros medios más tradicionales, como los foros, y, por otro, que un rol que facilita un proceso de aprendizaje independiente es mejor estrategia cuando hablamos de redes sociales en el aula.

KEYWORDS | PALABRAS CLAVE

E-learning, social interaction, motivation, social participation, perception, teacher's role, Twitter, university.
Aprendizaje en línea, interacción social, motivación, participación social, percepción, rol del profesor, Twitter, universidad.

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1. Introduction and status of the issue

Most experts accept the need to develop new educational models where learning is adapted to characteristics of the networked society (complexity, connectivity, and speed) (Jenkins, 2012). Thinking is developed within the context of social participation: experiences of interacting with others establish our way of being present in the world, something that is critical to learning (Gee, 2004). These new ways of learning must be frustrating and interesting at the same time, and avoid thinking processes that only rely on what is easy and simple (Gee, 2004).

Research studies about online learning have underscored the importance of interaction (between students, with the teacher, and with the content) and its positive influence on academic performance (Kurucay & Inan, 2017). Student-student and student-teacher interaction reinforce a sense of belonging (Luo, Zhang, & Qi, 2017) and, consequently, a sense of cohesion. Discussion and reflection among students facilitate learning and improve their perceived academic experience (Lee & Bonk, 2016). Students seem to give more importance to relations with other students than with the teacher (Smith, 2016), and student-student interaction is a verified predictor of student satisfaction (Ali & Ahmad, 2011).

Historically, many authors (Ausubel, 1981) have acknowledged the important role of the teacher, who is responsible for providing opportunities for debate and knowledge creation in an interactive setting. When teachers provide online students with different moments for learning and differing degrees of interaction, they are ensuring a positive outcome (Battalio, 2007). Ouyang and Scharber (2017) underscored the importance of modifying the teacher's role over the school year to facilitate student cohesion and learning. These authors found that during the first part of the school year, there was a greater need for participation and interaction from teachers (a leadership role), evolving into a more passive position with time (facilitator and observer role). In fact, the mere presence or absence of the teacher influences student satisfaction (Battalio, 2007; Ladyshewsky, 2013), as well as their participation and the communication process itself (Jaggars & Xu, 2016). In short, depending on the teacher's behavior, there are significant differences in the students' behavior (An, Shin, & Lim, 2015; Marcos-García, Martínez-Monés, & Dimitriadis, 2015).

Technology (such as social media) naturally facilitates these connected learning experiences. According to Jenkins (2012), not only does the student need information and resources but more importantly, rich environments involving different types of learning. Application of social media in education has produced contradictory outcomes.

On the one hand, social media is recognized as having pedagogical potential (Scott, Sorokti, & Merrell, 2016) and capacity for knowledge exchange within the educational context (Wong, Sing-Chai, & Poh-Aw, 2017), and as instrumental in facilitating communication, exchange of resources, and collaboration (Tuzel & Hobbs, 2017). Social media, as an alternative to more traditional learning models, can promote engagement, interaction between students (Alhazmi & Rahman, 2013), and motivation (Gutiérrez-Porlán, Román-García, & Sánchez-Vera, 2018). Eid and Al-Jabri (2016) found a positive relationship between the level of students' motivation and the exchange of information and discussion on Twitter. Moreover, the use of social media has been related to students having a positive academic perception (Alhazmi & Rahman, 2013; Lee & Bonk, 2016), to their perception of interaction and communication processes (Smith, 2016), to satisfaction and usefulness (AL-Rahmi & Othman, 2013) and to group cohesion and belonging to a group with shared interests (Carpenter & Krutka, 2014). Twitter may facilitate the creation of a community with shared interests, extending interpersonal relations both inside and outside the educational sphere (Carpenter & Krutka, 2014). The social interaction processes and patterns of information exchange that can take place on Twitter positively influence the sense of community among students (Blight, Ruppel, & Schoenbauer, 2017).

On the other hand, authors recognize that while social networks like Facebook offer great opportunities for communicating and socializing, they may become a source of distraction (Gupta & Irwin, 2016) and therefore have a negative effect on academic performance (Bellur, Nowaka, & Hullb, 2015). They affirm that the more time is invested in Facebook, the lower the level of achievement (Paul, Baker, & Cochran, 2012), due to less time being spent on studying (Kirschner & Karpinski, 2010). With regard to Twitter, Tang and Hew (2017: 1) state that: "Although Twitter shows promise in improving interactions among learners and teachers, causality between Twitter use and learning performance remains to be conclusively established". Furthermore, several research studies have indicated that microblogging represents few actual conversations, it reinforces one-directional discourse (Arrabal, & de Aguilera, 2016): individualistic action more than group action or interaction, monologues more than dialogues (Santoveña-Casal, 2017). Finally, it is worth mentioning that the use of Twitter in academic activities prompts complaints from students about increased workload (Chen & Chen, 2012), difficulty expressing oneself

due to the character limitation (Prestridge, 2014) and difficulty in handling the large quantities of information (Lin, Hoffman, & Borengasser, 2013).

Briefly, then, the objective of the present study was to analyze how the teacher role (guide or facilitator) –as played out over four academic discussions on Twitter– affected social participation online and the perceived academic experience. The following hypotheses are being tested:

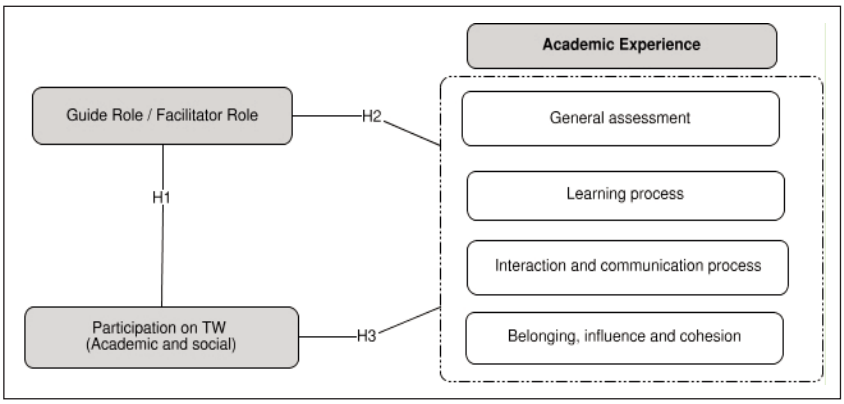

Figure 1. Proposed model.

• H1. The type of role enacted by the teacher (guide or facilitator) influences the student's academic participation using Twitter.

• H2. The type of role enacted by the teacher (guide or facilitator) influences the student's perceived academic experience.

• H3. Social participation on a network (Twitter) positively influences how students assess the academic experience, the learning process, the interaction process (student-student and student-teacher) and their feeling of belonging, of influence and of group cohesion.

The research model, including its three hypotheses, is presented in Figure 1.

2. Material and method

2.1. Context

This study took place within an official Master's degree program for future teachers at Spain's National Distance Education University (UNED). Students were to interact and exchange opinions in two mandatory discussions over the Twitter social network. Two additional, optional discussions were also offered.

The teacher's role in the discussions was modified over the course of the semester. We adopted the classification from Marcos-García, Martínez-Monés, and Dimitriadis (2015) and from Ouyang and Scharber (2017), who categorize teacher roles as guide, facilitator or observer. In this class, the roles of Guide and Facilitator were used exclusively, making a change midway through the discussions (Figure 2).

a) The Guide role implies that the teacher is at the center of learning and is the leader who heads up the process. She/he guides the students, offers instructions, provides the material necessary for learning. Enacting the role of guide, the teacher interacted with students through the Twitter conversations, and sent links, educational resources, and news, for the purpose of enriching the discussion.

b) The Facilitator role implies that the teacher monitors student activity, and acts as a mediator if there are conflicts. On Twitter, the teacher adopted a secondary role, limiting the number of messages sent. She/he did not intervene in the conversations or send supplementary resources.

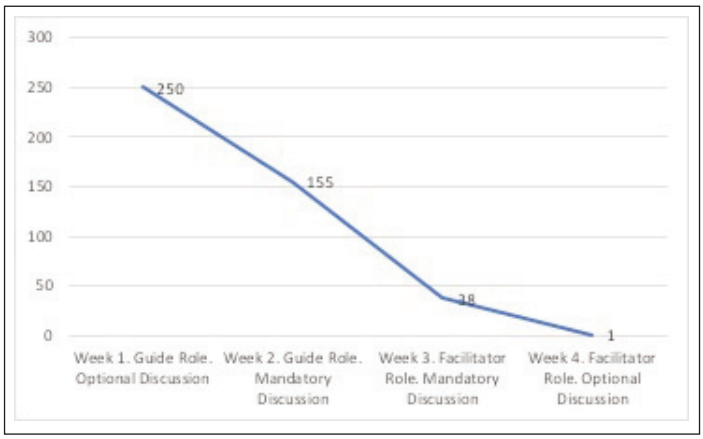

Figure 2. Teacher participation on Twitter: Tweets sent over the four-week period.

2.2. Population and sample

The population was made up of all students pursuing a Master's degree (720). To study the perceived academic experience, the sample included students

who answered the questionnaire (the same questionnaire applied at two different moments), for a total of 525 students: 249 answered the questionnaire upon completion of Discussion 1 and Discussion 2 where the role of guide was adopted, and 276 students answered upon completion of Discussion 3 and Discussion 4 where the facilitator role was adopted. Women represented 66.3% (N= 348) of the sample. The participants ranged from 21 to 53 years in age, with a mean of 32.5 years. Table 1 shows the sampling error that was found based on simple random sampling in the most disadvantaged case (p=q= 0.5).

For the study of Twitter participation, the sample was made up of the messages sent and registered in a Google TAGS spreadsheet v6 (Hawksey, 2013) connected to Twitter API: 26188 tweets. Tweets were selected using the hashtags that identify each discussion. Twitter API, despite some limitations, makes it possible to recover tweets depending on the number of tweets sent during the past month, eliminating the oldest messages in order to facilitate the creation of new ones. Despite their temporary nature, these data are nonetheless an interesting research objective (Bruns & Stieglitz, 2012; Gerlitz & Rieder, 2013); the API must be trusted, given that it is the only means of obtaining large-scale data (Bruns & Stieglitz, 2012). The researchers have no other way to confirm data quality and accuracy; this is an unavoidable limitation that does not invalidate the results. As indicated by Gerlitz and Rieder (2013), Twitter sampling is based on nonprobabilistic sampling that is not representative, given that sample selection is always limited by the application used.

Table 1. Sampling error

June session	Frequencies		Percentage	Measurement error
	Population	Sample	Sample	
Questionnaire: Guide Role phase	720	249	43.9	5.1%
Questionnaire: Facilitator Role phase		276	56	4.7%
Total		525	100	2.2%

2.3. Design and data collection instruments

The study is based on a mixed triangulation design, a theoretical model, quantitative methods (descriptive analysis and contrast of means) and qualitative methods (content analysis following the principles of grounded theory). We used SPSS v24 for statistical analysis and Atlas Ti HM for content analysis.

The quantitative study was based on descriptive analysis and contrast of means (test for independent samples) in order to learn how the variable of teacher's role (Guide or Facilitator) influenced the dependent variables (Perceived academic experience and Participation on Twitter). Given the lack of normal sample distribution of variables, and in order to confirm Student's t data, we used the Mann-Whitney U. In addition, we determined effect sizes for the tests (Cohen's D and correlation coefficient r).

In order to analyze the perceived academic experience, a Likert-type, ad hoc survey was used to collect students' opinion. Supplementary open-ended questions were also included to add qualitative information to the closed response questions. Content validity was based on the scientific literature, in variables considered fundamental by authors like Kurucay and Inan (2017) (demographic data, satisfaction, interaction, perception of collaboration, perception of learning) and Luo, Zhang, & Qi (2017) (student-student interaction, student-teacher interaction, interaction with the content, belonging and influence). In addition, we requested the collaboration of a group of experts (4 teachers) who indicated changes that should be made to a preliminary version of the questionnaire.

This version was applied to a sample of 40 students, which helped to confirm that the instructions and questions were well understood. A Cronbach alpha of .960 was obtained for reliability, far above the recommended minimum (.70). Later, exploratory factor analysis was applied (using Varimax rotation and main components), and each individual item was grouped within the corresponding construct, for a total explained variance of 66.7%. The following dimensions were found:

- Dimension 1. Learning process and acquisition of knowledge: .943. This assesses the academic experience on Twitter, in this class subject, as a space for knowledge acquisition that is constructivist, reflective and critical, connectivist, individualistic, social and participative, active. It also assesses the teaching methodology in general.
- Dimension 2. Belonging and influence in class, and group cohesion: .921.
- Dimension 3. General aspects: .879. This analyzes quality, satisfaction and usefulness of the experience and the value added from the communication and interaction process, in general, and on Twitter in particular.
- Dimension 4. Student-student interaction: .855. This examines the frequency of Twitter use; the degree at which information is shared, regarding the class subject and regarding problems with other students; Twitter's

contribution to improved interpersonal relations between the students, interpersonal skills and online communication skills and the degree that these have made it possible to form a community or shared-interest group.

• Dimension 5. Student-teacher interaction: .896. This examines to what extent students request information from the teacher with regard to class content, the class itself and the activity on Twitter.

• Dimension 6. Use of forums: .518. This analyzes the frequency of forum usage and their added value.

The qualitative study is based on content analysis of the responses to open-ended questions on the questionnaire. The content analysis follows indications from García-Llamas, González and Ballesteros (2001): 1) Defining the content universe and sample selection; 2) Deciding on the unit of analysis and establishing the categories. The main categories are established by the dimensions identified in the scientific literature (Kurucay & Inan, 2017; Luo, Zhang, & Qi, 2017). These categories are organized in the superfamily (Perceived academic experience) and in two families that fall under it: the We-focused perspective, to which the Collaboration and participation code is assigned; and the I-focused perspective, to which the Criticism and Difficulties code is assigned. The results of the code categorization are presented in a concept map, indicating their materialization (frequency of appearance) and density (number of codes that relate to each). In addition, we include the literal text of the student comments that were used, indicating the number of the main document of analysis and the line from which the comment is taken.

3. Results

3.1. Social participation on Twitter

High participation on Twitter was recorded, with 26,188 tweets, 5,639 retweets, and 6,089 links within the messages. Students participated especially during the second and third week when the discussions were mandatory. Moreover, they participated more on Twitter when the teacher adopted the Facilitator role when they sent 56.3% of the total messages. A significantly greater number of student messages on Twitter was observed when the teacher enacted a facilitator role [F(2.8) t=–3.06, Sig. (bilateral)=.002]. The data are confirmed by Mann-Whitney U, but the effect size is null (r=0.07 and d=0.14).

