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Media Education around the World: Curriculum and Citizenship

La educación en comunicación en el mundo: Currículum y ciudadanía

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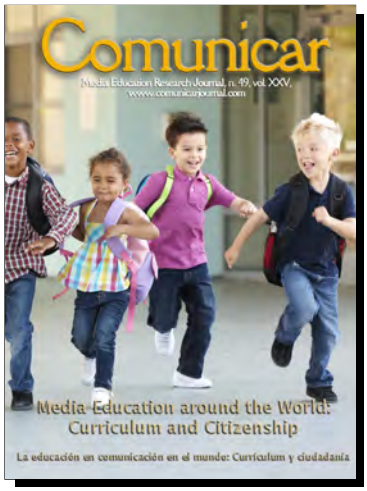

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La educación en comunicación en el mundo: currículum y ciudadanía

Guest-edited special issue:

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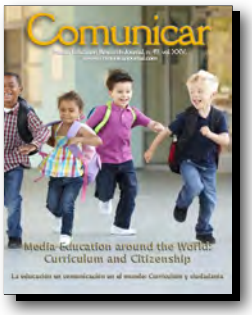

Media Education as a Strategy for Online Civic Participation in Portuguese Schools

La educación mediática como estrategia de participación cívica on-line en las escuelas portuguesas

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ABSTRACT

Whilst various studies have examined participation on the Internet as a key element of a new emergent civic engagement, informally or formally through national and local governments' online measures, less has been done to measure or suggest ways of overcoming social and technological constraints on online civic participation. Additionally, few studies have looked at the relationship between the actual implementation of such initiatives in classrooms and the messages which are conveyed indirectly as a result of teachers' own conceptions of classroom strategies, which are perhaps better described as a "hidden curriculum". This paper reports on these constructions through a set of detailed quantitative and qualitative case studies of the implementation of civic engagement through online activity in several regions of Portugal. The data, obtained through questionnaires, were used to produce novel composite scores reflecting the participatory and media literacy strategies of schools, as well as teachers and students' media literacy and online civic actions. We present empirical results from a study population consisting of 12 public secondary school principals, 131 teachers, and 1,392 students in grades 11 and 12, suggesting that students' online civic engagement and media literacy levels are affected by their teachers' classroom practices and further training and by the implementation of a project-based approach to media education.

RESUMEN

Mientras que numerosos estudios han examinado la participación en Internet como elemento clave de una nueva involucración cívica emergente, informal o formal, a través de medidas gubernamentales locales o nacionales on-line, el esfuerzo ha sido menor para medir o sugerir formas de superar las restricciones sociales y tecnológicas de la participación cívica on-line. Pocos estudios se han centrado en la relación entre la implementación de las iniciativas en las aulas y los mensajes expresados indirectamente como resultado de las concepciones personales de los docentes en las estrategias didácticas que probablemente pueden ser descritas como «currículo oculto». Nos basamos en un análisis cuantitativo y cualitativo de un conjunto de estudios de casos sobre la implementación del compromiso cívico a través de actividades en línea en varias regiones de Portugal. Los datos obtenidos a través de cuestionarios fueron usados para crear un sistema de puntuación capaz de reflejar las estrategias escolares sobre la participación y la alfabetización mediática, así como la acción cívica on-line de docentes y alumnos. Presentamos los resultados empíricos con una población que comprende 12 directores de escuelas públicas secundarias, 131 docentes y 1.392 alumnos de los cursos 11º y 12º. Los resultados sugieren que los niveles mediáticos de los estudiantes y sus niveles de compromiso cívico on-line están influenciados por las prácticas de sus profesores, su formación y por la implantación de proyectos de alfabetización mediática.

KEYWORDS | PALABRAS CLAVE

Media literacy, education, curriculum, teaching strategies, teachers' training, online civic engagement.
Alfabetización mediática, educación, currículum, estrategias de enseñanza, formación de profesorado, participación ciudadana on-line.

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1. Introduction

Civic participation and electronic government through information and communication technologies (ICT) and the Internet have become a talking-point in many education systems. Potentialities and practices have been studied worldwide (Davies & Pittard, 2009; Harasim, 1995; Korte & Hüsing, 2006; Paige, Hickok, & Patrick, 2004). In line with international guidelines (e.g., World Bank, OECD, UN) advocating for citizen participation in government services and decision-making processes through ICT, governments are taking a growing number of actions online. This, in turn, increases citizens' requirement to use the Internet to interact with government, through portals, social network websites and, in some countries, to vote electronically, creating a demand for corresponding skills. Whilst participation on the Internet has been examined as a key element of a new emergent civic engagement, less has been done to measure or suggest ways of overcoming social and technological constraints on online civic participation. Additionally, few studies have looked at the relationship between the actual implementation of such initiatives in classrooms and the messages that are conveyed indirectly as a result of teachers' own conceptions of classroom strategies, perhaps better described as a "hidden curriculum".

The number and user-friendliness of Internet-based tools is increasing, and young people are using smartphones and other mobile devices to achieve various other socially-oriented goals. At the same time, governments have always favoured mediated interactions with citizens. Decision-makers in today's digital societies take advantage of such online tools to reach a greater audience in a more effective way. However, the literature on online civic participation shows that young people's levels of interest are low (Albero, Olsson, Bastardas-Boada, & Miegel, 2009; Hasebrink, Livingstone, Haddon, & Ólafsson, 2009) despite their intensive personal Internet use and the continuing expansion of e-governance.

In Portugal, although substantial human and financial resources have been invested in ICT for schools (notably computer acquisition and teacher training in digital educational resources and media literacy), these changes have had a limited effect on young people's civic engagement and participation.

A closer look at school and classroom-level strategies in both media literacy and citizenship education may offer important insights into factors limiting young people's online participation. In particular, data on teachers' conceptions and experiences on media literacy and citizenship may offer insights into the "hidden curriculum" and its effects on students' learning and development.

1.1. The importance of young people's online civic participation

According to Dahlgren (2000: 338), "for people to see themselves as citizens, and for a civic culture to flourish, involves [...] the mutual interdependence of knowledge and competencies, loyalty to democratic values and procedures, as well as established practices and traditions". To enable young people to become civically active, they should be involved in decision-making on issues related to their interests. This serves not only to support the development of skills such as debate, negotiation, and prioritization (Lansdown, 2001; Sinclair, 2004) but, far more importantly, to establish and deepen their self-perception as citizens. Conversely, it has been argued that the civic community can benefit from young people's participation in various ways: improved service delivery, through consultation or direct participation in changing systems and services (Kirby, Lanyon, Cronin, & Sinclair, 2003; Sinclair, 2004); improved decision-making processes, insofar as participation leads to more accurate decisions (Kirby & al., 2003); and expanded democracy, as young people's participation in their community is strengthened.

Being brought up in participatory environments offers the young more opportunities to internalize concepts of democracy and citizenship, and the related learning processes and positive experiences may play an important role in shaping their understanding and perceptions of citizenship. Early experience participating in community affairs may thus increase the chances that young people will get involved in democratic institutions when they are older (Bragg, 2007; Head, 2011), thereby reducing the gap between youth and adults with respect to democracy and civic engagement. Because young people are heavy media consumers who are able to express their preferences and influence others (Sinclair, 2004), they are often consulted online on goods and services. It has even been suggested that consultation for market growth is the main driver of young people's online participation across Europe (Barber, 2009; Kirby & al., 2003) and is the main form of participation available to them (Sinclair, 2004). However, this is a reductive conception of participation.

1.2. Exploring media literacy for young people's online civic engagement

Media literacy education focusing on online citi-

zenship practices may be crucial to increasing young people's levels of online civic participation. In this context, empowering youth with skills that enable them to take an active role and deal with multimodal media texts and services is a key goal. If we decide to ignore the ongoing changes in literacy requirements, we are marginalizing young citizens in the "global village" (Castells, 2001) and failing to preparing them for new labour markets (Reynolds & Caperton, 2011).

Here, the role of schools and teachers is essential. Substantial efforts are thus needed to enable citizens to develop the skills needed to deal with online tools. The alternative is deepening digital inequality, reinforcement of social injustice, and the perpetuation of the divide between those who can and cannot participate and influence/set the political agenda.

Our use of any technology and understanding of its potential is influenced not only by our individual sense of agency, but also by our cultural and social environment. Literacy thus cannot be seen as a purely autonomous individual development, sufficient in and of itself to promote change or to inspire young people to be active in their community (Street, 2003); in fact, it is inherently ideological and contested. Instead, as Cope and Kalantzis (2000) and Buckingham (2003) have argued, a social perspective is needed, stressing the variable nature and form of literacy in differing cultural contexts.

In addition to these social considerations, media literacy requires individual skills. The National Association for Media Literacy Education (2007) defines media literacy as the ability to encode, decode, analyze, and produce mediated messages. In this context, Potter (2010) emphasizes the need to develop a broad set of skills to deal with different messages and media in order to be literate.

However, the fact that today's young people have been in contact and interaction with various media from their earliest years does not imply that schools should neglect the development of media literacy. There are strong arguments that teachers should focus on developing children's critical skills (Burn & Durran, 2007; Parry, Potter, & Bazalgette, 2011).

Moreover, teaching and learning to participate online in a civic sense implies acknowledging that technologies are shaped by the social, and, also, how in turn their affordances shape our social relations (Selwyn, 2010) and influence how we communicate (Blau, 2004). Media education should, therefore, develop not only technical knowledge, but also a critical take on technology neutrality, and awareness of security, privacy, and the digital footprint, equipping young people with skills to interact meaningfully with ICT tools, rather than acting as passive media consumers (Buckingham, 2003).

A closer look at school and classroom-level strategies in both media literacy and citizenship education may offer important insights into factors limiting young people's online participation. In particular, data on teachers' conceptions and experiences on media literacy and citizenship may offer insights into the "hidden curriculum" and its effects on students' learning and development.

Moreover, it is important to recognize that each person appropriates technological artefacts differently and that a given technology has different interpretation and usage for different social groups (Bijker & Law, 1992; Pinch & Bijker, 1984). The relevant social groups are likely not to be the initial designers and producers (Selwyn, 2012): each social group reconstructs technology according to their own goals and experiences, producing a different processes of meaning making. For this reason, it is necessary to address the relationship of Internet tools as they are actually appropriated by young people to citizenship issues. And as Bennett (2008: 12) has suggested, "young people themselves can better learn how to use information and media skills in ways that give them stronger and more effective public voices". However, Fedorov and Levitskaya (2015) showed that less than 10% of experts polled believe that media critics' texts are used quite often in media literacy education in their countries.

1.3. Citizenship and media literacy education in Portugal

Portugal introduced democratic education into its educational policies in 1986 via the basic law on the

education system, which reflects the national environment of the time, immersed in the ideals of the 1974 revolution against the dictatorship. This law established a cross-curricular approach to providing students with a civic and moral education, fostering individual contributions to society.

Since then, the Portuguese school curriculum has undergone a number of substantial changes. In 2001, civic education was integrated into the curriculum as both a cross-curricular approach and a subject in its own right (45 minutes/week) in grades 5-9 (age 10-14), and in 2010 it was introduced in grade 10 (age 15). In 2012 civic education classes were removed from the curriculum and it was returned to the status of cross-curricular approach to all school subjects.

In 2012, independently of the national curriculum, the Autonomous Region of the Azores developed a "non-disciplinary school area" called "Citizenship", which is implemented between grades 1-9 in Azorean schools. It aims to help students develop as moral individuals and citizens by cultivating cultural, scientific, and technological knowledge to foster an understanding of reality; enabling them to search for, select, and organize information in order to turn it into mobilized knowledge; and to promote the understanding of health issues (Direcção Regional da Educação e Formação, 2010).

Turning to media literacy education, the "Study on the Current Trends and Approaches to Media Literacy in Europe" (European Commission, 2007) highlighted some references to media studies in the ICT component of the Portuguese curriculum, but these were focused on developing skills for using Microsoft tools in grades 8-10 (age 13-15) .

The focus on developing skills for using Microsoft tools reflects how the education system's approach to digital education is immersed in private sector interests (Selwyn, 2010). Nevertheless, with its 2005 Technological Plan, the Portuguese government committed to making large human and financial investments in technological infrastructure for schools. The stated aim of the programme was to mobilize the "information and knowledge society" and encourage democratic participation through ICT (Ministério da Ciência Tecnologia e Ensino Superior, 2005). Under this programme, schools benefited from broadband Internet, computers and other digital equipment, and teacher training in ICT, regardless of their teaching specialization.

Moreover, in 2011 the Ministry of Education and Sciences published recommendations on education for media literacy (Recommendation of the National Education Council, n. 6/2011), recognizing that media literacy is a matter of citizenship and inclusion, which is needed to avoid or decrease the risk of exclusion from community life. However, the same government gradually withdrew ICT education from the national curriculum until, by 2012, the school curriculum did not include any mandatory ICT classes at any level. An optional ICT school subject may be offered in grades 7 and 8, at the school's discretion.

The concept of "digital natives" (Prensky, 2001), which casts all younger people as naturally experienced and knowledgeable users of digital spaces and equipment, exerted a strong influence on government's decision to withdraw ICT as a mandatory subject. Adherence to this concept has prevented some policy-makers from acknowledging that even if some young people are more familiar with technological tools, the Internet, computers, and video-games than older people, they still need support in deepening the development of critical skills in order to become producers rather than passive consumers of online media and services.

2. Material and methods

The study reported on in this paper attempted a detailed exploration of the above issues. It was conducted of a study concluded in 2015, consisting of a set of 12 case studies in Portuguese public schools (mainland and Azores) and municipalities using a mixed methods approach[1].

The use of a case-study approach initially suggested itself for two reasons: a) to develop an understanding of a sufficiently deep level to frame a meaningful interpretation of teachers' hidden and real curricula, and b) to gather a rich dataset providing sufficient detail and depth on a number of questions relating to education for media literacy and citizenship: here, on teachers' and students' online civic actions. The data were analyzed in terms of three main dimensions: a) schools' political goals with regard to media education, b) implemented media literacy and citizenship strategies (school and classroom level); c) students and teachers' online civic participation.

2.1. Establishing the sample

A cluster sampling process was used (latent class analysis, using Latent Gold 4.5 software package) on the municipalities employing a set of ICT and education indicators, as the general focus of the study was to explore the relationship between online civic participation and e-government strategies. The municipal indicators were grouped into three dimensions: a) ICT

affordances, b) services and activities delivered online, and c) education.

The education dimension included the number of grade 10-12 students, transition rate/completion of regular secondary education, and the number of computers per student in municipal schools where grades 10-12 are taught). They were chosen to reflect the level of need for services and activities aimed at young people as well as access to computers and the development of media skills in schools (Burn & Durran, 2007; Hobbs, 2011; Jenkins, 2006).

After this process, 12 schools were randomly selected in each participating municipality to be case study schools, with the exceptions of one substitution (for a school which withdrew) and one chosen for convenience as it is the school where one of the authors is a teacher.

2.2. The study population

The study population consisted of 12 directors of public secondary schools, 131 teachers, and 1,392 students in grades 11 and 12. The choice to focus on students in these grades was related to the voting age in Portugal (18 years) and the age range of the students (15-21 years).