3.2. Perceived academic experience

Student assessment of this learning experience was very positive. Over 64% of the students rated all the dimensions high or very high, and this rating was significantly more positive when the teacher adopted the facilitator role: Quality [F(9.6) t=2.7, Sig. (bilateral)=.006], Usefulness [F(6.7) t=2.1, Sig. (bilateral)=.034], Satisfaction [F(10.8) t=2.9, Sig. (bilateral)=.004], and Value added to the Twitter communication process [F (4.02) t=4.0, Sig. (bilateral)=.000]. The Mann-Whitney U confirms these significant differences (Table 2). The effect size is small for Quality of the learning experience (r=0.12; d=0.24), Satisfaction (r=0.12; d=0.25) and Value added to the Twitter communication process (r=0.16; d=0.34); and null for Usefulness (r=0.09; d=0.09).

Figure 5 shows the results of Dimension 1, "Learning process and acquisition of knowledge". The teaching methodology was highly rated by 70% of the students. They considered that participation on Twitter helped them acquire knowledge about the subject matter (59.6%), theoretical knowledge (42.7%), practical knowledge (53%), collaborative and participative knowledge (70%) and that they had experienced different types of learning in this class: critical (76%) and reflective (76%), constructivist (73.7%), connectivist (73.5%), social (81.9%) and participative (70%), active (61.6%).

When the teacher adopted the facilitator role, students ratings of their learning through Twitter and in the class as a whole were significantly higher in the following variables:

a) Twitter facilitates acquisition of knowledge [F(17.22) t=4.7, Sig. (bilateral)=.000], related to the material [F(15.4) t=4.6, Sig. (bilateral)=.000], theoretical [F(.48) t=4.02, Sig. (bilateral)=.000] and practical [F(1.7) t=4.02, Sig. (bilateral)=.039].

Table 2. Mann-Whitney U test. Test statistics

	Quality	Usefulness	Satisfaction	Value Added to Communication	Value Added to TW
Mann-Whitney U	30124.5	31196.5	30087.0	33816.5	28321.5
Wilcoxon W	68350.5	69422.5	68313.0	72042.5	66547.5
Z	-2.7	-1.9	-2.6	-.35	-3.68
Sig. Asymptotic (bilateral)	.006	.047	.007	.724	.000

a. Grouping variable: Questionnaire0_1

b) This class facilitates critical and reflective learning [F(8.2) t=2.9, Sig. (bilateral)=.003], constructivist learning [F(5.5) t=2.6, Sig. (bilateral)=.007], social learning [F(2.04) t= 2.9, Sig. (bilateral)= .003] and individualistic learning [F(0.090) t=2.6, Sig. (bilateral)=.009].

c) Assessment of this teaching method [F(8..) t=2.6, Sig. (bilateral)=.009].

The Mann-Whitney U confirms these significant differences. For all variables, the effect size is small (r between 0.1 and 0.25 and d between 0.41 and 0.21), or null for Twitter facilitates practical knowledge acquisition (r=0.08; d=0.17).

Regarding Dimension 2, "Belonging, influence in class and group cohesion", we observed that students see themselves as part of the class group, and they feel they have good ties to other students, in a high or very high degree. Regarding Group cohesion, students manifested the intent, to a high or very high degree, to prolong their participation in the online degree program and/or the social network, to access the online course and/or social media in the future. On the other hand, they consider that their influence on the class and/or the online degree is low. No significant differences were found in any of the aspects analyzed in this dimension as a function of the teacher's role. Data are confirmed by the Mann-Whitney U. Two dimensions were found in relation to the interaction processes: student-student interaction (Dimension 4) and student-teacher interaction (Dimension 5).

51.6% of the students confirmed that they use Twitter almost always; 42.5% confirmed that they interact with their classmates by sharing class information; 45.7% claimed to share knowledge frequently with their classmates.

Most students considered that participation on Twitter helped them improve, in a high or very high degree, their interpersonal relations with classmates (69.3%), their interpersonal and online communication skills (63%) and they affirmed that they were able to form a community or shared interests group (71.5%). Significant differences as a function of the teacher's role were only found for perceived improvement in interpersonal relations between the students [F(10.3) t=3.2, Sig. (bilateral)=.001], with greater improvement reported when the teacher adopted a facilitator role. Data are confirmed by the Mann-Whitney U. The effect size was small (r= 0.14; d=0.28).

Elsewhere, regarding the process of interacting with the teacher, students perceived that they had little interaction with the teacher, and this tendency is heightened when the teacher adopted the facilitator role: 54.5% affirmed that they had never requested information about the class itself or its content. Significant differences were found in: Interacting with the teacher to request information about content, about the class itself, and about the activity. Differences were confirmed with Mann-Whitney U. The effect size is small (r between 0.10 and 0.12 and d between 0.22 and 0.25).

In Dimension 6, "Use of forums" most of the students claimed to use them infrequently (52.4%). Moreover, the value that forums add to the class was considered high or very high by only 33% of the students, and low, very low or null by 34% of the students. When the teacher adopted a facilitator role, students claimed to use them more often. The effect size was small. Data are confirmed by the Mann-Whitney U.

Content analysis of students' descriptions of the perceived academic experience revealed three main aspects (Figure 3). First, two different perspectives on the academic experience stand out: students who gave a positive rating to participation on Twitter made a we-centered assessment, in the processes of collaborating and participating with their fellow Master's degree students. By contrast, those who criticized and perceived more difficulty in the academic experience made a self-focused analysis. Second, an interrelationship was observed between the main dimensions: general aspects (satisfaction), student-student and student-teacher interaction process, learning and knowledge acquisition process, and belonging and influence in the class and group cohesion. Third, there were no differences in student comments about the teacher's role, nor was there a better rating of the teacher in the phase of Guide role as compared to the phase of the Facilitator role.

Students gave a very high rating not only to the activity performed on Twitter but also to the class in general. They primarily emphasized its innovative and motivating nature, considering it of great interest, entertaining, rewarding, attractive, fun ["This methodology seems much more attractive to me than the traditional forum-based methodology" (6:668)]. They commented on the importance of getting started in Twitter and overcoming one's hesitation and initial reluctance to use it ["Despite being reluctant to use Twitter, and even more so for a class, it turned out to be very enriching for me" (14:1171)]. Student-student interaction stood out as the determining factor for satisfaction ["the satisfying effects that it had on interaction and communication with my classmates" (1:120)]. They considered it to be the first time they were able to have direct, spontaneous, close and democratic contact with other Master's degree students ["I very much liked the chance to interact directly with my classmates, and to have a much closer relationship" (1:747)] and to learn different points of view ["a large number of participants gave rise to a

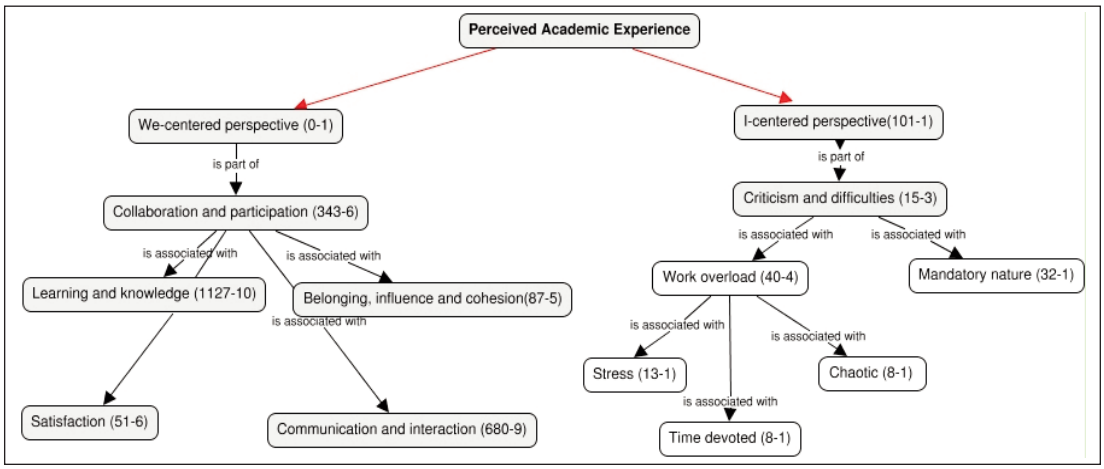

Figure 3. General concept map "Perceived academic experience".

broad range of opinions and viewpoints" (1:465)]. Student-student interaction led to a feeling of belonging and cohesion within the group, the feeling of being part of a community was a much-emphasized aspect ["The feeling of belonging is what most prompted me to do this activity on a regular basis" (7:598)]. Furthermore, through the communication and discussion process, students acquired theoretical and practical knowledge; they exchanged ideas, information, and knowledge in a fun, motivating way ["it was a different way to learn, very dynamic and motivating" (1:548)] (Figure 4).

There were a few criticisms of the activity, but they are interesting to analyze. They focused on the workload involved in participation, the excessive time required for participating on Twitter ["… the experience … seems like a heavy workload to me (in terms of hours spent)" (6:642)]. They criticized the mandatory nature of the task, and students were worried about invasion of privacy from using the networks in the academic sphere [("it seems that no matter how many security filters you use, any hacker can steal your identity, or your private like may simply become public" (5:760)]. They also criticized the chaos involved with so many people participating, the large volume of tweets, and the absolute lack of control over the communication ["The Twitter activity is chaotic, too many open discussions" (2:552)] and the anxiety involved in this process ["I enjoyed it… but there were times when … I felt stressed by the large number of interactions" (2:547)]. It is interesting to note that the students who negatively assessed the activity made I-centered comments, ["I have always seen this as something that I cannot really control, and therefore I do not want to make it part of my life" (5:579); "I don't feel comfortable expressing myself on media…" (6:622)]. In fact, these students acknowledge null or little belonging and group cohesion ["I did not come here to make friends, I do not believe in the value of relationships per se" (8:499)] (Figure 6).

4. Discussion and conclusions

The main objective of this study was to analyze how the teacher role (guide or facilitator) –played out over four academic discussions on Twitter– influenced social participation online and the perceived academic experience. Results indicate that the teacher role did not influence students' social participation, and it had little influence on the perceived academic experience, though it is highly interesting for the educational context.

Several authors (Durlak, 2009; Frías, Pascual, & García-Pérez, 2000) consider that a small effect size can have great practical importance in a specific context, and above all, as stated by Glass, McGaw, and Smith (1981), the practical importance of an effect depends entirely on its relative costs and benefits. We consider that the data offered by this research study has high practical value for education. Given that adopting a facilitator role on Twitter, a more passive role, seems to improve students' perception of the teaching methodology, their degree of satisfaction, how they rate the communication and interaction process over Twitter, as well as the contribution of microblogging to the acquisition of learning and knowledge and improved interpersonal relations. According to Battalio (2007), when teachers provide students with different educational moments with varying degrees of interaction, they ensure a positive outcome in online learning. Moreover, this type of methodology does not involve a high cost, and its benefits can be very large.

We observed that the teacher's role did not influence the feeling of belonging, influence or cohesion. In fact,

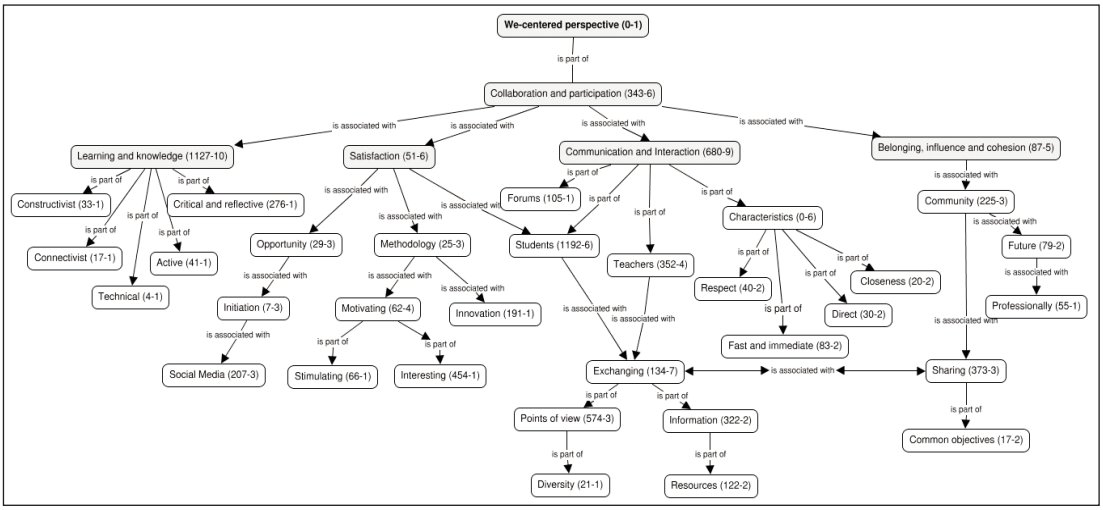

Figure 4. Concept map "We-centered perspective".

students stated that they practically never approached the teacher to ask questions. This tendency was more marked when the teacher adopted a facilitator role, and by contrast, there was a more perceived improvement in interpersonal relations on Twitter between the students. As seen in research by Smith (2016), students give greater importance to student-student interactions than to student-teacher interaction in learning over social media. It is probable that adopting a more passive role, leaving room for interaction between students, is an adequate methodology for learning on social media. In fact, students underscored the importance of interaction between students and how this relationship influenced their feeling of belonging to the group. These data are confirmed by content analysis where student-student interactions were described as motivating and highly satisfying. Results concur with research by Ali and Ahmad (2011), who established interaction between students as a predictor of satisfaction.

In the same line as previous research studies, we conclude that networked social participation (Twitter) positively influences how students rate the academic experience (Alhazmi & Rahman, 2013; Lee & Bonk, 2016), the learning process, and their feeling of belonging and group cohesion (Blight, Ruppel, & Schoenbauer, 2017; Carpenter & Krutka, 2014). The students gave very positive ratings for the innovative nature of the methodology; they indicated the value of Twitter as a motivational space, positively relating discussion, information exchange and resource exchange to motivation, as indicated by Eid and Al-Jabri (2016).

Students assigned a high value to Twitter as a means for communicating and interacting, thereby contradicting other research studies that emphasize the scarcity of conversations registered on the network (Arrabal, & de Aguilera, 2016) and a tendency to carry on monologues more than dialogues (Santoveña-Casal, 2017). The social network may be considered an environment that facilitates the adoption of new educational models based on connected learning and social participation, aspects underscored by Jenkins (2012) and Gee (2004) as fundamental to the networked society. Furthermore, students have explicitly commented on the importance of getting started on Twitter and overcoming hesitation and initial fears. Twitter produced feelings of frustration along with a high level of interest in the task aspects that Gee (2004) points to as fundamental to new forms of learning.

At the same time, this network is not without drawbacks when used in the educational context. In the same line as other research studies, some students criticized the extra workload that was involved (Chen & Chen, 2012) and the sensation of chaos and stress when struggling to manage the shared information (Lin, Hoffman, & Borengasser, 2013). Students who made a negative assessment usually expressed their criticism and difficulties from a focus on self, on their problems controlling the communication process, their anxiety problems, or an absolute lack of interest in others. This is an especially interesting aspect to be analyzed in future research: how do personality variables influence academic participation on social media? What role does internal and external locus of control have in these experiences?

In summary, it seems that participation on Twitter enables communication and interaction, facilitates social participation and increases academic satisfaction in students; however, how students are influenced by the change in teacher role remains to be conclusively established. Studying the role of the teacher that has a special interest

since it sheds light on new online methodologies. In conclusion, the use of social media in university education offers motivational value not provided by other more traditional media like forums; on the other hand, a teacher role that reinforces an independent learning process is probably a better strategy when we speak of social media in the classroom.

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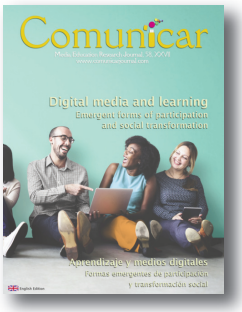

Google or Gutenberg Generation: Chilean university students' reading habits and reading purposes

Generación Google o Generación Gutenberg: Hábitos y propósitos de lectura en estudiantes universitarios chilenos

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ABSTRACT

It has always been in the public interest to know the reading habits of readers of various ages and levels of schooling, as well as their opinions with regard to the consumption of reading materials. Lately, researchers have given increased attention to digital texts. Although progress on these topics has been made as reported in published research, there is yet incomplete information regarding readers' habits and opinions at university and professional levels. This study describes the self-reported habits of university students belonging to two disciplinary domains (Human Sciences and Economic and Business Sciences) regarding reading on paper or on digital media for three purposes: academic, entertainment, and information seeking. The results reveal that the readers' preferences vary according to the three purposes. These readers reported using different media but had a clear preference for paper; they also reported distinguishing between cognitive processes (memory, comprehension, and learning), with the discipline to which they belonged having no radical effect on their preferences. All of this leads us to conclude that currently there exists a generation in transition, a 'Gutenberg-Google' generation, which still recognizes the relevance of paper, in particular for academic purposes.

RESUMEN

Conocer los hábitos de lectura de sujetos de diversas edades y niveles de escolarización, así como su opinión respecto del consumo de materiales de lectura, ha estado siempre en el interés público. En los últimos tiempos, mayor énfasis se ha puesto en los textos digitales. Si bien se ha avanzado en la investigación en estas áreas, aun es parcial la información a nivel universitario y profesional. En este estudio se describen los hábitos declarados por estudiantes universitarios de dos áreas disciplinares (ciencias humanas y ciencias económicas y administrativas) respecto de lectura en formato papel y en digital en virtud de tres propósitos: académico, entretenimiento y búsqueda de información. Para ello, se diseñó y aplicó una encuesta a una muestra de 894 estudiantes en dos universidades chilenas y en cinco carreras. Los resultados revelan que los lectores muestran variación en sus preferencias de lectura según los tres propósitos. En otras palabras, estos lectores declaran emplear soportes diferentes, pero con una clara tendencia a preferir mayoritariamente el sustrato papel, y distinguir procesos cognitivos diversos (memoria, comprensión y aprendizaje), sin que el área disciplinar de procedencia incida de modo radical en sus preferencias. Todo ello, en general, nos lleva a concluir que en la actualidad existe una generación en transición «Gutenberg-Google», la cual aún reconoce y otorga alta relevancia al soporte papel, en particular frente a propósitos académicos.

KEYWORDS | PALABRAS CLAVE

Reading, reading habits, digital media, reading purposes, university students, Google, Gutenberg, multimodality.
Lectura, hábitos de lectura, medios digitales, propósitos de lectura, estudiantes universitarios, Google, Gutenberg, multimodalidad.

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1. Introduction

Reading often attracts the attention of experts and laypeople. In particular, two concerns commonly arise: Are we reading enough? And, what are we reading? In other words, the focus of attention is on how much people read and what they read. More recently, researchers have tackled questions relating to the emergence of new technologies and their effect on reading on paper and other media and digital devices. Therefore, identifying the reading habits reported by readers of different ages and levels of education and their opinions on the consumption of printed and digital materials, formats, and media, is highly valuable to both governmental authorities and researchers. Whether it be with the aim of influencing public policy or with scientific or applied objectives, it is a crucial priority to have access to detailed information on how groups from different disciplinary fields and levels of schooling carry out their everyday reading practices (Woody, Daniel, & Baker, 2010; Carr, 2011; Baron, 2015; Wang & Bai, 2016).

Underlying these concerns, there is a set of assumptions, hypotheses and predictions (many of which lack sufficient scientific evidence) revealing reservations about statements such as a) people do not read enough, b) written culture has become impoverished, c) nowadays people read less than they used to, d) books on paper will soon disappear, e) digital reading involves new ways of thinking, and f) young people mostly read on electronic devices.

In addition, another preoccupation has emerged more recently: can reading texts in a digital medium have negative effects? In other words, what are the cognitive implications of reading in different media, printed or digital? Is one more efficient than the other? The fear is that new media would have a negative impact on reasoning, i.e., that new technological devices lead to a decrease in reflexive reading and deep and lasting learning (Bennett, Maton, & Kervin, 2008; Rockinson-Szapkiw, Courduff, Carter, & Bennett, 2013; Mangen, Walgermo, & Bronnick, 2013; Beland & Murphy, 2016).

In our opinion, the information available on these issues remains fragmented and lacks a perspective that adequately deals with reading purposes as a central focus of the processes implied in the comprehension of written texts and different reading devices. Although there is still no integral systematic theory involving reading objectives, numerous researchers recognise that people read for many different purposes and that they adapt their reading processes to those objectives (Graesser, Singer, & Trabasso, 1994; Graesser, Li, & Feng, 2015; Parodi, 2011; Britt, Rouet, & Durik, 2018).

This study is part of a larger research project that aims to identify reading habits, written materials and reading routes using eye-tracking technology in different disciplinary domains (FONDECYT Project 1170623). The reading habits survey employed here was designed and administered to university students as part of the first stages of this research grant. The survey focuses on the reading habits of students as they read for different purposes; at the same time, it seeks to collect detailed information on discourse genres and their multisemiotic features. The objective of the current study is to describe the reading habits disclosed by university students in two disciplinary areas (Human Sciences and Economic and Business Sciences) regarding paper and digital media with three reading purposes: academic, entertainment and information seeking.

This study presents the results of the administration of the Purpose-Guided Reading Habits Survey (PGRHS) for three of the six dimensions included in the survey: 1) Preferred medium and concentration for reading; 2) Comprehension, memory and learning; 3) Multiple semiotic systems. Consequently, the focus of the study is to describe the central findings related to the incidence of three specific reading purposes. The article is organised as follows: the first section reviews some key issues that frame the design of the survey. The methodology section provides details of the procedure through which the instrument was built, the sample of university students and the administrative procedures. This is followed by a review of the general results of the study and a discussion of the findings. The article concludes with projections.

1.1. Reading on paper and digital media: Readers' habits and academic performance

In an article published in 2007, Marianne Peronard reflected on the differences between reading on paper and computer screen and suggested the need for digital reading to take into account "the needs and interests of each person, for each moment, and for each purpose" (Peronard, 2007: 179). Previously, Muter and Maurutto (1991) had listed 29 formal features that previous studies identified as possible factors of the differences between reading on paper and on screen. Because of the varied data collection methodologies, Dillon (1992) stated that it was not possible to draw definitive conclusions about the particularities that contributed to possible differences. The study by Peronard (2007) confirmed the assertion made by Piolat, Roussey, and Thuning (1997) that comprehending a

text was more efficient for a group of university students when the text was read on paper than in a digital medium. Reading on the latter device also revealed poorer spatial memory and more superficial text processing. These findings coincide with most recent studies (Sparrow, Liu, & Wegner, 2011; Mangen & al., 2013; Mangen & van-der-Weel, 2016; Hou, Rashid, & Lee, 2017) and are part of the current debate about new generations of readers and their supposed preference of digital media over paper (Selwyn, 2009; Carr, 2011; Baron, 2015).

From this framework, we are interested in approaching another source of information, which is the focus of the current study: opinion surveys. In general, the importance given to reading habits surveys is related to their impact on other relevant dimensions of the reading process. Recent research has revealed that there is a relationship between reading habits and academic performance. Usually, students who proclaim themselves dedicated readers tend to score better on school tests (Molina, 2006; Galicia & Villuendas, 2011; Picasso-Pozo, Villanelo-Ninapaytan, & Bedoya-Arboleda, 2015). Thus, the underlying assumption that guides and inspires much of the research in this domain is that reading habits facilitate and foster the development of reading comprehension competence and positively influence students' academic performance. Although our objectives are not the same as Peronard's (2007), hers and related findings that show a connection between reading habits and academic performance provide relevant background to the present study.

1.2. Natives, immigrants and the Google Generation: Terminological successes and failures

Together with the widening proliferation of information technology, different characterisations of human groups have arisen, particularly in the area of education. Gallardo, Marqués, Bullen, and Strijbos (2015) identified at least 48 different terms for users of digital technology in the literature from 1991 to 2014. Within this possible terminological confusion, a relatively accepted categorisation, though one that is still not free from controversy, is the distinction between digital natives and digital immigrants, based on the date of birth of subjects from different generations and associating this with a particular relationship to the digital world.

> According to the findings of the current study and other similar studies, being born after a somehow Messianic date (such as 1993) is not a sine qua non-condition for being a predominantly digital reader. This underlines the need to distinguish between technology use for entertainment purposes and information seeking, and for academic purposes for the construction of deep and lasting learning.

The terms digital native and digital immigrant arose at the end of the 1990s (Prensky, 2001a). Digital natives would be young people born in the 90s who are the first generation of the technological revolution and who grew up surrounded by artefacts from the digital era. Although lacking empirical basis, Prensky (2001b) suggests that this environment of permanent interaction with technological tools modifies the structure of the brain and the thinking processes of users. Digital immigrants, on the other hand, would be those who did not grow up with this technology and had to learn about new cultures and ways of communication in order to join the modern digital world.

Another somewhat controversial categorisation focuses on technological practices applied by certain users, proposing the existence of the so-called Google Generation. It identifies people born after 1993 who live in a world of permanent connectivity, use the internet as their only source of information and use Google as their main search engine (Rowlands, Nicholas, Williams, Huntington, Fieldhouse, Gunter, Withey, Jamali, Dobrowolski, & Tenopir, 2008; Gunter, Rowlands, & Nicholas, 2009; Nicholas, Rowlands, Clark, & Williams, 2010).

Much of what was stated before 2008 on digital natives and the educational implications of their characteristics lacks empirical evidence (Bullen, Morgan, & Qayyum, 2011). Although the terms digital native and digital immigrant are used regularly, there is considerable debate regarding their use and the related findings reported. One such debate questions the appropriateness of creating generational dichotomies of this kind. Some studies indicate that differences attributed to age are minimal (Salajan, Schönwetter, & Cleghorn, 2010). Even Prensky (2009) came to believe that the distinction was irrelevant and proposed the concept of digital wisdom. Some empirical studies have shown that there are no fundamental differences between digital natives and digital immigrants (Selwyn, 2009;

Corrin, Lockyer, & Bennett, 2010), and if any, they would be basically due to experience, access and opportunity to use technology (Brown & Czerniewicz, 2010; Czerniewicz & Brown, 2010).

As it can be seen, generalisations based on apparent generational differences are not useful in discussions related to teaching and learning (Gallardo & al., 2015) and they often constitute incomplete descriptions or myths, as was concluded by Rowlands and others (2008) as well as Nicholas and others (2011) in their studies of the characteristics of users from the so-called Google Generation. Overall, there are other contextual variables, apart from age, such as socioeconomic status and cultural and ethnic precedence, that can explain the differences in the way people use technology (Jones, Ramanau, Cross, & Healing, 2010).

2. Materials and methods

2.1. The survey

The PGRHS is comprised of 24 questions divided into six sections. Most of the questions are closed and have multiple-choice answers (19 of the 24). Each of the six sections focuses on a dimension of reading that we believe relevant in the modern world, with the aim of identifying how that dimension can affect the reading habits of university students. The table below shows the six sections, the respective dimensions, the three transversal reading purposes and their distribution over the questions.

The objective of the survey is to analyse reading habits relative to different media and devices and to identify associated discourse genres and their multisemiotic features, all within the framework of three reading purposes: a) reading of academic texts, b) reading for entertainment, and c) reading for information seeking. In general terms, we were interested in identifying whether readers vary their reading habits depending on the media and devices being used, given different specific purposes. The survey was built by the research team FONDECYT, Project 1170623. Three concurrent and complementary sources of information were used to construct the final survey: 1) Consultation with a group of three specialists regarding medium, content, and types of questions; 2) Pilot administration on a sample of students in the same degree programs, but at other universities than those included in the study; 3) Interviews with students from universities other than the target sample. This process led to changes in medium and changes in wording or terminology where this was unclear; all of these modifications were incorporated into the final design.

Table 1. Composition of the Purpose-Guided Reading Habits Survey (PGRHS)

Section	Dimension	Reading purposes (transversal)	Number of questions
Part 1: Preferred medium and concentration	Medium generally used when reading: paper or digital	3 purposes: Academic reading; Reading for entertainment; Reading for information seeking	6
Part 2: Devices	Device used for reading: paper, telephone, computer, tablet, etc.		2
Part 3: Discourse genre	Types of text read in each medium		3
Part 4: Comprehension, memory, and learning	Psycholinguistic reading processing: best results in comprehension, memorisation, and learning, depending on the medium		3
Part 5: Multiple semiotic systems	Text features: words, graphs, tables, diagrams, etc.		4
Part 6: Cost and environment	Financial cost associated with each reading medium and impact on the environment.		6

2.2. Stratified random sampling

In order to obtain a diverse sample of students and avoid possible variations in discipline, students were chosen from two groups of university degree programs: Human Sciences (HS), which include Philosophy, Spanish and History; and Economic and Business Sciences (E&BS), which include Commercial Engineering and Economics.

The survey was administered at two regional Chilean universities, one in Valparaíso and the other in

Concepción. Both are private but receive public funding, as is common in Chile. We used random and stratified sampling and had a total of 894 subjects. The sample was designed to include an equal proportion of males and females. Table 2 shows the distribution per university program.

Table 2. Composition of the sample of university students (N=894)

Human Sciences (N=358)			Economic and Business Sciences (N=536)	
Philosophy	History	Spanish	Commercial Engineering	Economics
44	152	162	366	170

For a population of 1,788 university students, proportional stratified random sampling was used, suggesting that the proportion of students in HS compared to E&BS is 1:1.5. The minimum sample size was estimated on the basis of the Student *t*-test for independent samples, giving a total of 894 subjects from the following parameters: a) a level of significance p=.05, b) effect size d=.2, and c) statistical power (1-B) =.9. This number of participants was stratified in accordance with the following variables: a) study area, b) institution, c) degree program, and d) gender. The calculation resulted in the subdivision shown in Table 2. A sample of this nature allows greater representation and, therefore, better extrapolation of the subsequent findings.