2.3. Procedures and data analysis

The questionnaires were administered directly by the first author in each school. The questions were grouped into the following categories: school media education political goals (school principals); classroom media literacy strategies (school principals and teachers), media literacy and online civic participation (all groups), and perceived opportunities to participate (students).

2.3.1. Composite scores

The data obtained through the questionnaires were used to produce novel composite scores reflecting the schools' participatory and media literacy strategies, as well as the media literacy and online civic participation of school actors. The composite scores were produced by taking the sum of the items present in the questionnaires and they were as shown in tables 1-3:

In addition, for both the Download and Upload categories, 1 point was scored if was checkedat least one of the items in each of these as it was not expected to check all of the items.

2.3.2. Statistical analysis

The following inferential statistical analysis was conducted: A Mann-Whitney U-Test was conducted on the dataset of all students to compare pairs of independent groups: by voting age (A:<18 years; B:>18 years), school grade (A: 11th grade; B: 12th grade), gender (A: female; B: male), and municipal population class (A: medium/city; B: small/village)[3]. Mann-Whitney U-Tests were also conducted to compare the differences between the groups of teachers by gender (A: female; B: male) and age (A: [18; 43], B: [44; 69]) in scores for classroom strategies on media literacy and citizenship.

Pearson product-moment correlation coefficients (r) were computed to investigate the strength and direction of relationships between the variables (composite scores, mobile Internet access frequency, age in years, and municipality) on students and teachers'

Table 1. Teachers' composite scores, their content, and some items present in the teachers' questionnaire

Composite score name	Composite score content	Example questionnaire items	Scoring
Media literacy strategies	Teachers' media and digital literacy classroom strategies	Online videos to illustrate concepts associated with citizenship; online discussions on citizenship; active inquiry and critical thinking about the messages conveyed in the media (traditional and internet); app development skills	Never: 0 pts Rarely:1 pt Frequently:2 pts Very frequently: 4 pts Max= 60points
Training[2]	Teachers' ICT training	Digital Educational Resources; ICT and Education; Media and Multimedia; Programming languages; Civic education	Yes: 1 pt No: 0 pts Max=15 points
Students' formal online civic participation from teacher's perspective[2]	Teachers' perceptions of their students' formal online civic participation	Did students: Start a protest or campaign for a cause; Sign a petition; Participate in decision-making processes; Vote in any of the movements on the Portuguese "My Government" portal	Consulting: 1 pt Start/Participate:2 pts Voting: 2 pts Max= 7 points
Students' media literacy from the teacher's perspective[2]	Teachers' perceptions of their students online media literacy actions	Downloading video, images and texts; Uploading video, images and texts; Reading T&C of online services; Configuring privacy settings of online accounts	Download: 1 pt Upload: 2 pts T&C reading: 3 pts Privacy settings: 3 pts Critical evaluation: 3 pts Max=12 points

data. Preliminary analyses were performed to ensure that the assumptions of normality, linearity, and homoscedasticity were not violated. A significance level of α=.05 was used.

Table 2. Students' composite scores, their content and some items present in the students' questionnaire

Composite score name	Composite score content	Example questionnaire items	Scoring
Perceived opportunities to participate	Students' perceptions of what they can participate in	Students' association; National student life; Content for the school webpage; National social issues; National/European political issues	Yes, I can: 1 pt Yes, but I'm not interested: 1 pt No, I can't: 0 pts Max= 11 points

Finally, a multiple regression analysis was conducted to identify possible predictive effects of a range of factors, including: students' scores, age, school year, whether the school offered media literacy training, school media projects, regularity of mayoral contact with young people, and schools partnering with the municipality in projects. A preliminary analysis was conducted to ensure that the assumptions of normality, linearity, multicollinearity, and homoscedasticity were not violated.

3. Results

3.1. Media literacy strategies: School principals and teachers

The school data reflecting the hidden and real curricula are divided into two subsections: data from school principals, expressing the school's philosophy, political goals, and decisions in relationship to media literacy and citizenship; and teachers' data, where the focus was on teachers' training and classroom strategies.

3.1.1. School principals

None of the schools considered students' contributions to the school website as a main priority, and the majority considered both students' participation in school activities and access to information to a greater diversity of stakeholders as main priorities for the configuration of both their website (60%) and social network website profiles (80%). In terms of media literacy training, all schools offered ICT as a subject to students. As for school media literacy projects, none of the schools were involved with "Webin@rsDGE" (webinars developed by the Portuguese Ministry of Education and Sciences), "Digital Safety Seal for Schools" and "GeoRed" (Geography project using geographic information systems on the web). The projects most frequently present were "Seguranet" (Portuguese programme for Internet security learning; 45.5% of schools) and offline school newspaper (54.5%).

3.1.2. Teachers

Turning to teacher training, 80% had further training on digital resources or ICT in the classroom, 50% on media education or multimedia, 60% on using the Internet for educational purposes, and 30% had training in programming languages. Teachers scored low on classroom media literacy strategies (M=16.8, SD=9.3): only 13 teachers obtained a total score above 30 out of 60 points. The strategy most frequently implemented in schools' classrooms was promoting active questioning and critical thinking about the messages conveyed in the media, traditional and Internet (10 schools), followed by the promotion of the students' use of the school's portal or webpage (6 schools). The least implemented were online debates for students on citizenship issues (6 schools) followed by teaching skills associated with developing applications as an alternative to existing models on the Internet (5 schools).

Focusing only on media literacy for citizenship, the majority of teachers presented the use of Facebook, individual blogs, and Google search engine as their main classroom educational resources, while less than 10% presented school-related websites (e.g., astropt.org; cienciahoje.pt, stra.mit.edu/genetics) and institutional websites. The reasons presented for their choices were content diversity of the website (11.3%) and curriculum content (16.2%), while only 4.9% aimed to develop media literacy skills and 2.1% the trust and reliability of the websites.

3.1.3. Effects on media literacy and citizenship strategies

Mann-Whitney U-Tests showed no statistically significant differences between the age ([18; 43] vs. [44; 69]) or gender groups in teachers' media literacy and citizenship strategies. Classroom media literacy strategies showed a strong positive correlation with classroom citizenship strategies [r(109)=.564, p<.001], and a medium positive correlation with both teachers' media literacy scores [r(109)=.288, p=.02] and formal online civic participation [r(109)=.333, p<.001]. Another interesting result was the medium positive correlation between teachers' perception of their students' online civic participation to be [r(112)=.317, p=.001] and their own formal online civic participation.

Teachers' media literacy scores were low (M= 7.9; SD=3.5) and showed a medium positive correlation with their perceptions of students' media literacy levels [r(114)=.336, p<.001], and their own formal online civic participation [r(112)=.362, p<.001]. Teachers' ICT training showed no statistically significant correlations, apart from a weak positive correlation with teachers' media literacy scores [r(114)= .207, p=.026].

3.2. Students' media literacy and civic online participation

3.2.1. Effects on students' media literacy

Students' media literacy scores were low (M=8.5; SD=3.5). No significant effect of gender, voting age or school grade was found. Students' media literacy scores were positively correlated with their formal online civic participation [r(1134)=.178, p<.001] and with their informal online civic participation [r(1182) =.169, p<.001].

The multiple regression analysis on students' media literacy showed that their formal online civic participation (β=.139, p<.001), informal online civic participation (β=.134, p<.001), schools implementing projects such as SeguraNet (β=–.246, p< .001), Internet-based radio & TV (β=–.082, p=.012), and school newspapers (β=–.215, p<.001) predicted students' media literacy, explaining 10.4% of variance (R^2=.104, F(5)=23.69, p=<.001).

3.2.2. Effects on students' civic online participation

Students' civic online participation scores were low (M=1.5; SD=1.8) and showed statistically significant effects of school grade on students' formal online civic participation (U= 144197, Z=–3.33, p = .0 0 1 , r=–.003), with the mean rank of grades 11 and 12 being 540.2 and 601.4, respectively.

A significant difference was also found between the voting age groups (<18 years, >18 years) in formal online civic participation (U=75763, Z=-3.23, p=.025, r=–.002). The mean rank of the non-voting age and voting-age groups was 560.3 and 617.1, respectively. Moreover, students' formal online participation was positively correlated with their media literacy scores (β=.139, p<.001), their informal online civic participation [r(1135)=.343, p<.001], their perceived opportunities to participate [r(1136)=.114, p<.001], their mobile Internet access [r(912)=.073, p=.028], and their age [r(1135) =.089, p=.003].

The multiple regression analysis on students' formal online civic participation showed that it was predicted by students' media literacy (β=.123, p<.001), students' informal online civic participation (β= .320, p<.001), students' perceived opportunities to participate (β=.110, p<.001), and regular mayoral meetings with young people (β=–.070, p=.035). Together these factors explained 14.5% of the variance in this score (R^2=.145, F(4)=38.22, p<.0010).

4. Discussion and conclusion

The results on students' online civic participation data suggest that students perceive civic participation as an adult responsibility, and therefore believe that they need to be of legal voting age to do it. Allied with students' low level of perceived opportunities to participate, this suggests that students in this age range may think more in terms of becoming citizens later, rather than already being young citizens. In addition, the mean rank difference between school grades indicated that grade 12 students participate more online. However, it was not possible to fully verify this point, as the questionnaires did not directly ask whether stu-

Table 3. Composite scores common to teachers and students, their content, and some items present in all of the teachers', school principals', and students' questionnaires

Composite score name	Composite score content	Example questionnaire items	Scoring
Teachers' media literacy[2] Students' media literacy	Skills, attitudes and dispositions towards online media	Have you: Downloaded video, images and texts; Uploaded video, images and texts; Read the T&C of online services; Configured privacy settings of online accounts	Download: 1 pt Upload: 2 pts T&C reading: 3 pts Privacy settings: 3 pts Critical evaluation: 3 pts Max=12 points
Teachers' formal online civic participation[2] Students' formal online civic participation	Online civic participation using formal channels	Have you: Started a protest or campaigned for a cause; Signed a petition; Participated in decision-making processes; Voted in any of the movements on the Portuguese "My Government" portal	Consulting: 1 pt Start/Participate: 2 pts Voting: 2 pts Max= 7 points
Teachers' informal online civic participation[2] Students' informal online civic participation	Online informal civic actions in online social networks or newspapers	Have you: shared links, videos or images related to the environment; "Liked" images, videos, or comments on political, social, economic issues; Commented on pictures, videos, etc., about ethnic discrimination	Consulting: 1 pt Likes: 1 pt Sharing: 2 pts Comments: 2 pts Voting: 2 pts Max= 8 points

dents had citizenship as a school subject (some probably had). Finally, the correlation of students' mobile Internet access with their formal online civic participation confirms the arguments of authors such as Hobbs (2011) and Jenkins (2006) suggesting that wider access to Internet devices makes a significant difference to meaningful online interactions and media empowerment.

The non-correlation between media literacy data and school grade observed here reflects the failure of the formal media literacy education curriculum in Portugal, where the development of students' media literacy skills is minimized (European Commission, 2007). It is also consistent with growing emphasis among young users on their role as consumers (Barber, 2009; Kirby & al., 2003).

A number of results support our argument for further research on teachers' conceptions, and experiences related to media literacy and citizenship as a key effect on students' learning and development. These include, notably, the positive correlations between teachers' media literacy strategies and their formal online civic participation, and between their perception of their students' formal online civic participation and their own formal online civic participation. The importance of the "hidden curriculum" is also suggested by the positive correlations of teachers' media literacy scores with their perceptions of students' media literacy levels, and their own formal online civic participation. This influence is partly explained by the "Pygmalion (Rosenthal) effect" (Rosenthal & Jacobson, 1968), whereby teachers' actions in the classroom are constrained by their expectations about students' knowledge and skills.

While the results from teachers showed that a high percentage had further training in digital education resources, or media education, they also showed low scores on classroom strategies for fostering media literacy, which involves developing skills that can help students deal with any type of message, in any type of medium (Potter, 2010). Teachers also showed low scores on media literacy strategies, a measure of their use of pedagogy aiming to develop the interdisciplinary ability to synthesize, analyze, and produce mediated messages, consisting with Fedorov and Levitskaya's (2015) results on the use of media critics' texts in the classroom. No correlation was found between training in ICT, media literacy, and citizenship education, on the one hand, and teaching strategies, on the other hand, suggesting that existing teacher training models may emphasize a simple form of knowledge transmission, rather than promoting the effective development of a complete range of media and participatory skills.

Schools also had no clear plans for using available technology and its affordances to empower young people for civic engagement. None of the schools aimed at promoting student contributions to the school website; instead, they focused on using their website and online social networks to motivate students to participate in school activities and access information. However, the implementation of media literacy projects such as "SeguraNet", online radio and TV, and school newspapers, were found to predict higher student media literacy scores. These apparently represent more effective ways to develop media literacy skills, by enabling students to interact meaningfully with media objects. Moreover, the significant relationships between students' media literacy and their formal and informal online civic participation suggest that online civic involvement and media literacy are co-dependent and mutually reinforcing.

Future research in this area should also include socio-demographic variables, school subjects, training content, and service time as a teacher to better understand teachers' educational choices and decisions on media literacy and citizenship education.

Notes

[1] The study reported on in this paper is "e-Literacy, schools and municipalities towards a common goal: e-citizenship" (Dias-Fonseca, 2015).

[2] School principals were included as teachers in this analysis. They are members of the teaching staff who are chosen in triennial elections.

[3] The municipal population class categories used: Small: less than or equal to 20,000 inhabitants; Medium: between 20,001 and 100,000 inhabitants; Large: more than 100,000 inhabitants.

References

Albero, M., Olsson, T., Bastardas-Boada, A., & Miegel, F. (2009). *D16 Report: A Qualitative Analysis of European Web-based Civic Participation among Young People Young People, the Internet and Civic Participation (CIVIC WEB)*. London: Institute of Education, University of London.

Barber, T. (2009). Participation, Citizenship, and Well-being Engaging with Young People, Making a Difference. *Young*, 17(1), 25-40. doi: http://dx.doi.org/10.1177/110330880801700103

Bennett, W. (2008). Changing Citizenship in the Digital Age. In W.L. Bennett (Ed.), *Civic Life On-line: Learning How Digital Media Can Engage Youth* (pp. 1-24). Cambridge, MA: MIT Press.

Bijker, W., & Law, J. (1992). *Shaping Technology/building Society: Studies in Sociotechnical Change*. Cambridge MA: MIT Press.

Blau, A. (2004). *Deep Focus: A Report on the Future of Independent Media*. San Francisco: National Alliance for Media Arts and Culture.

Bragg, S. (2007). *Consulting Young People: A Review of the Literature*. (https://goo.gl/ytRl8x) (2016-06-01).

Buckingham, D. (2003). *Media Education: Litreracy, Learning and Contemporary Culture*. Cambridge: Polity.