2.3. Administration and coding procedures

Surveys were administered at random to the 894 students from the undergraduate degree programs (the mean age was 20 years, SD=2.7). Randomness was ensured by the use of a computer program that selected numbers at random from a list of each course. The self-administered surveys were conducted on paper with the support of a team of six research assistants who were given the appropriate training beforehand. It was decided to use a strategy that allowed for better control of the characteristics defined for the sample (degree, gender), ensuring that the responses from the interviewees were obtained more quickly than they would by using alternative methods, for example, online surveys.

Previous to the administration of the survey, a written consent form was given to the students, indicating that their participation was voluntary and that any data given would be anonymous and confidential. Administration of the survey took, on average, 15 to 20 minutes. The responses were then coded on a spreadsheet. All statistical analysis (*t*-test) was carried out using the same software (Excel/SPSS).

3. Results

As stated in the introduction, the results presented in this article constitute a first report from the administration of the reading survey PGRHS. More precisely, the focus here is on the results of three dimensions: a) preferred medium for reading and concentration, b) comprehension, memory and learning, and c) multiple semiotic systems. Figure 1 shows the results for preference and concentration for academic reading.

As it can be observed, the figures are highly homogenous. In all cases, they give a result of over 84% in favour of the paper medium. The students state that they prefer reading on paper for academic purposes in general and because they are able to concentrate better. The statistical analyses reveal that all comparisons between paper and digital media are statistically significant in favour of paper (https://goo.gl/-F2bQhr).

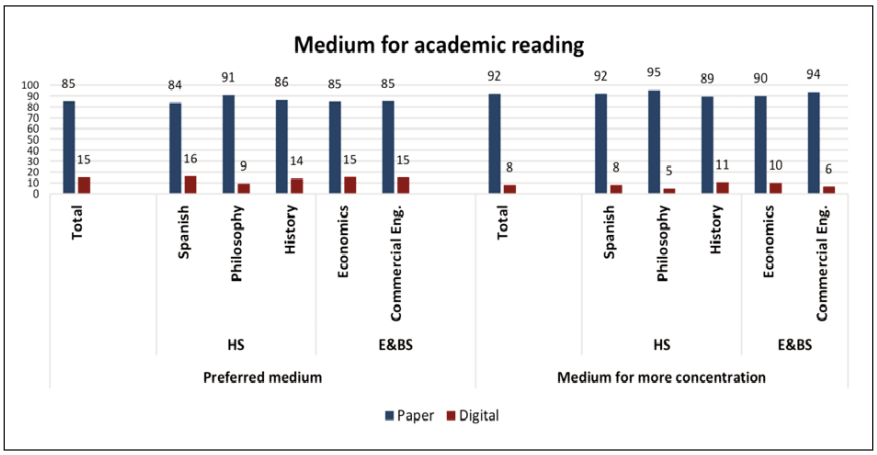

Figure 1. Academic reading: Preference and concentration.

These first figures, in view of a reading purpose as relevant as the academic one, are very revea-

ling regarding the preferences of this group of university students. These results are consistent with other findings of our own research team (Parodi & Julio, 2017) and other studies in Spanish and in English (Baron, 2015; Salvador-Oliván & Agustín-La Cruz, 2015; Beland & Murphy, 2016; Wang & Bai, 2016). However, as stated above, there are few surveys that take into account reading purposes and degree programs as variables in their design. Therefore, this result can be interpreted in two dimensions: students identify the reading purpose, and they prefer the paper. This is regardless of the degree program involved.

Figure 1 also shows that, for the purpose of academic reading, the students declare that paper is better for concentration. Similarly, in a study conducted in Turkey with a sample of 792 university students from eight different departments, Kazanci (2015) reported that in general, the students show a high preference of 78% for paper over digital. The same study also reveals that after six years, the same university students did not vary their preference for paper (77%). Moreover, Farinosi, Lim, and Roll (2016) identified, in a sample of students from Germany, Italy, and the UK, a preference for paper when processing large genres for academic purposes. These results did not reveal socio-economic differences among the nationalities of the participants, whose ages varied from 21.9 years to 26.9 years. Similar results were obtained by Baron (2015) for a group of subjects from the USA, Germany, and Japan, who stated that when reading long texts for academic purposes they opted for paper (92% in the US, 95% in Germany and 77% in Japan).

Our results align with those from other parts of the world mentioned above. It is clear that there is a high degree of preference for paper among university students across countries and cultures.

The following section, maintaining the focus on academic reading, reports the results on comprehension, memorisation, and learning.

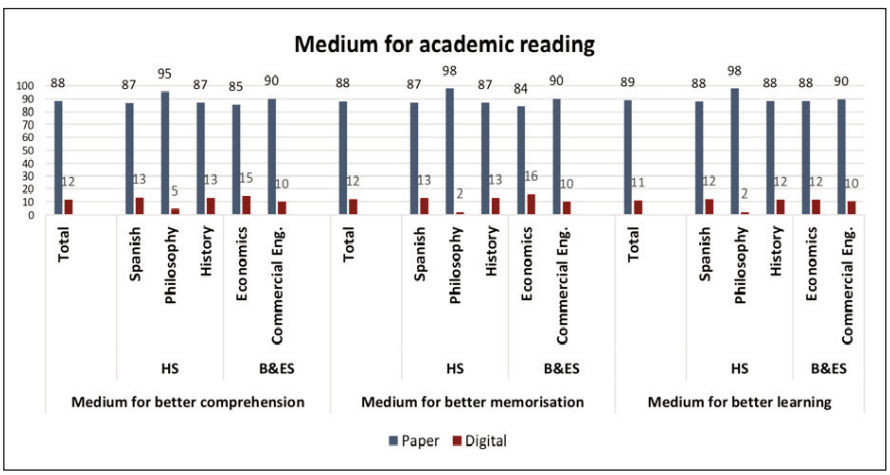

Figure 2. Academic Reading: Comprehension, memorisation, and learning.

The data in Figure 2 again show a highly homogenous panorama, revealing in all cases a result of over 84% in favour of reading on paper. The students in the sample (again irrespective of their degree program) state that when reading for academic reasons, paper medium gives better results for comprehension, memorisation, and learning. As with Figure 1, the statistical analyses of the figures show that all comparisons between paper and digital are statistically significant in favour of paper (https://goo.gl/Xme7sJ).

Despite the hypothesis of possible preferences for reading on digital medium in the so-called Google Generation (Rowlands & al., 2008; Nicholas & al., 2010), the results reported here for the purpose of academic reading show that these Chilean university students prefer paper for comprehension, memorisation, and learning. These findings are in line with those of university students of other nationalities (Woody & al., 2010; Mangen & al., 2013; Baron, 2015; Wang & Bai, 2016).

Strictly speaking, a total of 98% of the students in the sample can be classified as belonging to the Google Generation, as they were born after 1993. Only 2% were aged between 27 and 47 at the time of the survey. Nevertheless, the younger readers state that in their academic reading, for better comprehension, memorisation, and learning, they prefer paper. They even state that they employ the digital medium mainly for searching and selecting texts, but that once a text has been found and the purpose changes from searching to academic reading, they proceed to print the text. The results at this point are relatively homogenous, with no significant differences among degree programs. Furthermore, a higher percentage of the students states that if the cost were not a factor and there was no environmental impact, they would prefer to print digital texts for more dedicated reading and comprehension.

Similar results were found in genres read for the purpose of entertainment, such as comic books. Though not reported here in detail, it can be noted that upon comparing the results for men and women, no statistically significant differences were found.

Based on these results, the students in this survey can more accurately be considered part of the Gutenberg Generation, or considered comparable to so-called digital immigrants, in spite of belonging to an age range that would have defined them otherwise. Particularly for academic reading tasks, they consistently prefer reading on paper.

Figure 3 below shows the results on primacy (what is read first), relevance (what is more important) and time (what captures more time) regarding the verbal system and other semiotic systems, such as images, tables, and graphs.

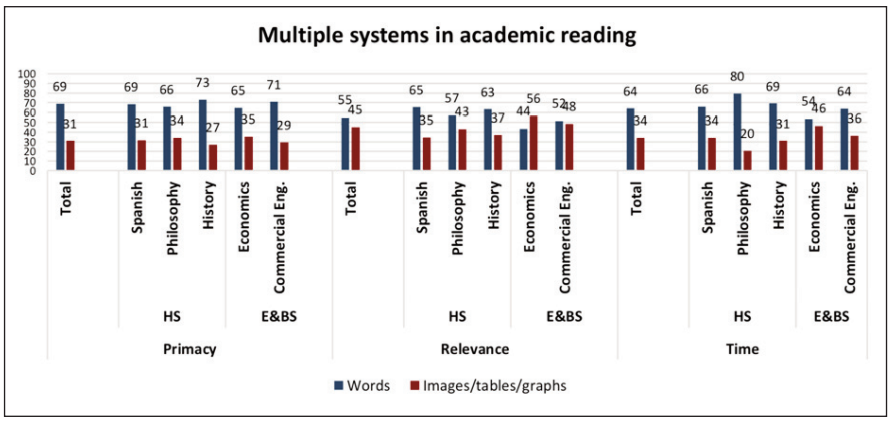

Figure 3. Academic reading with multiple semiotic systems: Primacy, relevance and time.

When the students were asked, in the context of academic reading, what they read first in a text made up of words, images, tables or graphs, the majority answered that their attention is focused on the verbal system, i.e., the words (69%). As shown in Figure 3, the same answer is given for all degree programs in a relatively homogeneous way. In general, this result shows that, although the students place importance on reading images, tables, and graphs, they are influenced by the Logocentric Principle, i.e., that words dominate or have pre-eminence over other semiotic systems (Parodi & Julio, 2017).

The following figure summaries the statistical data for the second reading purpose: reading for entertainment.

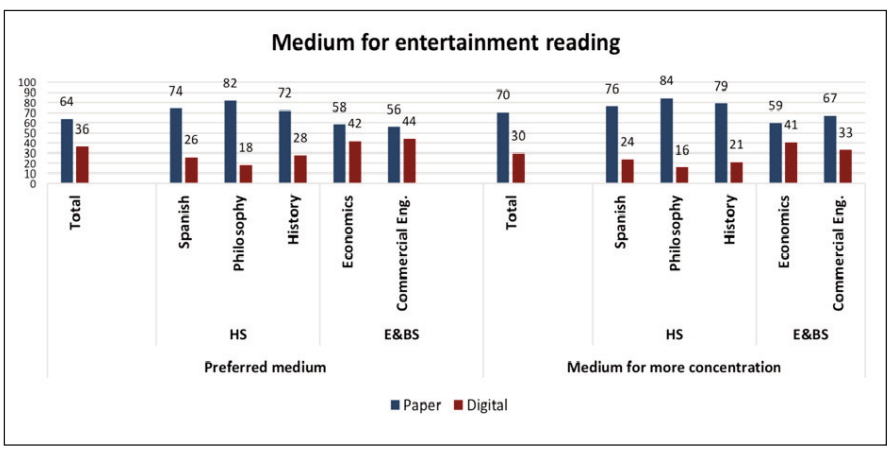

Figure 4. Reading for entertainment: Preference and concentration.

Figure 4 displays an interesting difference between the students from the three programs in HS and the two from E&BS. All the students from HS state that when reading for entertainment, their preferences tend towards reading on paper, with the majority stating that reading on paper helps improve concentration. In this line, Baron's findings (2015) indicate that university students of different nationalities also prefer paper when reading for pleasure (85% in the US, 88% in Germany and 74% in Japan). Similar to previous findings, statistical analyses for this reading purpose reveal that all comparisons favoured paper medium (https://goo.gl/BEBgqY).

Finally, Figure 5 shows the results for the third reading purpose: information seeking.

Interestingly, when the reading purpose is information seeking, the preferences of most of the students in the sample, irrespective of the degree program, clearly indicate that they favour the digital medium (global mean 87%).

This result is the opposite of what was observed in the previous cases and is the only occasion on which most of the readers show a general preference for the digital medium. Almost all statistical analyses show that comparisons between paper and digital are statistically significant in favour of digital (https://goo.gl/-Z2cEp3).

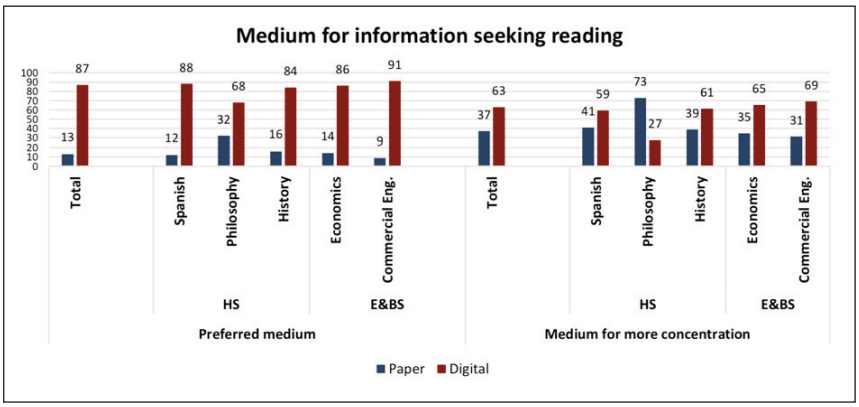

Figure 5. Reading for information seeking: Preference and concentration.

In particular, the case of Philosophy is noteworthy. 68% of the Philosophy students state that when searching for information, they preferred a digital medium. However, the same students declare that for the same reading purpose but for more concentration, they prefer the paper medium (73%). The case of these Philosophy students is unique among the five programs of the present study, even when compared to the other Human Sciences programs (Spanish and History). The data in Figure 5 clearly suggest the awareness students have of their own reading purposes and the effect these reading purposes have on the medium they subsequently choose.

4. Conclusions

The evidence presented in this study shows first that the university students in the stratified sample of five programs clearly distinguish the three reading purposes and connect them to specific media, tasks and the multi-semiotic composition of written texts. The findings are also revealing since surveys of reading habits do not regularly include reading purposes. These purposes can be seen as a variable that positively affects the reading habits declared by the sample of Chilean subjects.

Second, the general findings also reveal that paper is the preferred medium for the university students in the sample, as opposed to the digital one, given study purposes and academic rigour. In addition to this, we found no statistically significant differences for academic reading purposes by discipline, defined here as whether students belonged to the Human Sciences or the Economic and Business Sciences programs.

According to the findings of the current study and other similar studies, being born after a somehow Messianic date (such as 1993) is not a sine qua non-condition for being a predominantly digital reader. This underlines the need to distinguish between technology use for entertainment purposes and information seeking, and for academic purposes for the construction of deep and lasting learning. Consequently, it is correct to claim the existence of a 'Gutenberg-Google Generation' in transition that still recognises the relevance of paper medium. At the same time, attention must be paid to empirical studies that state that digital reading on different electronic devices leads to superficial and shallow processing and low retention, unlike reading on paper which yields deeper comprehension and improved learning (Sparrow & al., 2011; Baron, 2015; Kazanci, 2015; Mangen & van der Weel, 2016; Hou, Rashid, & Lee, 2017).

Overall, it is worth emphasising that the findings reported here are based on declared habits and on the opinions of the interviewees. This means that the focus of our study is on declarative knowledge, i.e., what the subjects state they do, not exactly on what they do or exercise when they read (procedural knowledge). In other research, we have focused on discourse processing and studied different variables in moment to moment and online reading (Parodi & Julio, 2017; Parodi, Julio, & Recio, 2018).

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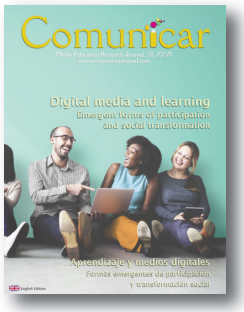

Multiple intelligences and video games: Assessment and intervention with TOI software

Inteligencias múltiples y videojuegos: Evaluación e intervención con software TOI

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ABSTRACT

Howard Gardner revolutionized the concept of intelligence with his Multiple Intelligences Theory. His vision was widely supported by the educational community, which considers different forms of learning and accessing knowledge. Despite its impact, there is still a lack of development of tools that can easily, practically and reliably evaluate multiple intelligences. This work describes the design, development, and piloting of TOI (Tree of Intelligences) software, a digital tool to evaluate multiple intelligences and perform interventions through video games. The aim of the study is to present the design of the TOI software and test its operation, analysing the distribution of the results game by game and checking whether there are differences according to gender or school year. A total of 372 primary school students participated, aged 5 to 9 years old (M=7.04, SD=.871), from three schools in Asturias and Madrid. The results show that 9 out of 10 games had a normal distribution and that there were no gender differences in most games, but there were differences in relation to the school year. We concluded that due to its operation and design TOI software has the potential be a suitable instrument for the evaluation and intervention of multiple intelligences.

RESUMEN

Howard Gardner revolucionó el concepto de inteligencia con su Teoría de las Inteligencias Múltiples. Su visión fue acogida por la comunidad educativa como la oportunidad para una educación más personalizada y que atienda las diferentes formas de aprender y acceder al conocimiento. A pesar de su impacto, todavía hoy hay una carencia en cuanto al desarrollo de herramientas capaces de evaluar de forma sencilla, práctica y fiable las inteligencias múltiples. Por ello, este trabajo plantea el diseño, desarrollo y pilotaje del software TOI, del inglés 'Tree of Intelligences', una herramienta digital para evaluar e intervenir las inteligencias múltiples a través de los videojuegos. El objetivo del estudio es presentar el diseño de TOI y testar su funcionamiento, analizando la distribución de los resultados juego a juego y comprobando si existen diferencias en función del género y el curso. Participaron un total de 372 estudiantes de primero a tercer curso de educación primaria de tres centros de Asturias y Madrid, con edades comprendidas entre 5 y 9 años (M=7.04, DT=.871). Los resultados muestran que 9 de 10 juegos presentan una distribución normal y que no existen diferencias en función del género en la mayoría de los juegos, pero sí en relación al curso. Se concluye que por su funcionamiento y diseño el software TOI puede ser un adecuado instrumento de evaluación e intervención de las inteligencias múltiples.

KEYWORDS | PALABRAS CLAVE

Multiple Intelligences, videogames, gamification, assesment, intervention, digital tools, education.
Inteligencias múltiples, videojuegos, gamificación, evaluación, intervención, herramientas digitales, educación.

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1. Introduction

In the eighties, Howard Gardner revolutionized the world of psychology and education with his Theory of Multiple Intelligences (MI). His vision of intelligence, not as something unique but rather a set of skills, talents and abilities, called intelligences, which are independent from each other and potentially present in all people (Gardner, 2013), breaks with the traditional conception of human intellect and opens up a world of possibilities for education professionals, who see the opportunity for more personalized education that respects the many differences between students and their different ways of learning and accessing knowledge. It is becoming more and more common to find schools including aspects related to the development of multiple intelligences in their curriculum planning. There are some successful cases which are well known in the educational community, such as the Montserrat School in Barcelona, which implements a methodology based on multiple intelligences that respect emotional aspects and turns students into protagonists of their own learning (Del-Pozo, 2005).

Despite the impact of this theory on the world of education, thirty years later there is still no mechanism to evaluate multiple intelligences in a simple, practical and reliable way. The most significant experience is Project Spectrum (Gardner, Feldman, & Krechevsky, 2008), developed with the objective of evaluating the intelligence profile and working style of children, observing their behavior when solving problems related to each of the eight intelligences. The activities used in the project have proven to be valid and reliable for evaluating multiple intelligences (Ballester, 2001; Ferrándiz, Prieto, Ballester, & Bermejo, 2004), but despite Gardner suggesting that the model was ideal, it is a very laborious and slow process, which means that it is not widely used in schools or research on MI (Gardner, 2013). The most commonly used assessment practice for the classroom is the assessment scales for parents, teachers, and students that Thomas Armstrong compiled in his book "Multiple Intelligences in the Classroom" (Armstrong, 2006). These lists make it possible to organize faculty observations of a student's multiple intelligences, but according to Armstrong himself (2006), the lists cannot be considered a standardized test since they have not been subjected to the necessary protocols to determine their reliability and validity, and should therefore only be used informally.

Designing an instrument that teachers can use to easily, validly and reliably assess different intelligences would have significant educational implications. It would encourage a concept of education that is far removed from the traditional school, and it would allow for more individual-centred teaching, taking into account that everyone is different in the degree to which they possess different intelligences and different combinations of intelligences.

For this reason, in this study, we look at the design, development, and testing of software to evaluate MI and perform interventions. The software is attractive and motivating for both students and families (Gardner, 2012), and complies with the evaluation characteristics proposed by the Theory of MI: continuous, systematic, varied, dynamic, contextualized, meaningful, motivating, etc. (Ballester, 2001; Ferrándiz, 2000; Gardner, Feldman, & Krechevsky, 2008; Gomis, 2007). At the same time, it is practical for use in both schools and research. Our aim is to produce an instrument "that in addition to evaluating constitutes a learning experience" (Gardner, 2013: 237).

Video games may constitute an appropriate evaluation procedure. They allow for the introduction of evaluation and educational objectives without sacrificing entertainment (Starks, 2014) and they can provide a dynamic MI evaluation process if activities are designed that work on basic skills defining each learning area and if these activities are planned within a meaningful and motivating learning context (Escamilla, 2014; Marin & García, 2005).

In addition, the dynamic and playful nature of video-games makes them motivating and influential at a cultural and social level, taking up a large part of children's, young people's and adults' leisure time (Dorado & Gewerzc, 2017; Sedeño, 2010; Spanish Association of Video Games, 2015). Due to their potential, it is increasingly common to find video-games in the classroom, with specific methodologies that allow them to be incorporated into the educational process, such as gamification (applying the principles of the game to a different context than that of the game, for example, a classroom) or game-based learning which is based on in introducing video-games into the learning process in order to improve it (Díaz & Troyano, 2013; Zichermann & Cunningham, 2011).

The literature on the use of video games as a training and cognitive assessment tool is growing (Buckley & Doyle, 2017). In recent years, studies have emerged that analyse the measurement of intelligence through video games (Quiroga, Román, De-La-Fuente, Privado, & Colom, 2016), prove their effectiveness as a tool for the prevention of cognitive diseases such as Alzheimer's (Hsu & Marshall, 2017) and evaluate the effectiveness of cognitive training in aspects such as work memory and attention (Ballesteros & al., 2017; Oh, Seo, Lee, Song, & Shin, 2017).

In the area of MI and video games, the studies by Del-Moral, Fernández & Guzmán (2015: 244) are prominent. They state that "the introduction of appropriate educational video games in the classroom and their systematic

exploitation promote the development of MI". The same authors point out that so-called "serious games" can stimulate the development of MI since they have multisensory components that provide learning contexts that are capable of holding the player's attention and involving them in the game.

In this work, we describe the design, development, and testing of TOI software, which is an instrument composed of a variety of pedagogically designed video games. According to the ideals of MI assessment (Armstrong, 2006; Gardner, 2012; 2013; Gardner, Feldman, & Krechevsky, 2008), it should be able to assess multiple intelligences and be used in interventions in an attractive and motivating way. Plus, it should not only provide useful information about individuals' abilities and potential, but it should also be capable of doing so in real time, facilitating its application in both school and research environments. We begin with a description of the software (Tree of Intelligences) in order to then examine more deeply its use in teaching and its application in intervention and evaluation. The aim of the study is to describe the educational design of the TOI software and to analyse its operation. That analysis will be done by analysing the distribution of the sample, any differences in terms of gender and any differences in terms of a school year. These aspects will allow us to check whether the difficulty of the games is sufficient to deal with the whole sample, whether it is valid for use in both boys and girls and whether the difficulty and content are suitable for the target age range.

> Tool such as TOI, which allows teachers to discover students' intelligence profiles or strong and weak areas, opens up the possibility of knowing which learning style best suits students' profiles or discoveries which activities they feel most comfortable with in order to work towards more personalised, inclusive education, taking into account the fact that everyone is different and therefore should not learn in the same way.

1.1. Description of the TOI software

TOI, Tree of Intelligences, is software designed and developed to evaluate multiple intelligences and assist in interventions in a playful and interactive way. It began with the objective of providing information about people's abilities and potentials, offering a useful response that helps reinforce strong areas and/or develop and compensate for weak areas. It uses video games as an instrument and is built on two fundamental pillars: instructional design understood as the planning and design of educational materials, and the understanding of intelligence as the ability to solve problems or create valuable products (Gardner, 2013).

TOI was developed following an innovative and detailed process of the same name, the TOI Method (Figure 1). Our starting point was Gardner's conception of human intellect (2013), bearing in mind that intelligences always work in concert (Armstrong, 2006; Gardner, 2013), that they are triggered by information presented internally or externally (Gardner, 2013) and that there are different ways of being intelligent within the same intelligence (Armstrong, 2006). Game mechanics were designed to that they pose logical, visual, naturalistic, linguistic, bodily, emotional and musical challenges. People's performance in solving different challenges determines their intelligence profile.

TOI is currently made up of ten tests in a video game format. The instructional design means that the tests cover all eight intelligences proposed by Gardner (2012), as shown in Table 1. TOI is a mobile touchscreen application compatible with both iOS and Android operating systems. It is also optimized for use on computers with Windows 10 operating systems with the classroom in mind.

1.1.1. From instructional design to intelligence assessment

Unlike the vast majority of video games on the market, the TOI software is based on an instructional design that defines game mechanics, content, game-playing and evaluation criteria. Each game is designed to challenge the

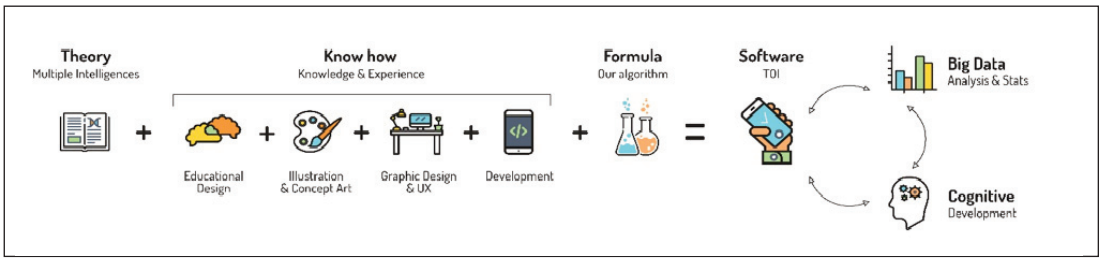

Figure 1. Graphic description of the TOI Method.

player. Depending on the skills or abilities required to solve the challenge, one intelligence will primarily be activated, and one or more will be activated in a secondary manner. One challenge may require the speed of reaction activating the visual and motor intelligences, while another may require knowledge about the different species in the animal world, activating naturalistic intelligence. We used three criteria for judging whether a game triggers an intelligence: the mechanics, or gameplay, and the content. The mechanics of the game demands skills or abilities to solve the problem, while the content requires more knowledge that may be related to intelligence. For example, a game that poses the challenge of classifying tools according to their geometric shape will work by content on logical and visual intelligences, and by mechanics on visual and bodily intelligences. In this case, we established that due to its weight in solving the challenge, the principal intelligence worked on is logical-mathematical intelligence and the visual and body-kinesthetic intelligences are triggered in a secondary way.

Once we had defined the mechanics and content of the game, the evaluation criteria were established defining the dependent variables: successes (hits, or correct responses), errors, level of difficulty, time and score. In this process, elements and interactions were also taken into account, determining both the speed at which objects exist and the possible number of interactions needed to change the difficulty level.

Following the instructional design phase, the pedagogical design was placed in the hands of creatives and programmers, who gave the games and software the aesthetic and technical resources that encourage engagement and guarantee playability. These aspects, along with emotional design, play a key role in introducing assessment objectives without sacrificing entertainment.

1.1.2. The games, the TOI software engine

All games are designed to work primarily on one intelligence, and one or more on a secondary basis, taking into account the key competencies and skills associated with each intelligence, as indicated in Table 1. The eight intelligences defined by Gardner are not all represented to the same extent in the games. Visual-Spatial intelligence is covered in many of the games, while interpersonal and intrapersonal intelligences are only addressed in one game. It is worth mentioning that this social intelligence (inter- and intra-personal) is one of the most difficult to evaluate in this software.

The initial duration of each game is 60 seconds, but the time increases with correct answers and decreases with wrong answers; so the player's performance determines how long the game lasts. It ends when the timer reaches zero, at which point the TOI algorithm analyses the number of successes and errors, the total playing time, the player's accuracy and the gamma elements.

Most of the data is collected internally, but in order to enhance the gamification, users are shown the total number of hits, the accuracy of their responses and the number of trophies and virtual coins they managed to collect. The latter allows for a gamma tool design.

1.1.3. Profile of Intelligences

The main mission of the TOI software is to provide users with information about their intelligence profile, showing a graph of their more and less developed intelligences (Figure 2), which allows them to discover their potential and to be able to take action depending on the results to enhance or improve their intelligences. To this end, the ability and performance of the player is analyzed in each of the pedagogically designed games, establishing a weighted score based on whether the game works an intelligence in a primary or secondary manner.

The score obtained is compared in real time with the recorded performance of other users in each of the games, showing the percentile for each intelligence and a bar graph that allows users to see at a glance their most and least developed intelligences.