Burn, A., & Durran, J. (2007). *Media Literacy in Schools: Practice, Production and Progression*. London: Paul Chapman Publishing.
Cope, B., & Kalantzis, M. (2000). Designs for Social Futures. In B. Cope, & M. Kalantzis (Eds.), *Multiliteracies: Literacy Learning and the Design of Social Futures*. London: Routledge.
Dahlgren, P. (2000). The Internet and the Democratization of Civic Culture. *Political Communication*, 17(4), 335-340.
Davies, S., & Pittard, V. (2009). *Harnessing Technology Review 2009. The Role of Technology in Education and Skills*. British Educational Communications and Technology Agency (BECTA).
Dias-Fonseca, T. (2015). *e-Literacy, Schools and Municipalities towards a Common Goal: e-Citizenship*. PhD, Universidade de Lisboa, Universidade Nova de Lisboa, Universidade de Aveiro Lisbon. (http://hdl.handle.net/10451/19925) (2016-06-01).
Direcção Regional da Educação e Formação. (2010). *Referencial Área de Formação Pessoal e Social, Área Curricular não Disciplinar de Cidadania*. Angra do Heroísmo: Direcção Regional da Educação e Formação.
European Commission. (2007). *Study on the Current Trends and Approaches to Media Literacy in Europe*. Brussels: European Commission.
Fedorov, A., & Levitskaya, A. (2015). The Framework of Media Education and Media Criticism in the Contemporary World: The Opinion of International Experts. Media Education Research Journal, *Comunicar, 45*. doi: http://dx.doi.org/10.3916/C45-2015-11
Harasim, L.M. (1995). *Learning Networks: A Field Guide to Teaching and Learning On-line*. Cambridge MA: MIT Press.
Hasebrink, U., Livingstone, S., Haddon, L., & Ólafsson, K. (2009). *Comparing Children's On-line Opportunities and Risks across Europe: Cross-national Comparisons for EU Kids On-line*. (http://goo.gl/lkbDvw) (2016-06-01).
Head, B. (2011). Why not Ask Them? Mapping and Promoting youth Participation. *Children and Youth Services Review*, 33(4), 541-547. doi: http://dx.doi.org/10.1016/j.childyouth.2010.05.015
Hobbs, R. (2011). *Digital and Media Literacy: Connecting Culture and Classroom*. California: Corwin.
Jenkins, H. (2006). *Convergence Culture: Where Old and New Media Collide*. New York: New York University Press.
Kirby, P., Lanyon, C., Cronin, K., & Sinclair, R. (2003). *Building a Culture of Participation Involving Children and Young People in Policy, Service Planning, Delivery and Evaluation*. London: Department for Education and Skills.
Korte, W.B., & Hüsing, T. (2006). *Benchmarking Access and Use of ICT in European Schools 2006: Results from Head Teacher and A Classroom Teacher Surveys in 27 European Countries*. (http://goo.gl/LklVES) (2016-06-01).
Lansdown, G. (2001). *Promoting Children's Participation in Democratic Decision-making*. Florence, Italy: Innocenti Reseacrh Centre.
Ministerio de Ciencia, Tecnología y Enseñanza Superior (2005). *Plano Tecnológico. Uma estratégia de Crescimento com Base no Conhecimento, Tecnologia e Inovação*. Lisboa: MCTES.
National Association for Media Literacy Education. (2007). *Core Principles of Media Literacy Education in the United States*. (http://goo.gl/aH49Ba) (2016-06-01).
Paige, R., Hickok, E., & Patrick, S. (2004). *Toward a New Golden Age in American Education: How the Internet, the Law, and Today's Students are Revolutionizing Expectations*. Washington DC: US Department of Education, Office of Educational Technology. (http://goo.gl/xAqwc1) (2016-06-01).
Parry, R., Potter, J., & Bazalgette, C. (2011). Creative, Cultural and Critical: Media Literacy Theory in the Primary Classroom. *7th Global Conference, Creative Engagements: Thinking with Children*. Oxford, United Kingdom.
Pinch, T., & Bijker, W. (1984). The Social Construction of Facts and Artefacts: Or How the Sociology of Science and the Sociology of Technology might Benefit Each Other. *Social Studies of Science*, 14(3), 399-441. doi: http://dx.doi.org/10.1177/030631284014003004
Potter, W.J. (2010). The State of Media Literacy. *Journal of Broadcasting & Electronic Media*, 54(4), 675-696. doi: http://dx.doi.org/10.1080/08838151.2011.521462
Prensky, M. (2001). Digital Natives, Digital Immigrants. *On the Horizon*, 9(5), 1-6. doi: http://dx.doi.org/10.1108/107481201104%C2%AD24816
Reynolds, R., & Caperton, I.H. (2011). Contrasts in Student Engagement, Meaning-making, Dislikes, and Challenges in a Discovery-based Program of Game Design Learning. *Educational Technology Research and Development*, 59(2), 267-289. doi: http://dx.doi.org/10.1007/s11423-011-9191-8
Rosenthal, R., & Jacobson, L. (1968). *Pygmalion in the Classroom*. New York: Holt, Rinehart & Winston.
Selwyn, N. (2010). *Schools and Schooling in the Digital Age: A Critical Analysis*. London: Routledge.
Selwyn, N. (2012). Making Sense of Young People, Education and Digital Technology: The Role of Sociological Theory. *Oxford Review of Education*, 38(1), 81-96. doi: http://dx.doi.org/10.1080/030549%C2%AD85.2011.577949
Sinclair, R. (2004). Participation in Practice: Making it Meaningful, Effective and Sustainable. *Children & Society*, 18(2), 106-118. doi: http://dx.doi.org/10.1002/chi.817
Street, B. (2003). What's 'new' in New Literacy Studies? Critical Approaches to Literacy in Theory and Practice. *Current Issues in Comparative Education*, 5(2), 77-91. (http://goo.gl/t28kc2) (2016-06-01).

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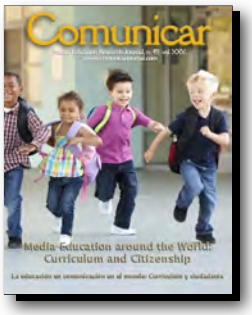

Media Pedagogy in German and U.S. Teacher Education

Pedagogía mediática en la formación de profesores de Alemania y EEUU

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ABSTRACT

Various research works and practitioners conclude that media pedagogy should be integrated in teacher education in order to enable future teachers to use media for their lessons effectively and successfully. However, this realization is not necessarily reflected in actual university curricula, as preservice teachers at some places can still finish their studies without ever dealing with media pedagogical issues. To understand, assess and eventually improve the status of media pedagogical teacher education, comprehensive research is required. Against this background, the following article seeks to present a theory-based and empirical overview of the status quo of preservice teachers' pedagogical media competencies focusing Germany and the USA exemplarily. To form a basis, different models of pedagogical media competencies from both countries will be introduced and the extent to which these competencies have become part of teacher education programs and related studies will be summarised. Afterwards, method and selected results of a study will be described where the skills in question were measured with students from both countries, based on a comprehensive model of pedagogical media competencies that connects German and international research in this field. The international comparative perspective will help broaden the viewpoint and understand differences, but also similarities. These data serve to identify different ways of integrating media pedagogy into teacher training and draw conclusions on the consequences these processes entail for preservice teachers and their pedagogical media competencies.

RESUMEN

Varios estudios de investigación y de práctica llegan a la conclusión de que la pedagogía de los medios debe integrarse en la formación de profesores para que estos futuros docentes puedan utilizar los medios de comunicación en sus clases con eficacia y éxito. Sin embargo, estos resultados no se reflejan en los programas universitarios vigentes, de manera que en algunas instituciones los profesores en formación pueden llegar al término de sus estudios sin haber abordado cuestiones de educación en medios. Para comprender, evaluar y más adelante mejorar la situación actual de la formación del profesorado en el ámbito de la pedagogía de los medios se necesitan extensas investigaciones. Teniendo en cuenta esta situación, el siguiente artículo presenta un resumen del «statu quo» de las competencias en pedagogía de los medios de los futuros profesores, centrándose en los ejemplos de Alemania y EEUU. Para crear una base presentamos diferentes modelos de competencias pedagógicas mediáticas de ambos países e intentaremos responder a la pregunta de si estas competencias son promovidas por los programas de formación del profesorado. Después, se describirán el método y resultados seleccionados de un estudio que midió las competencias en pedagogía de los medios de estudiantes de ambos países, estudio basado en un modelo generalizador de competencias pedagógicas mediáticas que conectan la investigación alemana e internacional en este campo. La perspectiva internacional comparada ayuda a extender perspectivas y comprender diferencias y similitudes. Los datos de este estudio sirven para identificar diferentes formas de integrar la pedagogía de los medios de comunicación en la formación del profesorado. Además, se pueden sacar conclusiones sobre las consecuencias que implican estos procesos para profesores en formación y sus competencias mediáticas.

KEYWORDS | PALABRAS CLAVE

Media literacy, media education, pedagogy, preservice teacher education, competency based teaching, curricula, research, cross-national analysis.

Alfabetización mediática, educación en medios, pedagogía, formación de profesorado, enseñanza por competencias, currículum, investigación, análisis transnacional.

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1. Introduction

1.1. The relevance of pedagogical media competencies in teacher education

Given the omnipresence of media like TV, internet and mobile phones and their wide influence on the daily lives of young people (MPFS, 2014; Lenhart, 2015; EU Kids Online, 2014), the relevance of these so-called "new media" for school and teaching has developed and increased over the last decades as well. On the one hand, they can be utilized as an appropriate means to support successful learning processes and to facilitate effective teaching; on the other hand, they have become a subject themselves since students need to learn about media education issues, like responsible behavior in online environments or ethical aspects of internet use, at school (KMK, 2012; ISTE, 2008). Hence, scholars and practitioners all over the world agree that teachers need specific knowledge and skills in order to integrate new media into their lessons successfully. While most works of research have focused on teachers' and preservice teachers' own media literacy skills or technological knowledge (Fry & Seely, 2011; Oh & French, 2004), further competencies are required for a professional inclusion of media into school. Teaching with media and teaching about media / media education are generally considered the two core areas in this context. However, there are varying concepts of the specific competencies and skills, which will be summarized under the term "pedagogical media competencies" here.

A well-known and established framework for defining these competencies in question was developed in the USA by Mishra and Koehler (2006) as TPACK (Technological Pedagogical Content Knowledge), which is based on Shulman's work (1986). Shulman defined pedagogical content knowledge, content knowledge, and pedagogical knowledge as the core areas of competencies that teachers should be skilled in. Mishra and Koehler (2006) added the aspects of technological knowledge, technological content knowledge, technological pedagogical knowledge and technological pedagogical content knowledge and thus developed a comprehensive model of the skills needed to teach with media successfully.

Despite the existence of frameworks like TPACK, there is no common consensus about the precise shape of pedagogical media competencies, neither worldwide nor even within countries. Furthermore, their integration into university teacher education is also subject to discourse and has not been realized consistently, even though teacher training has been acknowledged to be a suitable and mandatory place for the acquirement of media pedagogical skills (Blömeke, 2003). Hence, there are no binding curricula yet which could ensure a basic media pedagogical education for every preservice teacher, but there are non-binding standards and guidelines that make suggestions for such processes, as for example the UNESCO Media and Information Literacy Curriculum for Teachers (Wilson, Grizzle, Tuazon, Akyempong, & Cheung, 2011).

This inhomogeneous situation, where efforts and ways to integrate media pedagogy into teacher education can be assumed to vary between countries and institutions, forms the background of this paper. This exploratory study aims to further explore the pedagogical media competencies of preservice teachers in Germany and the USA. Comparing two countries serves to overcome cultural boundaries, to countervail the danger of a narrowed perspective and to benefit from the background, research and knowledge of different viewpoints. Both countries share a rich culture of pedagogical discourse and research on teacher education, which provides a common background to build upon (Grafe, 2011). Both countries share generally similar approaches to educational policy and structure, as strong state and local control of education is paired with high levels of federal influence on educational issues (Blömeke & Paine, 2008; Tiede, Grafe & Hobbs, 2015). In the following, different models of pedagogical media competencies from both countries will be introduced and the extent to which these competencies have become part of teacher education programs and related studies will be summarized. Afterwards, methods and selected results of a study will be described where the skills in question were measured with students from both countries, based on a comprehensive model of pedagogical media competencies that connects German and international research in this field. The international comparative perspective will help broaden the viewpoint and understand similarities and differences. These data serve to identify different ways of integrating media pedagogy into teacher training and point to conclusions about the consequences these processes entail for preservice teachers and their pedagogical media competencies.

1.2. Pedagogical media competencies in German and U.S. teacher education

The issue of teacher competencies is a key factor in advancing the future of education both in the United States and in Germany (see for a detailed overview of the development and current state of media education in both countries for example Tulodziecki

& Grafe, 2012; Hobbs, 2010; Tiede & al., 2015).

The Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany has realized the need to include pedagogical media competencies into teacher training, as their according declaration on media education at school reveals (KMK, 2012). Accordingly, there have been various attempts for such an integration over the last decades (Bentlage & Hamm, 2001; Imort & Niesyto, 2014). Nonetheless, there are no binding national obligations for institutions of teacher education as, due to the federal system in Germany, the responsibility for higher education institutions lies entirely with the individual federal states. Recently it can be recognized that in different federal states new educational policy guidelines and recommendations for media literacy have been published (for example in Bavaria: Stmbw, 2016). As a result of these efforts, most German preservice teachers can but do not have to engage with media pedagogy in the course of their education. About 17% of all eligible German institutions of teacher education offer M.A. studies with an explicit focus on media pedagogy. The preservice teachers at these institutions can accomplish such studies in addition to their regular M.Ed. degree. With regard to contents, the focus of these media pedagogical studies varies. The field of teaching with media is addressed explicitly by most study programs (92%), followed by media-related school reform (33%) and media education (25%) (Tiede & al., 2015).

In the USA, the new 2016 National Education Technology Plan lately issued by the U.S. Department of Education reinforced the call for a media pedagogical education of all preservice teachers, which is still not obligatory, and emphasized the responsibility of the institutions involved (p. 32-33). This plan refers also to the ISTE standards for teachers, issued by the International Society for Technology in Education, as a background. These standards describe a framework for the skills teachers should have regarding the educational use of media; they primarily address the field of teaching with media but also include media educational issues and professional development (ISTE, 2008). Another important U.S. framework was developed by the National Association for Media Literacy Education, named the Core Principles of Media Literacy Education. These principles mainly focus on media educational aspects (NAMLE, 2008). Like the ISTE standards, the NAMLE principles do not have to be adhered to mandatorily.

U.S. preservice teachers generally have few elective courses; hence, there is a larger number of mandatory courses with media pedagogical contents. Additionally, 52% of all eligible U.S. institutions of teacher education offer master's programs with an explicit focus on media pedagogy. These focus on teaching with media (76%), media-related school reform (23%) and media education (2%) (Tiede & al., 2015). Unlike in Germany, preservice teachers can decide for such master's studies as part of their initial teacher certification, depending on individual regulations for each state.

As these observations from Germany and the USA indicate, the circumstances of the two countries are comparable to some extent. Both of them generally support and promote the integration of media pedagogy into teacher training and yet lack according national binding obligations. Consequently, preservice teachers in both countries can but usually do not have

Scholars and practitioners all over the world agree that teachers need specific knowledge and skills in order to integrate new media into their lessons successfully. While most works of research have focused on teachers' and preservice teachers' own media literacy skills or technological knowledge (Fry & Seely, 2011; Oh & French, 2004), further competencies are required for a professional inclusion of media into school. Teaching with media and teaching about media / media education are generally considered the two core areas in this context.

to study media pedagogical topics in the course of their education. Media pedagogy is included into teacher training either as elective courses as part of the basic education, as additional courses and certificates or as specific graduate studies (Tiede & al., 2015).