Table 1. Game description

Game	Description	Intelligences	Key skills
Blu's garage	Sort the tools according to their geometric shape.	Logical-mathematical (Main) Visual-spatial and bodily-kinesthetic (Secondary)	Visual perception Vision-motor coordination Categorization
Mathlon	Solve mathematical problems and win stamina to run for longer	Logical-mathematical (Main) Visual-spatial (Secondary)	Numerical reasoning Processing speed Mental arithmetic
Electric colours	Connect the cables according to their colour and simple mixing.	Visual-spatial (Main) Logical-mathematical (Secundary)	Logical reasoning Discrimination Visual perception
Mecaboom	Type the letters that appear on the toxic barrels to prevent them from reaching the river and polluting it.	Verbal-linguistic (main) Visual-spatial and bodily-kinesthetic (Secondary)	Lexical route Selective attention Decision making
Letter soup	Find the hidden words in the soup before it gets cold.	Verbal-linguistic (main) Visual-spatial (Secondary)	Lexical route Visual tracking Flat figure
Lunch time	Quickly collect and serve the dishes, demonstrating reaction speed.	Bodily-kinesthetic (Main) Visual-spatial (Secondary)	Vision-motor coordination Visual tracking Reaction speed
Yog's Band	Identify the instruments and repeat the sound sequence.	Musical (Main) Logical-mathematical (Secundary)	Auditory memory Auditory perception Logical reasoning
Musical drops	Identify the tone and rhythmic pattern that the drop makes when it falls.	Musical (Main) Verbal-linguistic (Secundary)	Sensitive memory Sensitivity to rhythm Auditory discrimination
Say cheese	Identify the emotions and moods of the characters.	Interpersonal (Main) Intrapersonal, visual-spatial and verbal-linguistic (Secondary)	Access to lexicon Recognition Empathy
Cleaning robots	Sort and recycle river waste according to the material it is made of.	Naturalistic (Main) Visual-spatial and bodily-kinesthetic (Secondary)	Visual perception Vision-motor coordination Categorization

The TOI software also offers feedback on the intelligence profile, providing relevant information on what the percentage in each intelligence means. This analysis allows us to offer advice and make recommendations to enhance or develop intelligence through complementary analog and digital activities.

2. Method

2.1. Participants

A total of 372 students participated in the study. They were aged between 5 and 9 years old (M=7.04, SD=.871), in the first three years of primary education, and from three private Spanish schools in Asturias and Madrid. The group consisted of 199 boys (53.5%), with an average age of 7.07 (SD=.91) and 173 girls (46.5%), with an average age of 7.01 (SD=.82), with no significant differences between the age groups (p=.511). There were also no differences in the gender distribution in the sample [$\chi^2(1)=1,817$, p=.178].

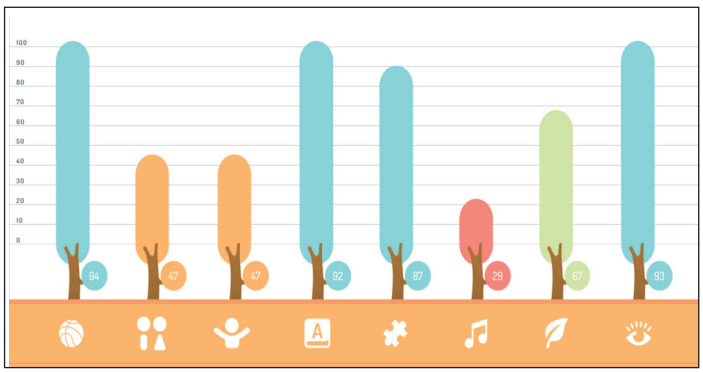

Figure 2. Profile of Intelligences.

2.2. Procedure

The schools were selected according to accessibility criteria. Once the consent of the families had been obtained, the participants carried out the test by playing all the video games in the

TOI software individually, during teaching hours and in periods of 90 minutes. Each of the tests was supervised and guided by a specialist from the research group.

3. Analysis and results

3.1. Distribution of the sample

We performed a game by game analysis to check the distribution of the sample in the variables successes, total time and accuracy. The game variables are normally distributed according to the criteria laid down by Finney and Di-Stefano (2006), in which asymmetry scores between 2 and –2 and kurtosis scores between 7 and –7 of kurtosis mean sufficiently normal distributions. The exception is the game "Electric colours", which works with visual-spatial and logical-mathematical intelligence. The distribution in this game is asymmetrically negative in the successes variables (asymmetry=2.21) and time (2.64). For the analysis of results, non-parametric tests were used, as the distribution of the sample did not meet the parameters of normality in all the games. Thus, the Mann-Whitney U was applied for the analysis of gender differences, and the Kruskal Wallis tests for the analysis of differences according to the school year.

3.2. Gender differences

In order to find out whether there were significant differences according to gender, we performed a comparative analysis of the matching game on the means and standard deviations of the variables successes, time of play and accuracy index.

In the results, there were significant differences (p=.000) in the successes variable in the mathematical-logical intelligence game "Mathlon" (U de Mann-Whitney=11132,00; (p=.000) between boys (M=40.92, SD=18.51) and girls (M=32.95, SD=15.10). Significant differences were also found in the successes variable of the body and visual intelligence game "Lunch Time" (U de Mann-Whitney=7,233.00; p=.033) in boys (M=39.72, SD=13.39) compared to girls (M=42.95, SD=13.87). We also found significant differences in the accuracy variable of the emotional game "Say Cheese" (U de Mann-Whitney=11,611.00; p=.039) between boys (M=72.12, SD=15.50) and girls (M=75.58, SD=14.08). No significant gender differences were found for the remaining variables and games.

3.3. Differences by school year

We looked at the variables successes, time and accuracy for each game in terms of the children's school year (Table 2). We found significant differences in all the games analysed. Both the mean and the standard deviation of all three variables were higher in the second year when compared to the first year, and they were higher in the third year than in the second year.

4. Discussion and conclusions

In addition to the description of the TOI educational software, the other aim of our study was to test its operation through a game-by-game analysis of the distribution of the sample, differences by gender and the differences by school year in the variables successes, time and accuracy. The results show that the variables in all games, with the exception of "Electric colours", were normally distributed; therefore, their design in terms of difficulty is appropriate. In the case of "Electric colours", which was designed to work on and analyse visual-spatial and logical-mathematical intelligence, it will be necessary to make a design adjustment for the successes and game time.

The results also indicate that there were no significant gender differences in most of the variables. The exceptions were the successes variable in the "Mathlon" game for logical-mathematical intelligence, successes in the body and visual intelligence game "Lunch Time", and the accuracy variable in the emotional game "Say cheese", which will all need some revision in design. It is important not to have gender differences to ensure that neither evaluations nor interventions are affected by gender issues and that the tool is applicable to both boys and girls. Our results differ from those in the study by Del-Moral, Guzmán, and Fernández (2018), who observed gender differences in all intelligences.

The results show that there were significant differences in terms of the school year, and therefore age, in the variables successes, time and accuracy in each game. This is a positive finding as it shows that the content is appropriate for the age group that was analysed (5-9 years), adjusting the results to each educational stage.

Table 2. Comparison of successes. time. and accuracy for each game by school year								
	First Year		Second Year		Third Year		Chi-Squared	Sig.
	Mean	SD	Mean	SD	Mean	SD		
Blu's garage - N=365 – First Year=102 / Second Year=142 / Third Year=121								
Successes	30.14	15.22	40.60	17.40	56.58	20.99	90.29	.000
Time	88.87	27.76	106.56	26.08	128.40	28.45	86.79	.000
Accuracy	49.59%	16.18	57.83%	11.56	64.49%	8.81	64.64	.000
Mathlon - N=346 – First Year=100 / Second Year=127 / Third Year=119								
Successes	25.04	11.58	33.39	13.02	51.46	15.79	139.03	.000
Time	110.57	42.33	141.56	36.08	169.60	31.52	110.59	.000
Accuracy	54.56%	25.66	72.34%	14.87	81.93%	14.87	65.29	.000
Electric colours - N=357 – First Year=97 / Second Year=142 / Third Year=118								
Successes	6.89	2.05	8.93	3.55	11.94	5.33	83.26	.000
Time	78.10	12.51	87.75	17.83	102.12	26.84	65.81	.000
Accuracy	67.01%	11.15	75.41%	13.45	82.54%	11.70	66.86	.000
Mecaboom - N=290 – First Year=61 / Second Year=121 / Third Year=108								
Successes	18.00	12.81	29.52	13.33	43.84	12.02	114.26	.000
Time	54.86	45.48	95.12	43.76	139.92	36.46	114.89	.000
Accuracy	24.67%	16.15	38.41%	12.79	47.79%	7.86	97.62	.000
Letter soup - N=359 – First Year=98 / Second Year=142 / Third Year=119								
Successes	11.98	5.04	15.87	5.72	23.79	9.61	124.96	.000
Time	214.85	47.38	245.93	44.18	302.03	62.98	123.18	.000
Lunch time - N=262 – First Year=43 / Second Year=99 / Third Year=120								
Successes	31.60	11.07	36.43	13.08	48.63	10.89	69.36	.000
Time	93.84	27.32	103.44	30.74	128.72	19.78	65.11	.000
Accuracy	51.36%	9.52	53.63%	10.54	61.61%	5.43	61.73	.000
Yog's Band - N=76 – First Year=14 / Second Year=19 / Third Year=43								
Successes	4.14	1.70	7.68	0.94	7.62	1.19	27.80	.000
Time	145.76	17.06	178.50	10.08	178.03	13.77	24.31	.000
Accuracy	33.14%	22.76	49.47%	11.57	49.16%	12.61	8.39	.015
Musical drops - N=64 – First Year=0 / Second Year=38 / Third Year=26								
Successes	-	-	9.23	4.41	11.96	4.12	6.15	.013
Time	-	-	129.54	20.74	141.69	22.09	5.02	.025
Accuracy	-	-	45.53%	22.62	56.26%	19.36	4.96	.026
Say cheese - N=328 – First Year=82 / Second Year=125 / Third Year=121								
Successes	10.74	4.41	14.24	6.15	18.34	5.73	76.81	.000
Time	100.04	21.71	113.46	26.36	127.29	21.27	58.29	.000
Accuracy	70.29%	16.91	73.79%	16.79	75.98%	10.52	4.16	.125
Cleaning robots - N=338 – First Year=81 / Second Year=138 / Third Year=119								
Successes	39.58	19.64	47.80	20.64	65.12	20.77	71.03	.000
Time	121.12	36.75	135.43	34.77	159.94	30.15	70.99	.000
Accuracy	64.86%	14.93	69.94%	12.42	78.00%	9.53	72.67	.000

When analysing the intelligence profile, it should be noted that the results show the profiles compared to each students' peer group. Differences between school years are only analysed to determine the suitability of the content and the difficulty.

TOI is an appropriate tool for assessing MI because its design and development encompass features of the ideas proposed by Gardner and his collaborators for assessing multiple intelligences (Armstrong, 2006; Gardner, 2012; 2013; Gardner, Feldman, & Krechevsky, 2008): intrinsically interesting and motivating materials due to the use of gamification and new technologies, neutrality, a natural learning environment and feedback (Buckley & Doyle, 2017).

Marín, López and Maldonado (2015) highlight video games as a positive resource for learning, stating that young people consider them attractive, and Del-Moral and al. (2018) point out that in addition to improving skills and abilities, video games are a powerful strategy facilitating learning. The fact that it is the children themselves who discover knowledge through cognitive efforts and in turn relate that knowledge to things they already know and are familiar with makes video games especially interesting (Gramigna & González-Faraco, 2009). As for neutrality, both in the test instructions and in test development, we tried to avoid the influence of verbal and logical intelligences, instead directly analyzing the intelligence that is operating in response to the challenge posed.

Using video games as an instrument makes it more likely for the evaluation to be "part of the natural interest of the individual in a learning situation" (Gardner, 2013: 233), because children perceive it as a game due to its potential to motivate and its attractiveness, and they are not aware of being evaluated, engaging in the activity because they want to. This motivating factor of video games is one of the aspects which has been most widely analysed by the educational community and can be found in both recent (Ferrer, 2018; Prena & Sherry, 2018) and past studies (Alfageme & Sánchez, 2002).

The software also offers feedback with analysis and advice to help interventions in the intelligence profile. For Gardner (2013), it is very important that the evaluation is helpful because psychologists often spend too much time classifying people and too little time helping them (Escamilla, 2014).

In conclusion, due to its design and performance results, TOI has the potential to be a suitable instrument for assessing MI and associated interventions; and its inclusion in the classroom could have significant educational implications and provide value to the educational community as long as it is treated carefully to avoid stigma or classification of students. While many teachers accept individual differences, few address them or attempt to improve children's intelligences (Bartolomé-Pina, 2017). This is why a tool such as TOI, which allows teachers to discover students' intelligence profiles or strong and weak areas, opens up the possibility of knowing which learning style best suits students' profiles or discoveries which activities they feel most comfortable with in order to work towards more personalised, inclusive education, taking into account the fact that everyone is different and therefore should not learn in the same way.

> Gardner's theory of Multiple Intelligences currently presents an opportunity to develop students' different educational skills and potentials. Gamification and new technologies can contribute to increased opportunities for evaluation and intervention based on this theory.

It is necessary to point out some limitations to be addressed in future work. First, a psychometric analysis is needed to determine whether the TOI software is valid as a measurement tool. In this regard, and bearing in mind that for an assessment to be legitimate, it must cover a wide range of measuring instruments and methods (Armstrong, 2006). It would be useful to compare and contrast the profile results obtained by this method with those of other MI assessment instruments such as the MI self-perception scales aimed at families and teachers (Prieto & Ballester, 2003; Prieto & Ferrándiz, 2001). In addition, a test-retest assessment would allow us to analyze other important aspects such as the learning or training effect. It would also be interesting to gather feedback from teachers and the educational community on the use of TOI software in the classroom.

Secondly, it is worth noting possible sample bias as the tests were only carried out on students in private schools. Tests should also be carried out in public schools so that the results can be generalized to the rest of the population.

In addition, in order to avoid the use of video games as part of the model and thus provide greater reliability, we are planning the development of an educational program of multiple intelligences to accompany the use of the tool in a more analog sense, with activities that complement the development of skills in real contexts, inside and outside the classroom. Furthermore, due to the difficulty in evaluating inter- and intrapersonal intelligence, any evaluation of this type will need further development in order for it to be represented appropriately.

As for the design of the tool, in addition to the previously mentioned adjustment of the "Electric Colours" set due to its negative asymmetry, it would also be useful to make an adjustment to the "Letter Soup" set. Although the sample is distributed within the normal range, the current version does not take into account the error variable, and this means less difficulty, with most of the subjects scoring values above the average.

With a view to future lines of work, we hope to apply the methodology for the design of games to cover different age groups, as well as to verify the validity and reliability of TOI for intervention with groups with specific educational needs, such as high capacity or ADHD.

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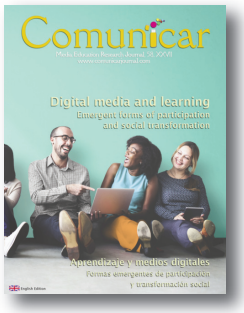

eGamers' influence in brand advertising strategies. A comparative study between Spain and Korea

La influencia de los jugadores de videojuegos online en las estrategias publicitarias de las marcas. Comparativa entre España y Corea

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ABSTRACT

The eGames business (online video games) in Spain generated more than 1.8 trillion euros in profits in 2016. Advertising is no stranger to the potential of this market, and brands study the best ways of approaching and adapting to the world of eGames. In this report, we analyze which the most effective advertising strategies for brands in the online video game world are. To do this, the players (eGamers) answered a 60 question survey that addressed issues such as playful habits, the viewing of advertisements in games, the purchase of advertised items and advertising in competitions. Korean and Spanish players answered the same questionnaire considering that South Korea has the most advanced video game industry in the world and Spain is the fourth European country in eGames and our subject of study. After the investigation, some of the most relevant results indicate that conventional online advertising does not attract the attention of gamers as consumers. We determined that the best strategy would be based on brand presence through products that are prescribed or used by professional gamers, since spectators, as they watch the games, also observe what elements and accessories the players use.

RESUMEN

El negocio de los eGames (videojuegos online) en España ha conseguido más de 1,8 billones de euros de beneficio en el año 2016. La publicidad no es ajena al potencial de este mercado y las marcas estudian cuáles son las mejores formas de acercarse y adaptarse al entorno de los eGames. En el presente trabajo se analizan las estrategias publicitarias más eficaces para las marcas en el mundo de los videojuegos en red. Para ello, se han investigado a los jugadores (eGamers) a través de una encuesta de 60 preguntas que abordaban cuestiones como hábitos lúdicos, visionado de publicidad en los juegos, compra de artículos anunciados o publicidad en competiciones. El mismo cuestionario se ha realizado tanto a jugadores coreanos, ya que la industria de los videojuegos en Corea del Sur es la más avanzada del mundo, como a jugadores españoles, al ser España el cuarto país europeo en eGames y ser nuestro objeto de estudio. Tras la investigación, algunos de los resultados más relevantes indican que la publicidad online convencional no llama la atención a los consumidores «gamers» y se determina que la mejor estrategia se basaría en la presencia de marca a través de productos prescritos o utilizados por los «gamers» profesionales, ya que los espectadores, a la vez que ven las partidas, observan qué elementos usan los jugadores.

KEYWORDS | PALABRAS CLAVE

eGames, eSports, advergame, branded content, strategies, advertising, Spanish gamer, Korean gamer.
Videojuegos en red, deportes electrónicos, publicidad en videojuegos, contenidos de marca, estrategias, publicidad, jugador español, jugador coreano.

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1. Introduction and state of the question

Video games have generated more than $200 million in profits for sponsors and more than $150 million for conventional advertisers according to data obtained in the 2017 "Global Games Market per Region" conducted by Newzoo (2016a) and based on data from 2016 (Newzoo is the leading provider of market intelligence that encompasses all global games, eSports, and mobile markets. All of those with research on the video game field), which also affirms in its 2017 "Global eSports Market Report" (Newzoo, 2016b) that gaming is one of the favorite pastimes of millennials, that "complicated" audience that brands so desire to conquer.

Advertising has always been present in the video game business. However, it is during the last two decades that the "game" has evolved dynamically due to the development and consolidation of the Internet, and advertisers must adapt and be aware of the business potential that this entails (Scalvinoni, 2012; Sempere, 2016). Brands themselves, (whether they are media, platforms, electronic or telephone firms), have relied for a few years on what we have coined as eGames (electronic video games that are played online).

1.1. eGames in Spain

Being in ninth place in the world ranking and in fourth place within the European framework (behind Germany, the United Kingdom, and France, in descending order of revenues), the eGames industry in Spain generated more than 1.8 trillion euros in profit during 2016 (Newzoo, 2017). According to the "Infographic Spanish Games Market 2016" study, the Spanish population was around 47.2 million, of which 36 million were Internet users, and 24 million were gamers. And the 1st Electronic Sport Observatory in Spain 2016, conducted by Arena Media, states that: 1) 1 out of 2 Spanish players spends money on eGames and not only downloads or plays online for free; 2) The average player spends approximately 130 euros per year; 3) 2 out of 3 Internet users in Spain play some type of video game on some device.

In addition, according to the White Book on Video Game Development in Spain 2016, promoted by DEV (Spanish Association of Video Game and Entertainment Software Development Companies), 40% of the income comes from other sources, i.e., the sale of their services and training. However, it states that 34% of revenue comes from digital sales, that is, from eGames. Moreover, another 10% comes from advertising in "free to play" video games. With this data we can see how an industry that was previously based on the physical sale and the use of devices such as the PlayStation (former "queen" of video game devices) has now changed and that the "new king" is the Internet, with the computer being the star device on which to play games. The digital era has consolidated despite the fact that consoles continue to be used, but with an Internet connection (Pérez-Latorre, 2012; Salva-Ruiz & al., 2016).

However, the use of screens and video games has also evolved. At present, simultaneous multiscreen use is a reality that we must acknowledge and explore. In this sense, we must be aware that one in three players alternates between four screens (television, computer, tablets, and smartphones) (Vivian, 2017; Sempere, 2016; Parra, 2009).

1.2. eSports and MMO games

At present, the union of PCs or computers with digital sales and competitions give rise to the so-called eSports. This term was coined by the Arena Media Institute in 2016 at the 1st Observatory of Electronic Sport in Spain. In this study, "electronic sport" is used to refer to eSports, which are competitions that are played on computer screens and/or consoles.

eSports have values that allow brands to be part of this world either by embracing or renewing them if they have similar values. These games have a strategic component that attracts people with this type of skill, who know how to work in teams and have leadership skills (Sedeño, 2010). In addition, these games are avant-garde in terms of design and spectacle. On the other hand, the fundamental element that marks the origin of eSports is the community, given that in its beginnings it did not have the economic support of large companies for these competitions (Márquez, 2017).

The Newzoo analysis (2016c) focused mainly on computer games: "League of Legends (LoL)", "Counter-Strike: Global Offensive", "Dota 2" and other multiplatform games such as "Overwatch" and "Hearthstone"; all of them were studied in 10 countries, including Spain. These video games are part of the so-called MMO category "Massive Multiplayer Online games", which configure the eSports competitions. However, within the MMO video games, there are the following subcategories:

- MOBA (battle arena: "LoL", "Dota 2"...).

- MMORPG (online multiplayer role-playing games: "World of Warcraft", "Final Fantasy"...).
- Shooter (video games with shooting weapons: "Call of Duty", "Overwatch", "Counter-Strike"...).
- Strategy video games ("Starcraft", "Clash of Clans"...).
- Fighting video games ("Street Fighter", "Dragon Ball"...).
- Sports video games (FIFA, NBA, "Grand Slam Tennis"...).
- Others ("Hearthstone"…).

1.3. Current advertising strategies in Spain

The main tactics developing within the current Spanish advertising framework in the eGames field are sponsorship and branded content. In Spain, the eGame and eSport sectors are advancing significantly, but there is still no business model to follow. The good thing about this field for brands is that, since it is new, the rules are not dictated or formulated as they may be in other sports sponsorships. These circumstances enable the creation of an abundance of new sponsorship formats in leagues and teams (Cavusgil & al., 2017; Muros & al., 2013).

> eSports have values that allow brands to be part of this world either by embracing or renewing them if they have similar values. These games have a strategic component that attracts people with this type of skill, who know how to work in teams and have leadership skills

The star collaborations are events and tournament sponsorships such as Red Bull at an international level ("Starcraft" video game competition) or "Domino's" at a national amateur level in Spain, called "Go4LoL" ("League of Legends" video game competition); or the sponsorship of teams with brands like Phone, who is a manufacturer of peripherals (hardware devices through which the computer can interact with the exterior, such as the mouse or the keyboard) and has always been a supporter of many teams. In 2016, an important brand like Vodafone backed the G2 Vodafone team to make it a national winner. Another example is El Corte Inglés, which organizes championships inside its buildings that bring traffic to the store and increase the purchase of products; or Media Markt with online and final competitions in its stores, with the same purpose of redirecting traffic to their stores. Last summer, Orange and NSL organized their own competitions (Martín, 2010; Gutiérrez, 2017).

Creative content, not previously seen, has emerged due to fields which have not yet been explored with all their potential in Spain. This is the case of Vodafone and MTV which broadcast a documentary called "Gamers" on MTV about the G2 Vodafone team as if it were Big Brother, aimed at a more mainstream audience. This was Vodafone's attempt to communicate the fan movement typical of the eGames public to an audience that is not so familiar with this world. It was successful in terms of audience, both in television share and on other platforms where this content was used. (Selva, 2009; Sánchez, 2017; Çinar, 2018).

Furthermore, there are many examples of brands that sponsor competitions around the world such as "Intel Extreme Masters", a series of eSports tournaments that began in 2007 and played in different countries around the world, sponsored by the Intel brand. But not only technological brands "play" in this field. One of the first major brands to sponsor leagues or tournaments was Coca-Cola, which has been one of the two global partners of the LCS league for many years, through Coca-Cola Zero. This has allowed the brand to create its own eSports world through digital platforms such as Twitter with the @CokeEsports account, with more than 300.000 followers, a YouTube channel, etc. However, it has also created its own "Team Coca-Cola" for the video game "Call of Duty: Advanced Warfare", organized by MLG or "Major League Gaming", the professional world leader in the organization of eSports. Movistar has also created its own website with eSports content (León, 2017; Yuste, 2016).

1.4. eSports investment

Media Pro and LVP are a clear example of how Spanish companies invest in eSports. The LVP or Professional Video Games League was founded nationally with the purpose of exporting its business model and reproducing it

in other countries and has ended up being the largest national league in Europe. The audiovisual group Media Pro bought most of the shares of this league organizer. According to statements made by LVP at a press conference, this almost 5 million euro investment was made with the intent of "professionalizing, expanding and boosting competition", with greater resources for marketing and sponsorship departments. This has been beneficial for the teams, but the industry has not totally professionalized, and there is no audience loyalty, so we cannot connect as clearly as Santander to Fórmula 1 or Movistar to cycling. However, this does happen in South Korea, with brands like Samsung, closely linked in the unconscious of their audience to eGames for their famous "Samsung Galaxy White" team.

As a reverse example, the company GAME, which sells video games in Great Britain, absorbed SocialNAT, a Spanish platform that broadcasts eSports. This demonstrates how companies abroad are interested in and see the benefits in the viewing of eSports in Spain (Cavusgil & al., 2017; Osorio, 2016; Costa-Sánchez & al., 2017).

Twitch.tv is the leading eSport broadcasting platform worldwide. Platforms like Amazon pay to add these special audiences to their public. On August 25, 2014, Amazon's CEO stated on his platform that Amazon had bought Twitch.tv for $970 million, according to the Media Trends portal. In 2016, Amazon launched a promotion for those who subscribed to "Amazon Prime", offering Twitch.tv for free (Leiva & al., 2017).

> Conventional online advertising does not attract the attention of consumer gamers, but the products endorsed by gamers is effective. Amateur gamers rely on the criteria of professional gamers and, although they are discerning and they know that having these products will not win them competitions, they know that they are quality products. This is due to an aspirational component. On the other hand, the competitive factor, which increases even more in South Korean gamers, and the desire for personal improvement makes them want to have better products to achieve the level of their "heroes" or role models.

Facebook has partnered with Blizzard to broadcast Blizzard games, an alliance that has appeared on eGames news platforms such as IGN Spain. More Facebook news is its cooperation with another international partner, ESL, a global eSports viewing platform that competes against Twitch to become a world leader in electronic sports streaming. Facebook has partnered with ESL to broadcast live eSports, according to the "The gamersports" platform. Facebook, therefore, ensures audience building in real time, which is what all digital platforms are currently vying for in the new digital era (Gutiérrez, 2017; Rodríguez, 2016; Valderas, 2016).

2. Material and methods

The general objective of our research was to analyze eGames in Spain, as well as the development of the industry and advertising from within. Our specific objective was to define the Spanish player's profile and its behavior with respect to advertising and the brands that appear in games and competitions. We compared the Spanish player to the Korean player since we considered the latter as a reference of what an advanced player is (since Korea is the country with the most online players) with the aim of analyzing which advertising strategies would be most effective for this target audience and possible applications of advertising strategies of brands aimed at this sector of the Spanish public.

In order to analyze which are the most effective advertising strategies for brands in the online world of video games, we decided to investigate and compare game routines, advertising viewing, purchasing behavior and the opinions about brand image of Spanish gamers (our study object) and Korean gamers (where the gamer culture has settled in). We chose the online survey technique to conduct our research. The questionnaire is a quantitative

technique which consists of investigating a representative sample of subjects in a given population. The advantages of this data collection method are that it allows us to obtain information from almost any group, it also facilitates the standardization of data. We can treat the data informatically and analyze it according to statistics (Hernández & al., 2003). We considered that the best way to reach our target was the Internet. Thanks to online surveys, it is possible to reach a large number of people at a low cost. At the same time, this tool allows interaction with the interviewee, which translates into fewer incomplete questions (Díaz, 2012).

The questionnaire consisted of a total of 60 questions, 54 closed questions, and six open questions, and a total of 280 Spanish gamers answered it. The benefit of this type of questionnaire lies in the fact that closed questions require less effort from the respondent, therefore reducing completion time, in addition to the fact that it allows for easy data coding and analysis. Open questions allow for deeper insight into the issues that interested us the most. The 60 questions were structured into 5 sections: the first section was intended to confirm that the person responding to the survey was Spanish and a video game player, specifically MMO video games (those that are played in eSports); a second section called "game behavior" where the subject was asked about gaming habits, hours spent, time of day, electronic devices used, location of play, etc.; the third section was called "Internet" and it included questions about Internet use to play video games, advertising in this media, the use of streaming platforms such as Twitch, the purchase of advertised articles, etc.; the fourth section addressed eSports in terms of how the respondent viewed competitions, the advertising that can be seen in them, how the viewing of advertising or brands influences shopping behavior, the image that the audience has of professional gamers, etc.; and, finally, the "demographic data" section related to age, monthly income, occupation, personality and the use of social media.

The survey for Korean gamers was exactly the same as the one for Spanish gamers and was completed by a total of 293 players.

Both surveys were supervised and pre-tested for validation by experts in scientific research methodologies at Jaume I University and the results were introduced and cross referenced for their statistical analysis through the SPSS program version 23.0 for analysis and validation of basic statistics.

3. Analysis and results

The 60 questions for Spanish gamers analyze the way in which they consume video games and competitions, how they receive advertising, how advertising is currently being used and which could be the most effective advertising formats. Next, we expose and analyze some of the most significant results obtained.

With regard to the questions in the first section (Habit and type of games) more than 40% play video games every day and 35%, several days a week. They were asked about the MMO video games category they play the most, to which more than half responded "Shooter"; 38%, MOBA (battle arena video games) and 35%, strategy video games. The percentages of this question add up to more than 100% since it was multiple choice. Regarding the question of whether they had ever seen an eSport competition, 53% of them answered affirmatively.