Obviously, there are also differences between the two countries from a systemic point of view. To substantiate this observation, first results of a study will be presented in the following which sought to measure the pedagogical media competencies of preservice teachers from Germany and the USA. The development of a test instrument will be outlined with particular regard to the special requirements of cross-national research. Then, initial data will be introduced and analyzed.

2. Material and methods

2.1. The M³K model of pedagogical media competencies

A recent approach to defining pedagogical media competencies was made in the course of the German research project "M³K – Modeling and Measuring Pedagogical Media Competencies", funded by the Federal Ministry of Education and Research. This M³K model of pedagogical media competencies serves as a basis for the following study. As a starting point for its development, a broad range of primarily German, but also international literature was reviewed, particularly the works of Tulodziecki and Blömeke (1997; see also Blömeke, 2000; Tulodziecki, 2012) and their follow-ups (Siller, 2007; Gysbers, 2008). A first model was deductively derived from this theoretical basis, structured in dimensions and facets of competencies. In order to assess this structure and to further differentiate the facets, media pedagogical requirements for preservice teachers were surveyed empirically and inductively by means of qualitative semi-structured interviews with national and international subject matter experts (n=14) based on the critical incident method (Flanagan, 1954; Schaper, 2009). All interviews were recorded and transcribed. Based on qualitative methods of content analysis (Mayring, 2000), the relevant aspects of pedagogical media competences were extracted and paraphrased. The next step emphasized the link between the identified elements of the paraphrased texts to the competencies dimensions previously identified deductively from literature research (Herzig & al., 2015).

The model which was created this way defines pedagogical media competencies as an interplay of three main areas. The first one is media didactics, which means teaching with media or the design and use of media content for educational purposes. The second area is media education and addresses media-related educational and teaching tasks, such as ensuring the students' responsible behavior in online environments or teaching about ethical aspects of internet use. The third field is media-related school development; this refers to professional development and integrating media on a systemic level (Tulodziecki, Herzig, & Grafe, 2010; Herzig & al., 2015; Tiede & al., 2015).

The M³K model is designed as a matrix with the three main areas: media didactics, media education and school reform on the first axis. Five competency aspects form the second axis. These competency aspects are (a) understanding and assessing conditions, (b) describing and evaluating theoretical approaches, (c) analyzing and evaluating examples, (d) developing one's own theory-based suggestions, and (e) implementing and evaluating theory-based examples. Each field between the two axes is filled with two standards, as table 1 demonstrates.

The field between "Media Education" and "Describing and evaluating theoretical approaches" for example contains the following two standards: "Standard ME2.1: Student teachers are able to describe concepts of media education and related empirical findings appropriately" and "Standard ME2.2: Student teachers are able to assess concepts from an empirical, normative, or practical perspective" (Tiede & al., 2015).

Table 1. M³K Model of Pedagogical Media Competencies Exemplary excerpt

		Competencies		
		Teaching with Media (MD)	Teaching about Media (ME)	Media and School Reform (SE)
Aspects of competencies	Understanding and assessing conditions			
	Describing and evaluating theoretical approaches		Standard ME2.1 Standard ME2.2	
	Analyzing and Evaluating examples			
	Developing one's own theory-based suggestions			
	Implementing and evaluating theory-based examples			

2.2. Developing a measuring instrument of pedagogical media competencies

Following the development of the model, a test instrument was designed to measure the competencies as defined before. The first items were developed based on theory and on findings from the expert interviews (n=14) as operalizations of the model facets and then tested for performance criteria (Herzig & al., 2015).

Further factors are understood to influence a successful educational use of media even if they are not defined as immediate constituents. This is true primarily for beliefs with regard to teaching with media, teaching about media and school development, perceived media related self-efficiency, and technological media knowledge (Blömeke, 2005; Grafe & Breiter, 2014). Test instruments were developed for these factors, too.

For the validation of the instruments, data were collected from students in teacher training programs at 11 different Germany universities. There were three major surveys with n1=591 test persons, n2=434 test persons and n3=919 test persons; after the first and second survey, the results were analyzed in detail and the instrument was revised thoroughly. Additionally, extensive pretestings, expert interviews and minor studies helped improve and validate the items.

The final version contains 16 items on media didactics / teaching with media, 14 items on media education, 10 items on school reform and 26 items on technological knowledge. These items are amended by 6 items on beliefs for each of the three main areas, 6 items for each of the three main areas that assess the perceived self-efficiency and some demographic data.

The validation of these items is still work in progress, and further work on the test instrument will be required to achieve entirely resilient results. According to the reliabilities determined in the final survey, 11 out of the 16 items on media didactics are suitable for further improvements and should be retained ($\propto$=.56), and the same is true for 12 out of 14 media education items ($\propto$=.60), 8 out of 10 school reform items ($\propto$=.46) and 19 out of 26 items on technological knowledge ($\propto$=.81). The reliabilities of the beliefs were $\propto$=.64 and the reliabilities of technological knowledge were $\propto$=.81 (19 out of 26 items) and of self-efficiency $\propto$=.87.

2.3. Adoption of the German M^{3}K questionnaire to a US-American version

In order to use the M^{3}K test instrument in an international context, a complex adoption process was necessary. As international sources were included in the process of developing model and instrument, the international connectivity was generally given; still, a number of steps had to be taken to guarantee comparable results. Their main goal was to ensure the same conditions for students of both countries. Therefore, a five-step approach was applied which mainly builds upon the Guidelines for Best Practice in Cross-Cultural Surveys (Survey Research Center, 2011) and on Harkness and Schoua-Glusberg (1998): 1) Translation: two independent peer-reviewed translations were prepared by professional translators and a third advance translation was made by a competent member of staff; 2) Review: a preliminary translation was developed from the first drafts; 3) Adjudication I: an international expert was consulted, and decisions were made on issues which had been identified as controversial before; 4) Pretestings: an elaborate cognitive pretesting with another expert was made to ensure the cognitive validity of the translation, resulting improvements were applied to the translation and a first small test group of n=2 participants filled in an online version of the test; 5) Adjudication II: the translation was reviewed and discussed once more, changes were reconsidered and the adapted version was finally accepted as appropriate for the upcoming explorative international survey.

2.4. The German and US surveys: samples and method

For the international survey the following content areas were included: media didactics / teaching with media, media education, technological knowledge, beliefs and self-efficiency, and demographical data. It was decided to exclude school reform due to reasons of efficiency and manageability and to avoid potential difficulties with the cultural fit of this field which depends significantly on systemic aspects.

The study was designed as an "ex-post-facto" study since it was not possible to manipulate variables or randomize participants or treatments. Therefore, a descriptive, comparative and non-experimental, quantitative questionnaire-based approach was applied.

The US sample consisted of n=109 test persons who were aged 22 on average (SD=2.16). 11.21% were male. All of them were preservice teachers or students of related studies from one college and five public US universities. As for the procedure, the questionnaire was distributed both as a paper version and as an online survey between April and May 2015.

For the comparison, the data from the third major survey were included. This sample consisted of

n=914 test persons aged 23 on average (SD=4.24). 35.52% were male. All test persons were preservice teachers from six different universities. The survey was conducted as a paper version in summer term 2014.

The international survey was one aspect of a greater project, so it was designed as an exploratory study. It served to open up a new comparative view but was not intended to reach the same range as the German main study, which is why the German and US test groups differed in size.

Table 2. Overview of German and US results for media didactics, media education and technological knowledge

	% of students with correct answers	
	Germany	USA
Media didactics	51.9% *	44.0% *
Media education	56.4% *	42.9% *
Technological knowledge	55.5% *	50.0% *

CI 95%, * p>.05

3. Results

For the descriptive comparative analysis, simple T-tests were used to calculate the means for all items separately for both samples. These means were then summarized as one mean value for each field and sample. The confidence interval was defined as 95%. In the following, the results will be introduced descriptively. An interpretation will be provided in chapter 4.

As table 2 illustrates, the German means for all three fields (media didactics, media education and technological knowledge) are significantly higher than the US means. The highest difference can be found in the field of media education.

In the field of media didactics, German students achieved higher results with items related to the following topics: films at school, the constructivist use of media in lessons, media didactic concepts, practice programs, computer simulations, computer learning programs, learning through films, behaviorism, and methods of empirical/quantitative research. Three items are opposed to this tendency, as US students achieved higher scores here. The first one requires skills in identifying and processing media influence (Tulodziecki, 1997), the second one knowledge about using computer games for learning and the third one knowledge about the use of online forums for homework.

With regards to media education, German students had more success in answering a majority of the topics covered by the questionnaire. These topics are role models in the media, conservative pedagogical attitudes, age-specific media activities, consumption of violent media content, media use for the satisfaction of needs, developing media competencies and conditions of media production. One item contradicts the tendency described. US students were 29.5% more accurate than their German counterparts, which is a remarkably high difference. This item describes a scenario which requires expertise in the area of understanding and assessing conditions of media production and media dissemination (Tulodziecki, 1997).

Also in the field of technical knowledge, German students answered a majority of questions with higher success. These items were about general functions of social networks, types of data, Google functions, internet browser, hot spots, meta search engines, computer hardware and software. Given this tendency, five items do not correlate because the US test group achieved higher results here. The two that show the highest differences between the test groups (20.7% and 65.4%) are concerned with knowing and using different social media.

With regards to beliefs, the results show that the German means are significantly higher than US means both in the fields of media didactics and media education. This indicates that the attitudes German students expressed concerning using media for these purposes were more positive; for example, they indicated to be more convinced of the usefulness of a media integration which allows students to independently approach lesson content, or they agreed less with the statement that students are already aware of manipulations inherent in media, which therefore need not be further addressed in the classroom.

The difference in self-efficiency is not significant, meaning that the German and the US study participants showed comparable confidence to be able to teach with and about media successfully; for example, both groups estimated their abilities to evaluate the quality of digital learning programs approximately equally.

4. Discussion and conclusion

For the interpretation of these data, it has to be considered that the reliabilities of the test instrument still require further improvement. Moreover, the numbers of participants in the two groups compared are rather disproportionate. The results must not be understood as sound proofs of pedagogical media competencies but rather as tendencies that pave the way for further research.

4.1. Media didactics / teaching with media

All in all, the data show that the sample of German students had higher competencies in the field of media

didactics / teaching with media than the students in the US sample. A possible explanation could be more relevant learning opportunities during their studies, but the students' self-reports do not support this thesis: comparable shares of German and US students claimed to have learned about teaching with media during the course of their studies (78.8% of German students vs. 77.8% of US students). Assuming that no confounding factors like different perceptions of the item text came into effect, another interpretation is that the quality and topical focus of the studies both test groups experienced were heterogenous and led to different shapes of competencies. Consequently asking for more details about the learning opportunities in future studies would be helpful for the interpretation of the differences in results.

With regards to an analysis on the level of items, some items oppose this trend of higher media didactical competencies on the part of the German participants, for example two of these items required competencies in using computer games for learning and in the use of online forums for homework. The results showed that the US sample achieved better scores with regard to these items, as they might have had more opportunities to gather experiences with computer games in class and forums for homework during their own schooldays. Empirical data on students' computer use support this assumption: in 2009, when a majority of the study participants was still at school, 88% of all US students were reported to use computers during instructional time in the classroom rarely, sometimes or often (Gray, Thomas, & Lewis, 2010), while the percentage of German students who used the computer at school was as low as 64.6% (OECD, 2015).

4.2. Media education

64.2% of all German participants indicated having had learning opportunities in the field of media education while the share of US students was 78.9%. Yet, German students had significantly more success in answering a majority of the media educational topics covered by the questionnaire. This observation substantiates the assumption made based on the findings in media didactics that the study content both test groups faced differs.

Noticeably, the two items with the largest difference in the answering pattern (with the means of German participants being 28.2% and 33% higher) contain the term media competencies. Despite the complex adoption process, terminology problems have to be regarded a possible explanation for these discrepancies: there are several ways to translate the German term "Medienkompetenz", and their precise definition differs according to their context. One team of translators decided on a direct translation and chose media competencies, which was accepted for the final version. Other terms are also frequently used, as for example media literacy (as suggested by the second team of translators), digital competence, digital literacy, or computer literacy (Røkenes & Krumsvik, 2014). As the remarkably high discrepancies suggest, terminological differences of key terms in the field of pedagogical media competencies are a great challenge for the development of instruments that could work internationally.

4.3. Technological knowledge

Also in the field of technical knowledge, the German students answered a majority of questions with higher success. It has to be considered that technical knowledge depends on everyday knowledge to a higher degree than the fields of teaching with media and media education, given the omnipresence of media and their being part of our everyday life.

Table 3. Overview of beliefs in media didactics and media education and of self-efficiency

	Mean score (SD)	
	Germany	USA
Beliefs media didactics	3.05 (0.73)*	2.89 (0.80)*
Beliefs media education	3.40 (0.67)*	3.23 (0.76)*
Self efficiency	2.98 (0.78)	3.04 (0.80)

Range: 1-4 with 1=very critical and 4=very convinced. * p>.05

Acquiring media literacy and technical knowledge may be part of teacher training, but it also takes place in informal learning processes. Hence, the interpretation seems likely that German students interact with media in other ways than US students do. This thesis of varying media use is substantiated by empirical data, for example with respect to social media: in the US, 76% of young people aged 13 to 17 reported using social media in 2014/15 (Lenhart, 2015), while in Germany only 68.5% of young people aged 14 to 17 reported using social media in the same period of time, and 57% if the age group from 12 to 17 is considered (MPFS, 2014). Consequently a great challenge when evaluating the success of teacher education programs on the development of pedagogical media competences and its dependent variables is to measure the informal learning processes. For this study it can be concluded that the integration of further items on informal media use would be helpful for the interpretation of results.

4.4. Beliefs and self-efficiency

According to Redman (2012), the perceptions of the affordances of new technologies are also shaped by students' experiences with these technologies: it was found out that, once the students in this study became acquainted with certain media, their perceptions shifted towards a more positive assessment. However, the German students in our study did not describe more learning opportunities than the US study participants but still showed higher means in the according beliefs. Hence, the correlation of experience and beliefs as argued by Redman (2012) could not be confirmed here.

Differences in the perceived self-efficiency of both groups are not significant. This observation is noteworthy since there is evidence that TPACK knowledge may be predictive of self-efficiency beliefs about technology integration (Abbitt, 2011). Due to overlaps of TPACK and the M³K model, comparable results could be expected here, meaning that according to Abbitt's results (2011), German students should show higher self-efficiency beliefs because of their higher pedagogical media competencies which were measured in the study. Hence, further research will be necessary here with regard to potential confounding factors and other influences that may have led to this contrary outcome.

4.5. Conclusion

One important goal of this study was the adaptation of a nationally developed instrument for further use in other national contexts taking Germany and the USA as examples. Results show that the international comparative approach adds a number of challenges: while an elaborate adoption process sought to ensure comparability of the German and the US version, the basis was still developed by German scholars and influenced by a German background in terms of fundamental terminology and literature. The possibility that this background has an impact on the results cannot be ruled out and is a great challenge for cross-national studies in the field of media pedagogy.

With respect to these limitations, the overall results of the study suggest that the selected sample of German preservice teachers has slightly higher pedagogical media competencies than the sample of US students. According to their self-reports, German students did not have significantly more learning opportunities; as the differences in the competencies measured are still significant, the learning opportunities both groups had must have differed to some degree and led to more or different competencies. Supposedly, the topics within the field of media pedagogy that are covered in both countries vary. It has been previously established that, considering media pedagogy as an interplay of the three fields teaching with media, teaching about media (media education) and school reform, a majority of US study programs with explicit reference to media pedagogy focus on teaching with media and neglect the other two areas, while the respective German study programs show the same tendency but put more emphasis on media education and school reform (Tiede & al., 2015). A transfer of these conclusions to the results of the study described in this paper leads to the assumption that the media pedagogical contents within teacher education of both countries could also differ and include a larger variety of topics within Germany. Therefore further research on a core curriculum of media pedagogical topics in teacher education would greatly assist further cross-national research in this field.

Further research will be necessary to consolidate these assumptions and exploratory findings. Although a cross-national comparison inevitably holds a number of challenges (e.g., culture, history, focus, language, and background), it also has distinctive affordances, allowing for valuable insights by increasing the variety of viewpoints and providing a broadened, globally interconnected perspective. It opens up a variety of options for subsequent studies; elaborating on the differences between media pedagogy in German and US teacher training on the basis of the findings introduced here will bring about valuable insight into potential improvements of both systems. With regard to the varying focus of media pedagogy within teacher education, curriculum analyses and a comparative evaluation will help draw conclusions on the status quo. Based on the results introduced here, it can be assumed that there are in fact differences in the pedagogical media competencies of German and US preservice teachers, resulting from differences in the role, shape and focus of media pedagogy in the respective teacher education programs. However, taking into account that media pedagogy is not a mandatory part of teacher education in either country, both the USA and Germany are facing similar challenges and potentials for systemic improvement.

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References

Abbit, J.T. (2011). An Investigation of the Relationship between Self-Efficacy Beliefs about Technology Integration and Technological Pedagogical Content Knowledge (TPACK) among Preservice Teachers. *Journal of Digital Learning in Teacher Education*, 27(4), 134-143. doi: http://dx.doi.org/10.1080/21532974.2011.10784670

Bentlage, U., & Hamm, I. (Eds.) (2001). *Lehrerausbildung und neue Medien. Erfahrungen und Ergebnisse eines Hochschulnetzwerks*. Gütersloh, Germany: Verlag Bertelsmann Stiftung.

Blömeke, S. (2000). *Medienpädagogische Kompetenz. Theoretische und empirische Fundierung eines zentralen Elements der Lehrerausbildung*. München, Germany: Kopaed.

Blömeke, S. (2003). Neue Medien in der Lehrerausbildung. Zu angemessenen (und unangemessenen) Zielen und Inhalten des Lehramtsstudiums. In *Medienpädagogik*. (http://goo.gl/rrGdPC) (2016-05-23).

Blömeke, S. (2005). Medienpädagogische Kompetenz. Theoretische Grundlagen und erste empirische Befunde. In A. Frey, R.S. Jäger, & U. Renold (Eds.), *Kompetenzdiagnostik-Theorien und Methoden zur Erfassung und Bewertung von beruflichen Kompetenzen*. (pp. 76-97). Landau, Germany: Empirische Pädagogik (=Berufspädagogik; 5).

Blömeke, S., & Paine, L. (2008). Getting the Fish out of the Water: Considering Benefits and Problems of Doing Research on Teacher Education at an International Level. *Teaching and Teacher Education*, 24(4), 2.027-2.037. doi: http://doi.org/10.1016/j.tate.2008.05.006

EU Kids Online (2014). *EU Kids Online: Findings, Methods, Recommendations (deliverable D1.6)*. London: EU Kids Online, LSE. (http://goo.gl/Vyefxf) (2016-05-23).

Flanagan, J.C. (1954). The Critical Incident Technique. *Psychological Bulletin*, 54(4), July.

Fry, S., & Seely, S. (2011). Enhancing Preservice Elementary Teachers' 21st Century Information and Media Literacy Skills. *Action in Teacher Education*, 33(2), 206-218. doi: http://doi.org/10.1080/01626620.2011.569468

Grafe, S., & Breiter, A. (2014). Modeling and Measuring Pedagogical Media Competencies of Preservice Teachers (M3K). In C. Kuhn, T. Miriam, & O. Zlatkin-Troitschanskaia (Eds.), *Current International State and Future Perspectives on Competence Assessment in Higher Education* (KoKoHs Working Papers 6, pp. 76-80). Mainz/Berlin, Germany: Humboldt University of Berlin, Johannes Gutenberg University Mainz. (http://goo.gl/cl5X6y) (2016-05-23).

Grafe, S. (2011). «Media Literacy» und «Media (Literacy) Education» in den USA: Ein Brückenschlag über den Atlantik. In H. Moser, P. Grell, & H. Niesyto (Eds.), *Medienbildung und Medienkompetenz* (pp. 59-80). München, Germany: Kopaed. (http://goo.gl/t7C55L) (2016-05-23).

Gray, L., Thomas, N., & Lewis, L. (2010). *Teachers' Use of Educational Technology in U.S. Public Schools: 2009 (NCES 2010-040)*. National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC. (http://goo.gl/rPkkm1) (2016-05-23).

Gysbers, A. (2008). *Lehrer-Medien-Kompetenz. Eine empirische Untersuchung zur medienpädagogischer Kompetenz und Performanz niedersächsischer Lehrkräfte*. Berlin, Germany: Vistas.

Harkness, J.A., & Schoua-Glusberg, A. (1998). Questionnaires in Translation. *ZUMA-Nachrichten* Spezial, 7, 87-125. (http://goo.gl/gzQj8V) (2016-05-23).

Herzig, B., Martin, A., Schaper, N., & Ossenschmidt, D. (2015). Modellierung und Messung medienpadagogischer Kompetenz. Grundlagen und erste Ergebnisse. In B. Koch-Priewe, A. Koker, J. Seifried & E. Wuttke (Eds.), *Kompetenzerwerb an Hochschulen: Modellierung und Messung. Zur Professionalisierung angehender Lehrerinnen und Lehrer sowie fruhpadagogischer Fachkrafte* (pp. 153-176). Bad Heilbrunn: Verlag Julius Klinkhardt. (http://goo.gl/bKMWQp) (2016-05-23).

Hobbs, R. (2010). *Digital and Media Literacy: A Plan of Action (White Paper on the Digital and Media Literacy Recommendations of the Knight Commission on the Information Needs of Communities in a Democracy)*. Washington, DC: The Aspen Institute. (http://goo.gl/Q1pbRv) (2016-05-23).

Imort, P., & Niesyto, H. (2014). Grundbildung Medien in pädagogischen Studiengängen. *Reihe Medienpädagogik Interdisziplinär*, 10. München. (http://goo.gl/dtrzvf) (2016-05-23).

International Society for Technology in Education [ISTE] (2008). *ISTE Standards for Teachers*. (https://goo.gl/AVPtnS) (2016-05-23).

Kultusministerkonferenz [KMK] (2012). Medienbildung in der Schule. *Beschluss der Kultusministerkonferenz vom 8.3.2012. Kultusministerkonferenz*. (http://goo.gl/WxTwQm) (2016-05-23).

Lenhart, A. (2015). *Teens, Social Media & Technology Overview 2015*. Pew Research Center. (http://goo.gl/BTAvE5) (2016-05-23).

Mayring, P. (2000). Qualitative Content Analysis. *Forum: Qualitative Social Research*, 1(2). (http://goo.gl/Wg9Hm6) (2016-05-23).

Mishra, P., & Koehler, M.J. (2006). Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge. *Teachers College Record*, 108(6), 1,017-1,054. doi: http://dx.doi.org/10.1111/j.1467-9620.2006.00684.x

MPFS (Southwest Media Education Research Association) (Ed.) (2014). *JIM 2014. Jugend, Information, (Multi-) Media*. Stuttgart, Germany: MPFS. (http://goo.gl/d8atIX) (2016-05-23).

NAMLE (National Association for Media Literacy Education). (2008). *The Core Principles of Media Literacy Education*. (http://goo.gl/Xq6Ywp) (2016-05-23).

OECD (2015). *Students, Computers and Learning: Making the Connection*. PISA, OECD Publishing. doi: http://dx.doi.org/10.1787/9789264239555-en

Oh, E., & French, R. (2004). Preservice Teachers' Perceptions of an Introductory Instructional Technology Course. *Electronic Journal for the Integration of Technology in Education*, 3(1), 1-18. (http://goo.gl/JXaQSi) (2016-05-23).

Redman, C. (2012). *Experiencing New Technology: Exploring Preservice Teachers' Perceptions and Reflections Upon the Affordances of Social Media*. AARE APERA International Conference, Sydney 2012. (http://goo.gl/67rQzE) (2016-05-23).

Røkenes, F.M., & Krumsvik, R.J. (2014). Development of Student Teachers' Digital Competence in Teacher Education. A Literature Review. *Nordic Journal of Digital Literacy*, 9(4), 250-280. (https://goo.gl/YU5xdQ) (2016-05-23).

Schaper, N. (2009). Aufgabenfelder und Perspektiven bei der Kompetenzmodellierung und -messung in der Lehrerbildung. *Lehrerbildung auf dem Prüfstand*, 2(1), 166-199.

Stmbw [Bayerische Staatsministerium für Bildung und Kultur, Wissenschaft und Kunst] (2016). *Digitale Bildung in Schule, Hochschule und Kultur. Die Zukunftsstrategie der Bayerischen Staatsregierung*. München: stmbw. (http://goo.gl/qaCztN) (2016-05-23).

Shulman, L.S. (1986). Those who Understand: Knowledge Growth in Teaching. *Educational Researcher*, 15(2), 4-31. doi: http://dx.doi.org/10.3102/0013189X015002004

Siller, F. (2007). *Medienpädagogische Handlungskompetenzen. Problemorientierung und Kompetenzerwerb beim Lernen mit neuen Medien*. Mainz (Germany): Johannes Gutenberg-Universität. (http://goo.gl/s8bwUR) (2016-05-23).

Survey Research Center (2010). *Guidelines for Best Practice in Cross-Cultural Surveys*. Ann Arbor, MI: Survey Research Center, Institute for Social Research, University of Michigan. (http://goo.gl/60kGuo) (2016-05-23).

Tiede, J., Grafe, S., & Hobbs, R. (2015). Pedagogical Media Competencies of Preservice Teachers in Germany and the United States: A Comparative Analysis of Theory and Practice. *Peabody Journal of Education*, 90(4), 533-545. doi: http://dx.doi.org/10.1080/0161956X.2015.1068083

Tulodziecki, G. (1997). *Medien in Erziehung und Bildung. Grundlagen und Beispiele einer handlungs- und entwicklungsorientierten Medienpädagogik* (3rd edition). Bad Heilbrunn: Klinkhardt.

Tulodziecki, G. (2012). Medienpädagogische Kompetenz und Standards in der Lehrerbildung. In R. Schulz-Zander, B. Eickelmann, H. Moser, H. Niesyto, & P. Grell (Eds.), *Jahrbuch Medienpädagogik 9* (pp. 271-297). Wiesbaden (Germany): Springer VS. (http://goo.gl/re1wgy) (2016-05-23).

Tulodziecki, G., & Blömeke, S. (1997). Zusammenfassung: Neue Medien-neue Aufgaben für die Lehrerausbildung. In G. Tulodziecki & S. Blömeke (Eds.), *Neue Medien-neue Aufgaben für die Lehrerausbildung* (pp. 155-160). Gütersloh (Germany): Verlag Bertelsmann Stiftung.

Tulodziecki, G., Herzig, B., & Grafe, S. (2010). *Medienbildung in Schule und Unterricht. Grundlagen und Beispiele*. Bad Heilbrunn, Germany: Julius Klinkhardt. (http://goo.gl/HufDWA) (2016-05-23).

Tulodziecki, G., & Grafe, S. (2012). Approaches to Learning with Media and Media Literacy Education - Trends and Current Situation in Germany. *Journal of Media Literacy Education*, 4(1), 44-60. (http://goo.gl/B4nTDE) (2016-05-19).

U.S. Department of Education, Office of Educational Technology (2016). *Future Ready Learning: Reimagining the Role of Technology in Education*. Washington, D.C. (http://goo.gl/MAEGzv) (2016-05-23).

Wilson, C., Grizzle, A., Tuazon, R., Akyempong, K., & Cheung, C.-K. (2011). *Media and Information Literacy Curriculum for Teachers*. Paris: UNESCO. (http://goo.gl/HWtH5i) (2016-05-23).

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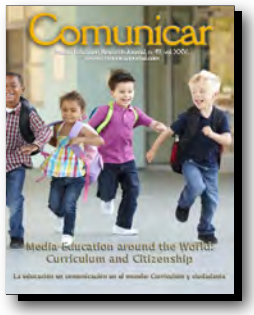

The Ecosystem of Media Literacy: A Holistic Approach to Media Education

El ecosistema de la alfabetización mediática: Un enfoque integral y sistemático para divulgar la educomunicación

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ABSTRACT

This research article proposes a systematic way to disseminate media literacy education in Thailand, based on the UNESCO's media and information literacy competencies. A media literacy learning schema was constructed using a mixed-method research before it was verified for efficacy and practicality by the in-depth interviews of media literacy experts. The interview data resulted in "the Ecosystem of Media Literacy" as a holistic and systematic approach to disseminate media literacy education. The Ecosystem of Media Literacy posits that the learning schema works in an environment that supports media literacy, with each component operating interdependently and in parallel with each other. It consists of the Media Literacy Learning Schema (Learners, Facilitators, Curriculum, and Pedagogy), the Society (Community, Civic Sectors, Media, and Parents), and the Policy. It is believed that using the Ecosystem model can lead to a behavior change among learners, the ultimate goal of education. In other words, media literacy will become a way of life. The Interview data also resulted in a new finding that Thailand's media literacy components should consist of access, analyze and evaluate, reflect, and create, instead of access, evaluate, and create that the country has been using as a framework for over a decade. The findings of this research are applicable to other cultures with different groups of learners, with minor adaptations that can serve as a provisional policy guideline.

RESUMEN

Este artículo de investigación propone una manera sistemática para difundir la educación de la alfabetización mediática en Tailandia, basada en las competencias de la alfabetización mediática e informacional de la UNESCO. El esquema de aprendizaje de la alfabetización mediática se estableció aplicando un estudio de métodos mixtos antes de que su eficacia y funcionalidad haya sido comprobada por las entrevistas detalladas de expertos de alfabetización mediática. Los datos de estas entrevistas dieron lugar al «ecosistema de la alfabetización mediática» como un enfoque integral y sistemático para divulgar la educación de la alfabetización mediática. El ecosistema de la alfabetización mediática postula que el esquema de aprendizaje funciona en un ambiente que favorece la alfabetización mediática, donde cada componente opera de forma interdependiente y en paralelo: el esquema de aprendizaje de la alfabetización mediática (estudiantes, facilitadores, currículum y pedagogía), la sociedad (comunidad, sectores cívicos, medios, y los padres), y la política. Se piensa que el uso del modelo de ecosistema puede producir un cambio en el comportamiento de los estudiantes, la meta final de la educación. En otras palabras, la alfabetización mediática se convertirá en un modo de vida. Los datos obtenidos de las entrevistas también dieron a conocer un nuevo descubrimiento, al demostrar que los componentes de la alfabetización mediática en Tailandia deberían consistir en acceder, analizar y evaluar, reflexionar, y crear; en vez de acceder, evaluar y crear; un marco que el país lleva usando durante más de una década. Los descubrimientos de esta investigación son aplicables a otras culturas con grupos diferentes de estudiantes, que con pequeñas adaptaciones, pueden servir como una orientación política provisional.