Other data related to video game behavior revealed that 46% play more than 10 hours a week, while 30% play more than 3 hours daily. Almost 40% of them frequently play after dinner, between 10:00 pm. and midnight, and they all play at home.

The computer is the electronic device that more than half of the surveyed Spanish gamers use, followed by a mix of mobile phone and computer, and finally the PlayStation.

To start introducing purchase behavior in the survey, in this section we already asked if they had ever purchased items in video games, to which 25% confessed to having spent more than 500 euros, and 23% between 100 and 500 euros.

The first open, long answer

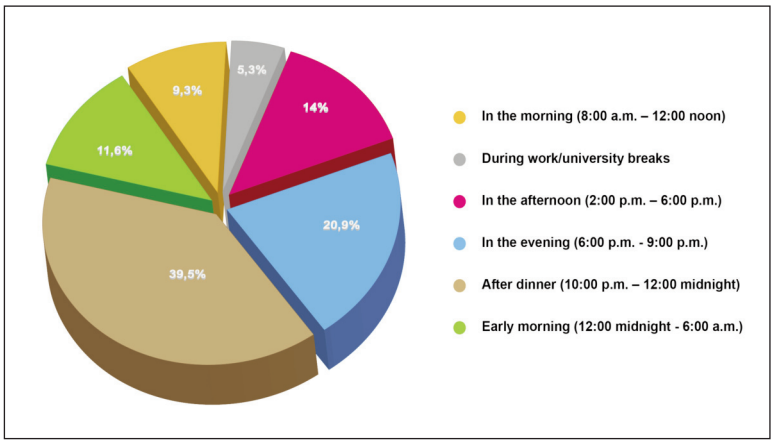

Figure 1. At what time of day do you play most frequently?

question to delve deeper into the mind of this audience was "Why did you start playing online video games?", to which 280 different answers emerged but most of them followed two strands; a significant amount of respondents play online video games because they have been playing video games since childhood, and another large part claim to have joined this community because their friends started playing.

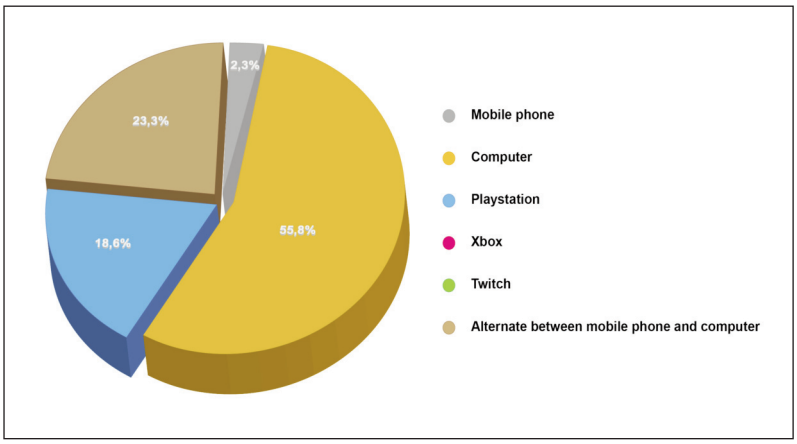

Figure 2. What electronic device do you use to play?

However, more than 60% do not pay to consume these online video games, and as for the frequency in which they tend to watch the games of other players through streaming platforms such as Twitch, 60% do so on a daily or weekly basis, while 28% have seen them several times in their life but not periodically. Therefore, we can conclude that all the respondents are familiar with eSport competitions.

Delving into the advertising that appears while they play, 67% of gamers deny frequent viewing of advertisements on the screen while playing. However, 70% go on to state that they have seen product placement (mentions or samples of products or brands) within video games. We can affirm that brand advertising currently follows a strategy focused on being integral to the video game and not an external element.

The next question was about the power of prescription and influence from external agents. They were asked "What gives you more confidence when buying a computer component to play eGames?", to which 42% responded "The recommendation of a professional gamer". The fact that nobody answered "Advertising recommendations in video games" consolidates the idea that they are critical consumers, either they trust themselves or the professionals and that advertising such as banners and derivatives are ineffective with them.

With respect to the following open question as to whether they have ever seen video game advertisements on the Internet and/or elsewhere, the answers cited several platforms, primarily YouTube and television.

The fourth section on eSports begins with a question as to their location when they watch an eSport competition, to which more than 80% answered: "At home". To the question "Through which device do you usually watch these competitions?" more than half responded through the computer, the same as when they play. 58% of the respondents watch the competitions by themselves. The repeated answer was that they watch them because they like to and because they can improve their technique by putting other more advanced players' moves into practice.

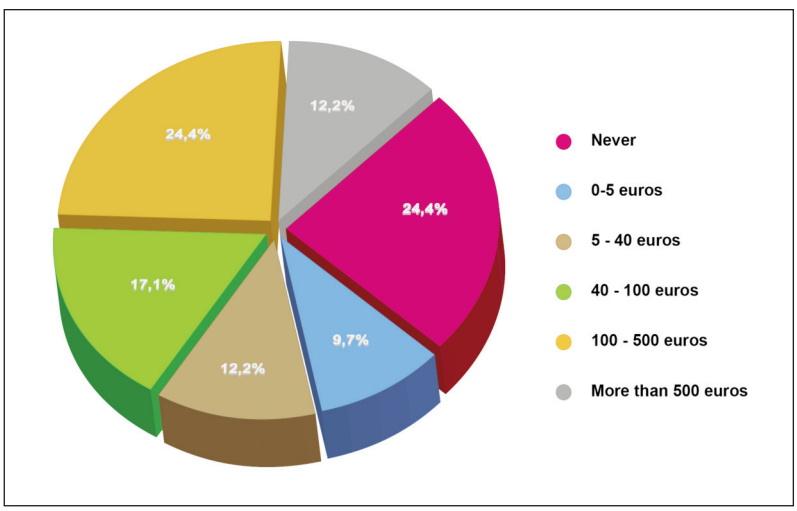

Figure 3. Have you ever spent money buying items in video games?

As for advertising in eSports, 70% say they have seen ads, and 90% have seen product placement. When asked if seeing these advertised brands encourages them to purchase, almost 60% responded negatively, and 90% had not bought a product from

having seen it in an eSport competition. We, therefore, conclude that the current type of advertising is not efficient. However, although they haven't purchased, 50% had a good impression of brands from seeing them in tournaments.

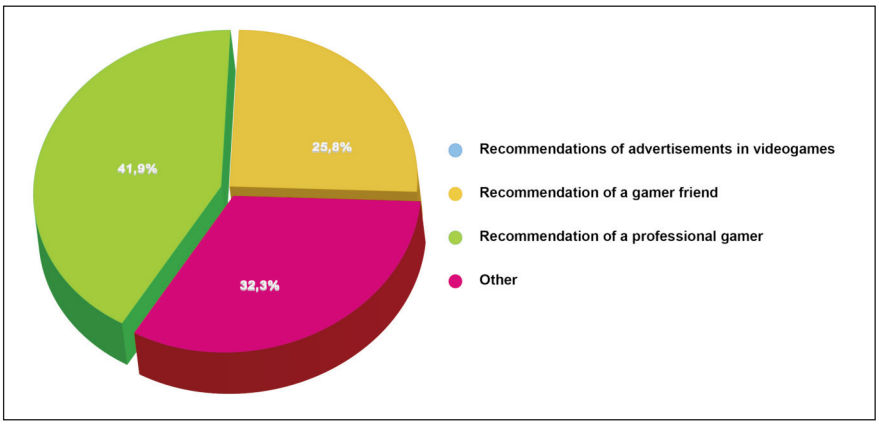

Figure 4. What gives you more confidence when buying a computer component to play eGames?

The following questions are related to professional gamers. To the question "Would you like to become a professional gamer?" 60% responded affirmatively, and the long answer question "Why?" obtained "For passion" primarily as an answer, and "For money" in second place. As for those who answered "No", they said that it takes a lot of time and sacrifice that they are not willing to give.

As to whether they have purchased computer accessories (peripherals) because a professional gamer uses them, 72% responded "Yes", and the reason given was because of the perceived quality of the product.

3.1. Result comparison between Spanish and South Koreans gamers

In the second survey, we used a similar sample with the same number of questions to examine the Republic of South Korea target, 293 respondents and 60-questions.

In the first section, all respondents claim to be Korean, and we obtained a higher percentage of video game players than in Spain; 40% of them play several days a week and half of the total play every day. We can see that the frequency with which they play is much higher compared to Spain.

Almost all respondents play MOBA video games (arena battle video games), which include the most famous eGames such as "LoL", "War of Warcraft", and the rest of the categories were ignored, unlike Spanish gamers who were distributed more evenly among the categories. Finally, a big difference is that 95% of the Korean respondents have seen an eSport competition at least once, with respect to 53% of the Spanish gamers.

Regarding the second section on gaming behavior, Korean gamers dedicate many more hours than Spanish gamers. Almost 80% of the respondents devote more than three hours a day to video games, which contrasts with 29% of Spanish gamers that gave the same answer. The time of day changes completely: 60% of Koreans claim to play on breaks at work/university and 25%, between 8:00 a.m. and 12:00 noon, unlike the night preference in Spain. The place to play and the device used are two of the greatest differences between both audiences. Koreans play away from home (94%) and with their mobiles (82%), while in contrast, Spaniards have an indoor profile (100 %) and use their PC (57%).

With respect to the money spent on elements in video games, almost half have spent between 124,000 and 615,000 Korean won (between 100 and 500 euros) and 30%, more than 615,000 (500 euros). Spanish players spend less, their results evenly distributed between the options "Never" and "More than 500 euros".

In the question "Why did you start playing video games?" we find a sense of community emerging as much as we do in Spanish gamers. The majority of respondents say they started because their friends played, and now they still play, but online.

When asked if they usually see ads on the screen while they play, 88% deny it (more than in Spain), but in the next question, 94% claim to have seen product placement in video games. Therefore, we can see a growing trend of product placement in streaming platforms.

The last closed question was about where they had seen advertising, on or off the Internet. It's important to take into account that, although they do mention digital platforms such as YouTube or Facebook, most of the answers refer to outdoor advertising, especially in the subway, something that the Spaniards did not mention.

In the next section regarding "eSports World", we see the same big difference that was observed in the place they play since when asked where they view an eSport competition, 97% answered away from home.

The device with which they watch the competitions coincides, 53% use a mobile phone and 34% use "mobile+computer". Another great contrast is that 70% of Koreans usually watch them alone, while the majority of Spanish gamers see them with a company. The importance of eSports in their life is evidenced by the fact that they have seen more than 20 competitions (51%, many more Koreans than Spaniards), most of them have attended a competition at least once (81%, opposed to the Spanish result), the moment to see the competitions is during university hours or work breaks (while the Spanish time of day is during the afternoon), 70% see them through Twitch.tv (same as in Spain, Twitch.tv is the key platform in both cultures and countries) and 71% tend to watch them for more than five hours a day. The majority of the answers to the open answer question "Why do you watch eSport competitions?" resembles the Spanish answer, for entertainment, and to learn new techniques from the professional gamers to improve their own strategies and skills while playing.

Questions regarding advertising and eSports have shown that 70% claim to have seen ads during eSports and 90% say they have also seen product placement, but 57% have not felt the need to shop in response to the observed advertising and 64% deny having bought something because they have seen it in eSports. However, almost all respondents (91%) have a good impression of the brands they have seen during competitions. When asked about professional gamers, 85% would like to become one and the question "Why?" obtained many answers, but the most recurrent ones were directed to seeing it as a job dream fulfilled, being able to work in their passion.

4. Discussion and conclusions

After analyzing and comparing the characteristics of the Spanish and the Korean gamers in terms of their gaming behavior, viewing of advertising, brand image, and shopping behavior, we present below some of the most significant conclusions of our study.

Thanks to the increase of gamer audience in eSports, brands that strategically link themselves to video games will be able to benefit from the full potential that eGames and eSports have to offer (competition, mass audience, community, fans) (Carcelén & al., 2017). As we have seen, conventional online advertising does not attract the attention of consumer gamers, but the products endorsed by gamers is effective. Amateur gamers rely on the criteria of professional gamers and, although they are discerning and they know that having these products will not win them competitions, they know that they are quality products. This is due to an aspirational component. On the other hand, the competitive factor, which increases even more in South Korean gamers, and the desire for personal improvement makes them want to have better products to achieve the level of their "heroes" or role models.

Therefore, one of the best advertising strategies for video games would be the use of professional eGamers as influencers who use and endorse products and brands. They would become brand ambassadors that would generate awareness of the brand. The sponsorship of these gamers would be based on the presence of the brand both during the time of the games and during the viewing of the eSports competitions. This sponsorship is essential during the broadcast of eSports since spectators, while they are watching the games, are also observing what elements the players use, from keyboards to drinks consumed (Vilaplana-Aparicio & al., 2018; Clemente & al., 2018).

Also, it is evident that sponsoring an eSports team is an effective strategy to promote branded content. The mere presence of brands in competitions also generates awareness through the aspirational component, and a perfect way to do this is by creating a team of professional gamers. The interest in the development of these teams, together with the feeling of community and the fan phenomenon generated by these games, facilitates the creation of branded content linked to offering team followers an added value beyond the participation or the viewing of eSports.

An issue which caught our attention was the information obtained about where they tend to see more video game advertising. The Spanish gamers mentioned online platforms such as Facebook or YouTube, and South Koreans, for the most part, refer to outdoor advertising in places like the subway. The subway is public transportation that is used a lot in big capitals like Seoul or Madrid by "millennials" who are young people at the forefront of technology, many of the gamers themselves. Therefore, it is possible to think about the benefits of the implantation of an outdoor and avant-garde advertising campaign, such as the new dynamic LED support that has already been launched in Madrid's subway. It has been in use for years in Seoul, the capital of the Republic of South Korea. This format creates a moving image outside the metro wagons that would attract the attention of passerby's and would mesh perfectly with the eGames' vanguard attitudes.

In conclusion, we want to state that we are aware that this research is not a categorical or conclusive study on the subject, but simply an approach to the reality and the evolution of advertising strategies within the eGames

market. Continuous observation and a deeper investigation to analyze the effectiveness of advertising actions in games and competitions, as well as the evolution of players' behavior, as a result, would be necessary.

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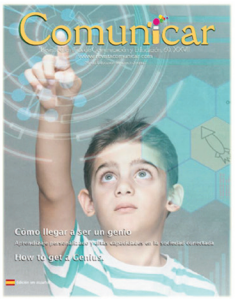

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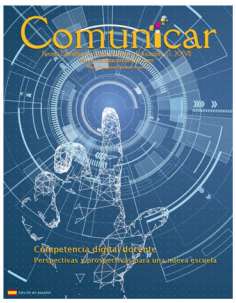

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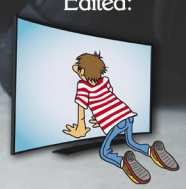

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