KEYWORDS | PALABRAS CLAVE

Media literacy, media education, ecosystem, Generation Y, literacy, policy, media policy.
Alfabetización mediática, educación mediática, ecosistema, Generación Y, alfabetización, política, política mediática.

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1. Introduction

This paper is a part of a doctoral dissertation titled "Media Literacy Learning Schema for Thai Generation Y" of which the ultimate goal is to find a way to effectively provide media literacy (ML) education to Generation Y in Thailand. Based on the final step of the complete research, this paper reports the ultimate outcome and proposes a holistic approach that the author calls "the ecosystem of media literacy".

In South East Asia, media literacy is not yet part of the primary and secondary school curriculum, even with a country where the media technology has prospered and much developed like Singapore (Lim & Nekmat, 2009); or in the larger Asia, eventhough Japan does have ML in its school curriculum, there are also proplems of educators lacking the skills to teach the recently developed subject (Sakamoto & Suzuki, 2007). In Thailand, there is currently neither a media literacy policy nor a clear definition of term and competencies to provide an operative framework. The Thai ML literatures and practices are being developed more slowly than the fast-moving media landscape, while people, Generation Y in particular, actively receive and create media messages in the participatory culture; contrary to the more well and consistently developed ML education in the Western countries where media literacy was already expanded to encompass both the protection and preparation of individuals for living in the 21st century media environment: Center for Media Literacy (2002), European Commission (2007), Hobbs (2010), Media Literacy Project (http://goo.gl/PbhedO), National Association for Media Literacy Education (NAMLE) (http://goo.gl/RfqfbG), Office of Communications (Ofcom) (2013), UNESCO (http://goo.gl/aDHwR), Zacchetti (2007). Thai ML still concentrates solely on the negative sides of the media, and to protect the young from the media, treating media users as passive receivers. Because of the unique characteristics shaped by technologies and the dynamic media use behavior, Generation Y was chosen to be the target for this research. In this context, Generation Y people refer to those who were born in early 1980s and 2000 (Beekman, 2011; Main, 2013; Stein & Sanburn, 2013).

Hence, this study was based on the concept of media literacy as a protection and preparation and the skills for living in the 21st century, using the UNESCO's Media and Information Literacy components (MIL) as an operative framework as it has been used for over a decade. The UNESCO states that MIL components include access, evaluate, and create (Moeller, Joseph, Lau, & Carbo, 2011).

2. Research methods

In the earlier steps of the study, the author has conceptualized a model of media literacy learning schema consisting of five components as shown in graphic 1. This paper reports the verification process of the model and its outcome. This is to ensure the correctness, efficacy, effectiveness, and practicality in the Thai context. Note that the learning schema model was constructed from scientific research methods, including the needs assessment of ML competencies among Generation Y through a survey of 400 samples in conjunction with focus group discussions that resulted in the identification of Generation Y's weak and strong competencies which provided the elements that constitute the Teaching & Learning component.

In the verification of the model, the in-depth interview approach was used to gather comments and opinions of the ML experts. A total of seven experts[1] were purposively selected based on their availability due to the limited timeframe of this research. The criteria for being an expert include their ML-related works, experiences, and their recognition in the field. The conceptualized 5 components, including Learners, Educators, Dissemination, Teaching & Learning, and Policy, were shown and explained to the experts during the interviews. The experts' opinions and suggestions were audio recorded and transcribed in order to be codified into themes for data analysis, which led to the modification of the model and the ultimate outcome of this study, the Ecosystem of Media Literacy, elaborated in the next section.

3. Research results

The interview data can be classified into two themes: the ML competencies and the dissemination of ML education.

3.1. Media literacy competencies

Thai experts expressed concerns over the necessary life skills that learners must know. According to the experts, there are four life skills: analytical thinking, critical thinking, systematic thinking, and reflective thinking. While the first three skills were readily included in the UNESCO's MIL components (access, evaluate, and create), the reflective thinking skill did not seem to be distinctively addressed. Therefore, the interview result indicates that the UNESCO's MIL components are not sufficient in the Thai context, and that reflective thinking skill is to be added to the ML components. By including Reflective Thinking to the media literacy competencies, the global UNESCO's concept has been localized to fit the Thai context.

3.2. The dissemination of media literacy education

For the dissemination of media literacy education, it is found that the majority of experts generally agreed to the learning schema's five components. Nevertheless, they suggested that it should focus on the implementation to achieve the goal of behavioral change, that is, how to make ML skills a practice in everyday life (S. Tripathi, personal communication, 2015-03-15). The experts agreed with the proposition that ML should be disseminated through both formal education (an obligatory curriculum) and out-of-school education (any ML-related activities that occur outside the academic premises). More importantly, the out-of-school education should eventually lead to the ML environment in the larger society (K. Wirunrapan, personal communication, 2015-04-16).

The experts also suggested that the learning schema indicate the priorities among the proposed components, with a simpler framework for the Thai people to better reflect the way to reach Generation Y, considering their self-learning behavior that could be a barrier to classroom learning (K. Wirunrapan, personal communication, 2015-04-16). According to the experts, it is important to create a clear understanding of media literacy concept among all stakeholders, from policymakers to educators, so that they deliver the right actions: the policymakers push forward a national media literacy policy, the educators use the right pedagogy. The experts agreed that the ML policy is the primary key to empower the promotion of media literacy as a way of life, through formal and out-of-school education; while educators need to understand that ML education is about practicing the skills, not another school subject to be memorized, so that they can design the appropriate learning process (K. Wirunrapan, personal communication, 2015-04-16).

The experts agreed on the proposition that educators need to be media literate, and added that they also need to develop their ML skills constantly to keep abreast with the changing communication technologies. Only when the concept and principles of media literacy are well understood can media literacy become a national policy and successful in both formal and non-formal education. One of the most recurring concerns among the experts was how to make media literacy a way of life, since it requires a tremendous change in the educational system, from the traditional hierarchical method to student-centered.

There is a lack of a clear understanding on the concept of ML, as one of the experts stated: "There's a misunderstanding of what media literacy stands for, what media literacy is, and what media literacy scales are" (S. Gabai, personal communication, 2015-03-20); the principle of student-centered pedagogy; the traditional top-down teaching method, and the entire Thai educational system are major challenges for Thai ML education. As an expert maintained, "The discipline of media literacy is trivialized by some administrators and teachers, who see this area of study as simply watching movies" (A. Silverblatt, personal communication, 2015-05-15). To accomplish the ML goal, teachers need to spend a lot of time preparing for class activities, but the traditional Key Performance Index (KPI) system for teachers normally focuses on the students' grades, which becomes a great barrier to engage in the student-centered teaching. Additionally, like several other countries, the traditional Thai teaching method with the teacher acts as an authoritative figure lecturing in front of the classroom causes the students to memorize for exams and never actually use their knowledge of ML skills in their everyday life. Furthermore, there are too many ML activities from the civic sectors, but too few lessons learned as most activities went by without proper evaluation and knowledge sharing among actors. More importantly, the government or policymakers do not recognize the importance of ML because there are always more urgent issues such as the economic issue to prioritize, particularly for such a developing country as Thailand.

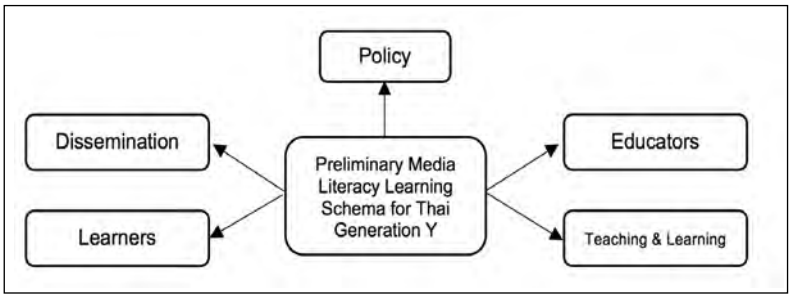

Figure 1. The preliminary Media Literacy Learning Schema for Thai Generation Y proposed to experts for verification.

Noticeably, the challenges come from both the system and individual stakeholders. The experts did emphasize that "media literacy as a life skill can be accomplished when the entire environment accommodates the learning process outside classrooms" (K. Wirunrapan, personal communication, 2015-04-16),

where Generation Y learn and practice ML skills, and that ML education is a continuous process that does not end when school is out.

The in-depth interview analysis leads to a modification of the proposed learning schema in accordance with the experts' suggestions: the learning schema must be clear and reflects the reach to Generation Y population, using a simpler framework for the Thai context with an emphasis on the learning process, and the building of the ML environment beyond the academic institutions so as to make ML a way of life. The result is "the Ecosystem of Media Literacy" (graphic 2).

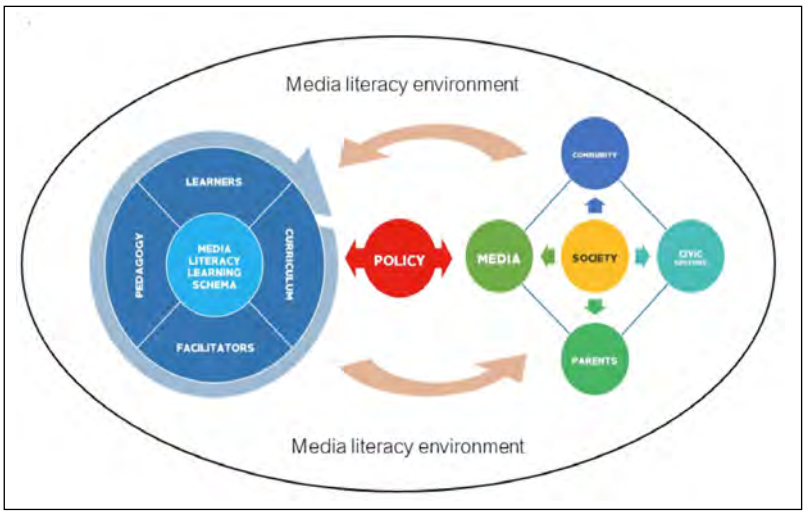

Figure 2. The Ecosystem of Media Literacy as a holistic approach to disseminate media literacy.

Hence, the revised learning schema, in the form of the Ecosystem of Media Literacy, consists of three major components: the Media literacy learning schema, the Policy, and the Society. The Media Literacy Learning Schema is the core component that revolves around the education; the Society comprises the components that contribute to the building of ML environment, involving largely with the out-of-school education; and the Policy is the center of the Ecosystem in facilitating, enforcing, and mobilizing media literacy, both formal and out-of-school. All of these primary components need to operate in parallel, supporting one another, for media literacy to thrive as a way of life. The details of the primary components are elaborated below.

3.2.1. The Media literacy learning schema component

The Learning Schema consists of four elements crucial for education: the facilitators, the learners, the pedagogy, and the curriculum. These four elements directly involve in the learning process, both in the formal and informal out-of-school education.

a) Learners. In this context, the Learners are Generation Y which consist of high school students and young workers. The Generation Y students are present in the formal education, while the Generation Y workers are found in the out-of-school context. The characteristics of Generation Y are the primary variables that influence the other three components within the Learning Schema. According to the experts, Thai Generation Y people have the following characteristics:

- Confidence.
- Prefer self-learning approach, particularly from the Internet.
- Believe and trust people from their experiences, not their titles or authority.
- Believe what they have discovered and learned by themselves, as well as their peers, more than they do their parents or teachers.
- Cannot take criticism.
- Multitasking.
- Have short attention span, partially a result of multitasking.

These traits oblige the facilitators, or 'educators', to adjust their teaching methods in order to engage and motivate the over-confident, short-attention, multitasking, self-learning Generation Y in the classroom as well as to practice ML in their everyday life.

b) The pedagogy. The ML pedagogic attributes should be student-centered and enquiry-based to engage the short-attention Generation Y in the learning process. Since these two pedagogic attributes involve experiential learning, they respond to Generation Y's self-learning trait and value in experiences.

To fulfill these pedagogic attributes, such teaching strategies as textual and contextual analysis, case studies, translations, simulations, production, problem-based learning (PBL), and cooperative learning can be used.

Nevertheless, it is necessary for the Thai facilitators to truly understand the core principles of these strategies to achieve the desired outcomes. It is also important that the evaluation method be adjusted to include other means than the traditional paper exams,

for example, a peer review or self-assessment can also be used to practice reflective thinking skill.

c) The facilitators. The term 'facilitator' is used to replace the term 'educator' because in student-centered teaching, the teacher's role becomes more like a mentor or a guide who designs and facilitates the learning process that involves knowledge sharing, experiencing and discussion rather than pure lecturing. The changing role affects the qualifications of the facilitators. That is, the ML facilitators should:

• Understand ML core concepts, principles of student-centric and enquiry-based pedagogy.

• Have interdisciplinary skills, particularly when media literacy is an integral subject.

• Be media literate, in their teaching and practice, and constantly keep up with the media environment.

• Be competent in making the learners believe in the learning process.

• Be friendly enough so as to create a discussion and participation atmosphere in the classroom, not an authoritative figure.

• Have an open-mind and able to admit that they do not know everything and sometimes they might know less than the students in certain issues.

In addition, because Generation Y usually are technology-dependent, facilitators can use technology as a teaching aid as applicable. A simple task like assigning a research using the Internet, a texting application or social media for out-of-classroom communication will do. Technology can help make Generation Y learners feel more comfortable with the learning process. It is, however, crucial to realize that technology is only an advantage, not a necessity. For those who have access to technology, such as the computer and the Internet, technology can be used as the teaching aid, with guidance and how to use it right; while those who have less opportunity should not entirely rule out technology as part of the teaching. Essentially, the facilitators must keep in mind that media literacy is about teaching the skills and competencies in relation to consuming and producing the media, thus, the focus must be on the media, and the risks that come with them, not about using the technologies (Hobbs, 2010: 27).

d) The curriculum

Media literacy curriculum concerns how and what to be taught to the learners. ML should be taught both as a stand-alone subject and an integral subject. ML as a stand-alone subject can either be a core course or an (mandatory) elective course, depending on the students' ML background in earlier school years, which is not likely the case in Thailand as ML is not mandatory in school's curriculum yet. ML should be taught in every level, with the content relevant to the students' lives or of their interests. ML as an integral subject is considered a more effective way by the Thai experts as it is more efficient in incorporating ML skills in daily practice. Infusing ML skills to such general subjects as history, Thai language, Buddhism, and so on, is an efficient way to demonstrate how these subjects as well as media literacy can be applied in everyday life.

The content of the curriculum should include Competencies and skills, Ethics and morals, and Digital Citizenship.

The competencies and skills include four components: access, analyze and evaluate, create, and reflect. Reflective thinking, as mentioned earlier, is added to the original UNESCO's three-component framework as a result from the interview data. Reflective thinking helps individuals make moral and ethical judgments when they create media content and information, which corresponds to James Potter's theory (2008) that maintains that people should have social responsibility and that to reflect is about applying critical thinking for external benefits, based on internal integrity, besides using it to focus on one's own good (Potter, 2008). It is also about recognizing how personal decisions affect the society and that one can contribute to the society by taking certain action. It also corresponds to the aim of media literacy to educate people to "reflect systematically on the processes of reading and writing, to understand and to analyze their own experience as readers and writers" (Buckingham, 2003: 41, cited in Martens, 2010: 2). Noticeably, the new Thai ML components are very similar to those of Renee Hobbs' (2010) proposed in the Aspen Institute's Plan of Action.

It is also noteworthy to mention that the create component is often overlooked by the Thai scholars. Based on the UNESCO's definition, to create is not just about teaching how to operate the software and applications to produce media content, but also about using it creatively and responsibly in order to make a difference in the society, as well as to participate in the civic society as a citizen. It is also a way to turn Generation Y's strength in using technology and tools into a power to do something good for the public. Therefore, this paper suggests that create is always more or less included when it comes to media literacy.

Ethics and morals are also an essential issue to be included in the curriculum. Because Generation Y were born with the Internet, the act of copy and paste has become the convenience at their fingertips. Plagiarism and copyrights violation have long become the Thai habits. Therefore, it is crucial that the ML

curriculum reinforces the significance of the issues so that it can change the learners' behavior.

Digital Citizenship is another key content. The term is defined as the norms of appropriate, responsible behavior with regard to technology use, and is believed to be "the essential first step to being media literate in the 21st century". More importantly, teaching digital citizenship fits the media use profile of Generation Y as it addresses the use to technology in all aspects, overlapping all of the skills mentioned in media literacy. Ribble (2015) suggests the nine elements of digital citizenship as follow:

• Digital access - full electronic participation. It is the first step to equality in digital rights, which also corresponds to the first ML component of access.

• Digital commerce - users like Generation Y should understand that electronic buying and selling of goods can be both legitimate and illegitimate in different contexts and cultures. Knowing what is legal and what is not makes them effective consumers in the digital economy, particularly when the digital economy policy is being promoted in Thailand.

• Digital communication – the communication technology both hardware and software can be overwhelming for some people, and thus, knowing how to make decisions and judgment amongst these options is essential.

• Digital literacy – includes the process of teaching and learning about technology and its use in both school and workplace environment. Digital literacy also concerns how to learn in a digital society - to appropriately learning anything, anytime, anywhere. This perfectly fits the self-learning behavior of Generation Y.

• Digital etiquette – concerns electronic standards of conduct so that people are responsible users in the networking society.

• Digital law – rules and regulations on electronic actions and deeds to comply with. In Thailand, the digital law includes the Computer - Related Crime Act B.E. 2550, and the Electronic Transaction Act B.E.2544.

• Digital rights & responsibilities – these are the major issues in Thailand. Technology users need to understand their rights as well as to recognize other people's rights, and understand that these rights must come with responsibilities.

• Digital health & wellness – knowledge in physical illnesses from using technology, such as eye pain, the so-called office syndrome, and back pain; or psychological illnesses such as Internet addiction.

• Digital security (self-protection) – how to protect the privacy and personal information while being online or while using digital technology.

Learners, facilitators, pedagogy, and curriculum are interrelated and should operate together in parallel. Learners, Generation Y in this context, are the primary variable that influence and affect the way the other variables – facilitators, pedagogy, and curriculum – operate. The characteristics of Generation Y influence how and what they are taught, which consequently oblige the facilitators to change and adjust themselves to deliver the new teaching methods. Without one component, the learning schema becomes incomplete.

3.2.2. The Society component

The Society is the societal process that helps establish the ML environment, leading to the awareness and the practice of media literacy as a way of life. Through social learning, from parents at home, teachers at school, to the youth influencer in a community, learners are exposed to ML materials in every step of everyday life. And since the learners, Generation Y, receive ML knowledge through experience, piece by piece, the same way they receive information –from here and there, concise, short, but constantly all day long– the Society component responds well to Generation Y's behavior and characteristics. The function of the Society, hence, involves cooperation and collaboration between individual elements within: the Community, the Civic Sectors, the Media, and the Parents:

a) The community. The Community should be treated as an academic institution asset in the ML learning process, not merely a community outreach project. A community can serve as the classroom as the students engage in learning outside the school premises, passing their ML learning experience to the community leaders or the local wise men who are powerful influencers in the process. In this way, the ML body of knowledge from the academic world is disseminated beyond the formal education, encapsulating members of Generation Y who are not in the system as well as other age groups including the parents.

This process can only be achieved when teaching and learning change, and when the academia recognizes the power of the community. Subsequently, the Community component becomes dependent on the academic institutions, which is dependent on the governmental or institutional policy. Disseminating media literacy to the Community by other means, such as the initiatives from the civic sectors makes the Community depend on such sectors, as well.

Communities have always played an important part in the Thai society, particularly in the rural areas.

They can be one of the most effective channels to disseminate media literacy to those who are not in the formal education system and be the first unit to serve as a media literate society.

b) The civic sectors. The civic sectors refer to the non-profits organizations, private and independent agencies, as well as media professional organizations. They are the key players in mobilizing, promoting, and advocating media literacy in Thailand. Non-profits organizations such as the Child Media, Thai Public Health Foundation, and the Family Media Watch networks should continue their missions. The key is for these organizations to share their knowledge and experiences, so that they can learn from each other, and use the knowledge to conduct and initiate future projects more effectively and efficiently.

The civic sectors, together with the academia, should be proactive in lobbying for ML policy. They can also use the media channels to publicize their activities and initiatives, which can be made possible if the Policy provides incentive for the media that promote ML.

c) The media. The media need to take part in disseminating ML through their channels, be it traditional or digital platforms. Prints, the Internet and the social media should do just fine in advocating media literacy, while the television stations might have a conflict of interest issue with their sponsors as they educate people not to fall for advertising strategies. Alternatively, TV stations can focus on the Internet or the social media literacy, while the public television like ThaiPBS can function as the key leader to advocate ML on any platforms as its revenues do not come from advertising. In addition, the media can promote ML on any of their platforms, such as websites or social media page, which would reach Generation Y even better.

The question of how to convince the media to commit to ML depends largely on the Policy, either through law enforcement, regulations, or incentives, which will be elaborated further in the Policy.

d) Parents. Parents are the closest people who can provide ML education to their children. In order to accomplish this, parents need to first become media literate, which makes this component dependent on all other components to educate them. Although Generation Y can access the media in their privacy through smartphones, tablets, personal computers, or simply have a TV or a radio in their own room, the parents can still establish certain house rules to regulate and monitor them. For example, they can allocate the time that the entire family watch TV together, or limit the time spent on the Internet, games, or other entertainment media. Parents should also talk to their children regularly and monitor their media use behavior closely and regularly.

e) Policy. Policy is the most important component to the success of ML education, formal or informal. It can enforce or provide supports as well as ensure that media literacy derivatives happen systematically with the works of all stakeholders from all sectors in the Society. In this context, Policy can be both national (i.e., government policy) and institutional (i.e., school or university policy). A governmental policy can play a part in both formal and out-of-school education:

In formal education (through the Ministry of Education):

- Mandate ML curriculum, from kindergarten to university levels.
- Adjust certain rules and regulations to support ML teaching, such as designating the KPI that does not rely on the students' exam outcomes, or providing grants and funds related to ML research and training.

In out-of-school education (through the National Broadcasting and Telecommunication Commission):

- Provide incentives to encourage the promotion of media literacy, such as tax reduction for the media who contribute to ML promotion such as airing ML-related programming.
- Enforce ML as a part of media regulations; for example, designate the ratio of media literacy TV programming.

In addition to pushing ML in education and promotion through the media, the Policy can help guaran-

> The researcher believes that the Ecosystem of Media Literacy can help enhance media literacy education to be more effective in changing learners' behavior as well as to create a media literacy society. It also offers a new knowledge that is applicable to other developing countries.

tee accessibility to the media and information by providing the infrastructure and technology. According to the survey results conducted earlier as part of this research, Generation Y who have easy access to the Internet (connectivity to home/work network, WiFi, or 3G) have higher Create competencies than those who do not have such convenience (have to go to a computer lab or Internet café). The result indicated that access to the Internet provides more opportunity to practice the skills and more exposure to ML information, and hence, empowers users to experience and learn about the effects of online information, such as cybercrimes, on the first-hand basis. The Internet helps open the windows to the world of information as it responds to Generation Y's self-learning habit. Essentially, access is the fundamental factor to equal rights to information. However, it is also important for policymakers to realize that technology must always accompany with the knowledge on how to use it safely, wisely and responsibly. The Policy component could be achieved by using the UNESCO's MIL country readiness as a guideline. The followings are the Global Media and Information Literacy Assessment Framework: Country Readiness and Competencies; there are five key areas to indicate if the country is ready and competent to be a media literacy nation (UNESCO, 2013: 51-53):

- Governmental aspect: Media literacy is a mandatory subject in the curriculum and teacher training curriculum.
- There must be a national ML policy to ensure systematic ML derivatives and initiatives.
- There must be supply mechanisms to guarantee access of media and information to the population.
- Academia and individuals aspect: The availability and quality of services must be distributed to the entire population.
- Public and private sectors aspect: There must be non-governmental organizations and entities actively engaged in the advocacy and promotion of media literacy.

Meanwhile, Policy at the academic level involves schools and academic institutions recognizing the importance of media literacy and providing necessary supports. It is crucial supporting teaching and integrating ML in the institution's curriculum, particularly when there is no ML policy from the government. The institutional policy can determine regulations that promote and support the teaching of media literacy; for example, establishing ML as one of the KPIs, offering incentives to teachers who participate in ML training, or providing funds and grants for media literacy research or textbook translations and writing. Institutional policy can also help provide resources such as books and textbooks. The challenge lies on how to convince the school or university board that media literacy is essential to students in living in the 21st century that it should be taught in school.

The ML Learning Schema, the Society, and the Policy components are highly interdependent, with Policy serving as the main component that supports all others. Although they can occur independently from the Learning Schema and its components, the Society components are vital for the ML Learning Schema to be complete and accomplish its goal of being a way of life.

As an expert stated, media literacy is so sophisticated and multidimensional that it needs to be mobilized and requires efforts from many sectors. And because the formal education alone may not be able to lead to behavioral change, the out-of-school education in the surrounding environment becomes a necessity to complement the formal learning. With all components operating together as an ecosystem, it is possible for media literacy to become a way of life.

4. Discussion and conclusion

In Thailand, there have been a plenty attempts by media literacy advocates from various civic sectors during the past decade. Unfortunately, for a developing country, it seems that the policymakers are giving priorities to other important issues such as economics, while the politics in the country is very volatile and is currently in the verge of drafting a new constitution. The Ecosystem of Media Literacy involves multiple stakeholders to accomplish the goal of creating the media literacy environment with the Policy component as the most crucial unit that can secure such a national collaboration. With such obstacles, the top-down initiatives seems unlikely in the near future.

The prospect of media literacy, therefore, relies heavily on the Civic sectors, reflecting the notion that media education must be initiated by the people, not the authorities (Pungente, n.d.). However, although several civic sectors, both private and non-profit organizations, are already working vigorously to disseminate ML knowledge, they also need to collaborate with one another and learn through knowledge sharing to improve the ML projects. Convincing policymakers to get an ML policy should not be ruled out. In lobbying for a policy, it is essential that the ML advocates understand the language of policymakers, presenting practical solutions rather than lengthy scholarly reports. They need to clearly explain the potential of ML as a way to empower people to be active citizens

and participate in civil society (S. Gabai, personal communication, 2015-03-20). Scholars also suggest media literacy for the new media reform plan (Preetiprasong, 2008; Thai Journalists Association, 2015; Benjarongkij, 2011), as a recent study found Thai youths and adolescents lack media literacy skills (Thai Netizen Network, 2015).

The findings of this study, the ecosystem of media literacy, and the ML competencies for Thailand, address the concerns and practicality of ML education dissemination and provide a holistic approach to systematically implement media literacy education for policymakers. In addition, despite being conceptualized for the Thai context, the Ecosystem of Media Literacy can be applicable to different target groups and contexts with minor adaptations in the content of some components within the Learning Schema, while the relationship between each component in the ecosystem remains intact.

However, the implementation of the model is yet to be further examined, for example, through a pilot experiment, to test if the model works. Also, the details of each component within the ecosystem of media Literacy are yet to be elaborated and studied, particularly in the Learning Schema, where curriculum design and teaching and learning strategies are involved, resulting in further investigation with the learners' perspective.

The researcher believes that the Ecosystem of Media Literacy can help enhance media literacy education to be more effective in changing learners' behavior as well as to create a media literacy society. It also offers new knowledge that is applicable to other developing countries.

Notes

[1] List of experts in the interviews: Dr. Porntip Yenjabok, Assistant Professor. Deputy Director of Kasetsart University Research and Development Institute Bangkhen Campus; Khemporn Wirunrapan, Director of Child Media Institute, Thai Health Promotion Foundation; Assoc. Prof. Suriyadeo Trepati, M.D. Director of the National Institute for Child and Family Development; Anothai Udomsilp, Director of Academic Institute, Thai Public Broadcasting Service (ThaiPBS); Dr. Warat Karuchit, Assistant Professor. Lecturer and Assistant to the President of the National Institute of Development Administration; Dr. Art Silverblatt, Professor, Webster University, USA; Sara Gabai, International Consultant of the Graduate Program in Communication Arts for ASEAN and lecturer at Sukhothai Thammathirat Open University.

References

Beekman, T. (2011). Fill In The Generation Gap. *Strategic Finance*, 93(3): 15. doi: http://dx.doi.org/10.1177/1523422312455612

Benjarongkij, Y. (2011). Summary of Findings and Suggestions for Thai Media Reform. *Journal of Public Relations and Advertising* 4(1). (http://goo.gl/AL6PtX) (2016-05-14).

Cyberwise1 (2011, June 26). *What is Digital Citizenship?* (https://goo.gl/JGsFf2) (2015-02-03).

European Commission (2007). *Study on the Current Trends and Approaches to Media Literacy in Europe*. (http://goo.gl/yfHovY) (2016-05-18).

Hobbs, R. (2010). *Digital and Media Literacy: A Plan of Action*. Washington, DC: The Aspen Institute. (http://goo.gl/nQzdxy) (2015-08-19).

Lim, S.S., & Nekmat, E. (2009). Media Education in Singapore – New Media, New Literacies? In C.K. Cheung (Ed.), *Media Education in Asia* (pp.185-197). Dordrecht: Springer.

Main, D. (2013). *Who are the Millennials*. (http://goo.gl/kWDDxw) (2015-02-25).

Martens, H. (2010). Evaluating Media Literacy Education: Concepts, Theories and Future Directions. *Journal of Media Literacy Education*, 2(1), 1-22.

Moeller, S., Joseph, A., Lau, J., & Carbo, T. (2011). *Towards Media and Information Literacy Indicators*. (http://goo.gl/bKjtkL) (2015-08-20).

The Office of Communications (2013). *Media Literacy: Information about Ofcom's Media Literacy Activities*. (http://goo.gl/tmxx9j) (2015-05-21).

Potter, W.J. (2008). *Media Literacy*. Los Angeles: Sage.

Preetiprasong, I. (2008). *National Strategies for the Development of Safe and Creative Media for Thai Children*. (http://goo.gl/9q5hOv) (2016-05-14).

Pungente, J. (n.d.). *Criteria for a Successful Media Education Program*. U.S.: Center for Media Literacy. (http://goo.gl/zNhiqP) (2015-06-10).

Ribble, M. (2015). *Nine Themes of Digital Citizenship*. (http://goo.gl/19tp) (2016-05-21).

Sakamoto, A., & Suzuki, K. (2007). Media Literacy: The Development of the New Communication Skill. In Uchida & Sakamoto, (Eds.), *Communication Abilities to Survive the Risk Society*. Tokyo: Kaneko Shobo (pp.111-132). (http://goo.gl/UjxxDC) (2016-05-15).

Stein, J., & Sanburn, J. (2013). The New Greatest Generation. *Time*, 181(19), 26.

Thai Journalists Association (2015). *Media Reform*. (http://goo.gl/SG3fcx) (2016-05-14).

Thai Netizen Network (2014). *Thai Kids Lacks Online Media Literacy*. (http://goo.gl/OcklOw) (2016-05-14).

Thoman, E., & Jolls, T. (2005). *Literacy for the 21st Century: An Overview and Orientation Guide to Media Literacy Education*. (http://goo.gl/dPTdiB) (2015-01-29).

UNESCO (2013). *Global Media and Information Literacy Assessment Framework: Country Readiness and Competencies*. (http://goo.gl/FJoWiu) (2015-04-04).

Zacchetti, M. (2007). Media Literacy: A European Approach. *Medien Impulse*, 61. (http://goo.gl/tJmlbO) (2015-10-20).

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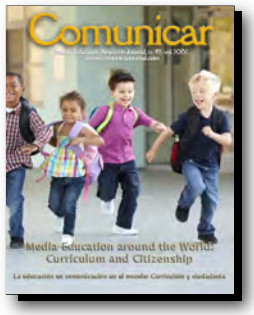

Media Literacy in Brazil: Experiences and Models in Non-formal Education

Alfabetización mediática en Brasil: experiencias y modelos en educación no formal

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ABSTRACT

This article analyses the status of media literacy in Brazil from the perspective of non-formal education. It quantifies the situation through a sample of projects (N=240) and organizations (N=107) that develop media literacy activities according to the internationally recognized three dimensions of media education (access/use, critical understanding, and media content production). These projects are aimed at different communities of citizens according to various levels of segmentation (age, location, social status, social groups, and professional fields). The analysis shows the preponderance of activities geared to the production of audiovisual content (65.4%) and to expanding the rights and communicative capabilities of certain communities, generally excluded from the traditional mass media (45.8%). Moreover, the majority of institutions have projects with a medium and high potential of empowerment (77.6%). Based on the literature review and the analysis conducted, the research presents a model that can be used for studying media education projects in the field of non-formal education. Thus, this article offers an initial look at non-formal media literacy in a country that, due to its size and large social differences, should take advantage of the complementarities that non-formal education provides to formal education and its curriculum, regarding the development of media education and empowerment of citizens.

RESUMEN

Este artículo analiza el estado actual de la alfabetización mediática existente en Brasil desde la perspectiva de la educación no formal. Cuantifica la situación mediante una muestra de proyectos (N=240) y de organizaciones (N=107) que desarrollan actividades conforme a las tres principales dimensiones de la educación mediática reconocidas internacionalmente (acceso/uso, comprensión crítica, y producción de contenidos mediáticos), y que están orientadas a diferentes comunidades de ciudadanos de acuerdo a diversos niveles de segmentación (edad, lugar, situación social, grupos sociales, y campos profesionales de aplicación). El análisis realizado muestra la preponderancia de actividades de producción de contenidos audiovisuales (65,4%) y de ampliación de derechos y capacidades comunicativas de ciertas comunidades de personas generalmente excluidas de los medios de comunicación tradicionales (45,8%). Además, la mayoría de las organizaciones trabajan con propuestas con un potencial medio y alto de empoderamiento (77,6%). Asimismo, y basándose en la literatura y el diagnóstico realizado, se propone un modelo con el que estudiar los proyectos de educación mediática desarrollados en el ámbito de la educación no formal. De este modo, la investigación presenta una primera imagen de la alfabetización mediática de carácter no formal existente en un país que, por sus dimensiones y grandes diferencias sociales, tiene que saber aprovechar las complementariedades que la educación no formal ofrece a la educación formal y al currículum educativo, respecto a desarrollar educación mediática y empoderar a la ciudadanía.

KEYWORDS | PALABRAS CLAVE

Media literacy, participatory communication, citizenship, media education, non-formal education, social inclusion, civil society.
Alfabetización mediática, comunicación participativa, ciudadanía, educación mediática, educación no formal, inclusión social, sociedad civil.

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1. Introduction

Concern regarding the need of establishing public policies related to media education is unanimous around the world. The United Nations Educational, Scientific and Cultural Organization (UNESCO) carried out several projects over the last decade, like "Media Education. A Kit for Teachers, Students, Parents and Professionals" (Frau-Meigs, 2006) and "Media and Information Literacy. Curriculum for Teachers" (Wilson, Grizzle, Tuazon, Akyempong, & Cheung, 2011). It is also important to emphasize the broad global mapping performed by UNESCO a few years ago, which analysed policies, views, programs, and goals regarding media literacy at a global level (Frau-Meigs &Torrent, 2009). Today, there are several countries, mainly in the Northern hemisphere, which not only include disciplines linked to media education in their mandatory curriculums, but also implement agencies and public councils to assist with this issue[1].

In Latin America, however, initiatives regarding media literacy have taken another direction, more frequently being connected to non-formal education, popular education, and civil society, as has been pointed out by several specialists (Fantin, 2011; Girardello & Orofino, 2012; Soares, 2014). After they began in the sixties, with critical readings of cinema, they turned to the critical reading of media, during the military dictatorship, in 1970-1980, and were complemented by people movements for alternative communication and Christian or Catholic movements (Aguaded, 1995; Fantin, 2011).

When analysing Brazil from a concrete perspective, isolated initiatives carried out in the scope of formal education should be mentioned: 1) since 2004 a law from the city of São Paulo included activities linked to media education in schools; 2) as to the Brazilian Education Department, the programs "Mais Educação" (More Education) and "Mídias na Escola" (Media at School) work with media education[2]. In 2015, this Department has put into public debate the minimum bases of the curriculum for basic education in which, according to an analysis by Soares (2015), there are several curricular components related to media education, although how they would be included in school activities is not explained.

In non-formal education, however, the situation is totally different. Since the nineties, these projects for media education have been growing in Brazil, whether focusing on training critical reading or designing alternative contents to traditional media. It is important to emphasize the use of a concept of education put forward by authors such as Paulo Freire and Mario Kaplún, in which communication and education are not only seen as intimately connected, but also as having a liberating purpose.

Thus, this research has the goal of characterizing non-formal media literacy projects developed in Brazil by the civil society: non-governmental organisations (NGOs), public interest civil society organisations (PICSO), and foundations, among others. The research covers cultural empowerment (Kellner & Share, 2005), media citizenship and autonomy (Gozálvez & Aguaded, 2012), from a perspective in which citizens would be active subjects in processes of communication so as to exercise the rights expressed in the Universal Declaration of Human Rights (O'Neill & Barnes, 2008).

The strong and historical connection between media education and empowerment is clear since the "Grunwald Declaration on Media Education" (UNESCO, 1982), also appearing in the "New Directions in Media Education" of Toulouse, which explicitly connects both areas (Thoman, 1990). Indeed, it is difficult to think of media education "unless it has a civic purpose, that is, it must be endowed with an ethical, social and democratic base that empowers citizens in their dealings with the media" (Gozálvez & Contreras-Pulido, 2014: 130).

The analysis also establishes links between the many types of complementarities: 1) Media education and media literacy (Buckingham, 2003); 2) Main dimensions of media literacy proposed by Buckingham (2005) and Ofcom[3]: access and use, critical comprehension, and production of communicational contents; 3) Production of media contents which are socially relevant and filled with critical comprehension about the media; 4) Community, democratic, and participatory communication developed by the civil society and the NGOs (Peruzzo, 2008, 2009); 5) New information and communications technologies (ICT) and their importance in poor areas (González, 2007).

This article proposes the following descriptive research question: "Which are the most important dimensions associated to non-formal media education in Brazil?". The following work hypotheses are considered, related to media literacy projects developed by NGOs in Brazil:

- H1: The projects mainly focus on production of contents.
- H2: When the initiatives focus on ICT, they are usually not linked to other communicational aspects.
- H3: The projects are concerned with the empowerment of citizens and the roles of the actors involved in communication processes.
- H4: The initiatives are connected to community

communication, with a tendency of offering permanent communication media as a result.

2. Material and methods

Considering the research goals, the first task (January-May, 2015) was to identify media education projects carried out in Brazil by civil non-profit organisations and outside the school environment. After a direct research through the records of several Brazilian congresses about communication, education, and citizenship, parameters were established regarding aspects such as training, education and communication, media, and ICT. Thus, all initiatives that focused exclusively on the use and maintenance of computers were excluded. 129 NGOs and civil institutions that worked with media education were found, and were then catalogued in a database that identified their characteristics by researching their websites and social networks. The location, starting date, goals, and the role played by communication and education were observed, as well as if the entity focused exclusively on media education activities.

Then came the second level of analysis (June-October, 2015), after the classification of 302 media literacy projects according to categories established from a bibliographic review on the subject:

- Dimensions: access/use, critical comprehension, and content production.
- Actors: receivers, professionals, associates, and sponsors.
- Communication media: print (newspapers, magazines, newsletters, and others); audiovisual (cinema, video, TV, radio/audio, photography, and others); ICT (Internet, web design, apps, and others); digital media (websites, blogs, social networks, mobile media, and others); monitoring and follow-up of communication media (monitoring of themes related to the NGOs, production of alternative guidelines and news, training of journalists, and others).
- Digital technologies: level of importance of the ICT and emphasis on digital inclusion.
- Community communication: as a permanent vehicle and actors involved.
- Empowering: explicitly connected to media education, defense of rights, and role of citizens.

The third level of analysis was quantitative, which contrasted the quantitative information that was found and was performed following these procedures: i) codification of goals according to the keywords of the projects; and ii) elimination of 22 organisations that had little to do with the research or were not working with media education anymore.

Finally, questionnaires (and reminders) were sent (October-December, 2015) to the entities requesting that they confirm their descriptive data and asking for their opinion regarding certain aspects of the research such as the importance of digital inclusion or about empowerment of citizens. This information was obtained with multi-answer, open questions. 22 organisations answered within the delimited period. After cross checking the information following to the established parameters, 240 carried out by 107 organisations were identified and validated.

> It is not enough to promote public policies for media or digital literacy, which many times result in simply installing technological tools: it is necessary to transfer the philosophy of non-formal media education projects to all scopes, which means to say that the empowerment of subjects in communication processes must be considered to be intrinsic to media education.

3. Results

3.1. Basic characteristics

The 107 non-governmental organisations studied here are spread throughout the more than 8.5 million square kilometers that compose Brazil, a Latin American country with more than 200 million inhabitants. Materially, 63 (58.9%) are entities from the Southeast region, the most developed one, while 27 (25.2%) are from the Northeast, the poorest region. The others are spread across different states. As to their time of activity, a small number began their activities before 1990 (15%); most of them began in the nineties (31.8%) and in the 21st century (53.2%).

Clearly, there are two great blocks of media education activities developed by NGOs in Brazil. On the one hand, 43 organisations (40.2% of the total) have com-

munication as their main goal and their objectives are to give voice to recipients and to democratise the use of communication. They work with a public that is usually excluded not only from traditional media, but also from communicational processes of content production (homeless people, socially excluded people, inhabitants from poor communities or slums, etc.). On the other hand, 64 organisations (59.8%) are focused on the dissemination of social issues and the claim of rights (human, childhood, women's, or black people's rights), promoting these themes which are invisible in the media not only through propositions for alternative communication, but also with the training of journalists and the production of alternative guidelines for the media.

Thus, 22 projects (9.2%) have journalists and communication professionals as their recipients, focusing on educating them on the themes mentioned above, or observing the media regarding these issues. Half the projects (120) focus on childhood and youth, an aspect that must be emphasized, while only 4 projects focus on the elderly. It is also important to mention that 41 projects (17.1%) are connected to formal education, since they focus on teachers and students, mainly from public schools. As to the other actors, there is the support of certain foundations associated to big companies (for example, to the telecommunication company "Oi"; to the construction company "Camargo Correa"; to the state energy company "Petrobras"; or to the bank "Itaú"). There is also collaboration between NGOs and public institutions, resulting in a network of difficult connections that cannot be described in a simple manner.

3.2. Dimensions of media literacy

The main dimension observed in the 240 projects analysed here is content production: there are 157 workshops and courses (65.4%) inside this dimension, mixed or not with the other ones. We observed 120 initiatives related to critical comprehension, and 91 to the access and use of communication media, also combining more than one dimension. In this sense, it should also be mentioned that 70 projects are connected to critical comprehension and production content, among which 22 also focus on access and use of communication media. The predominance of content production can also be observed if we consider there are 71 projects focusing exclusively on production, while 33 initiatives focus solely on access and use, and 30 on critical comprehension. This confirms Hypothesis 1 proposed by this study.

It is important to emphasize that simple content production does not always result in empowerment for citizens, since it is possible for an activity to simply reproduce something that already exists in the media. Thus, for the development of communicational abilities it is essential that they be connected to critical comprehension.

As to the means or processes of communication emphasized by the 240 activities analysed here, most of them (99) are connected to audiovisual media (TV, video, radio, audio, and photography), while 41 emphasize digital media (web pages, blogs, social networks, etc.) and 37 use printed media. It should also be noted that 22 initiatives do not work with any real communication media, since they are more concerned with communicational processes and encouraging critical thinking.

From all the projects, only 61 talk about ICT explicitly (29 as the main focus and 32 by complementing them with other communication media). It is necessary to clarify, however, that in most initiatives the ICT are seen as auxiliary, since information and communications technologies are obviously used for the production and publishing of contents. As to the connections between this aspect and the dimensions associated to media literacy, the data show that the projects that use the ICT usually work with access and use: 40 focus on this dimension (17 exclusively, and the rest mixing it with other dimensions). This confirms the Hypothesis 2 of this study.

As to the 99 initiatives that focus on audiovisual media, 70 consider activities of production of contents and messages. Besides that, 46 of them target the youth, which shows that most of the initiatives analysed here combine audiovisual media, content production, and youth participation. However, it is interesting to note that cinema is kept alive in many of the initiatives: 33 of the 240 projects emphasize this medium by bringing it to poor communities and neighborhoods through cineclubs and public movie sessions.

In order to analyse the factors related to the empowerment of citizens, the proposals of the 107 NGOs were catalogued and classified into four great groups according to their objectives: 1) To democratise access to any of these aspects: communication, education, culture, and technologies; 2) To work for social change, changes in society, and social inclusion; 3) To help with the recipients' social-economic insertion; and iv) to guarantee and fight for human rights, citizenship, and the rights of peoples in situations of risk of social exclusion.

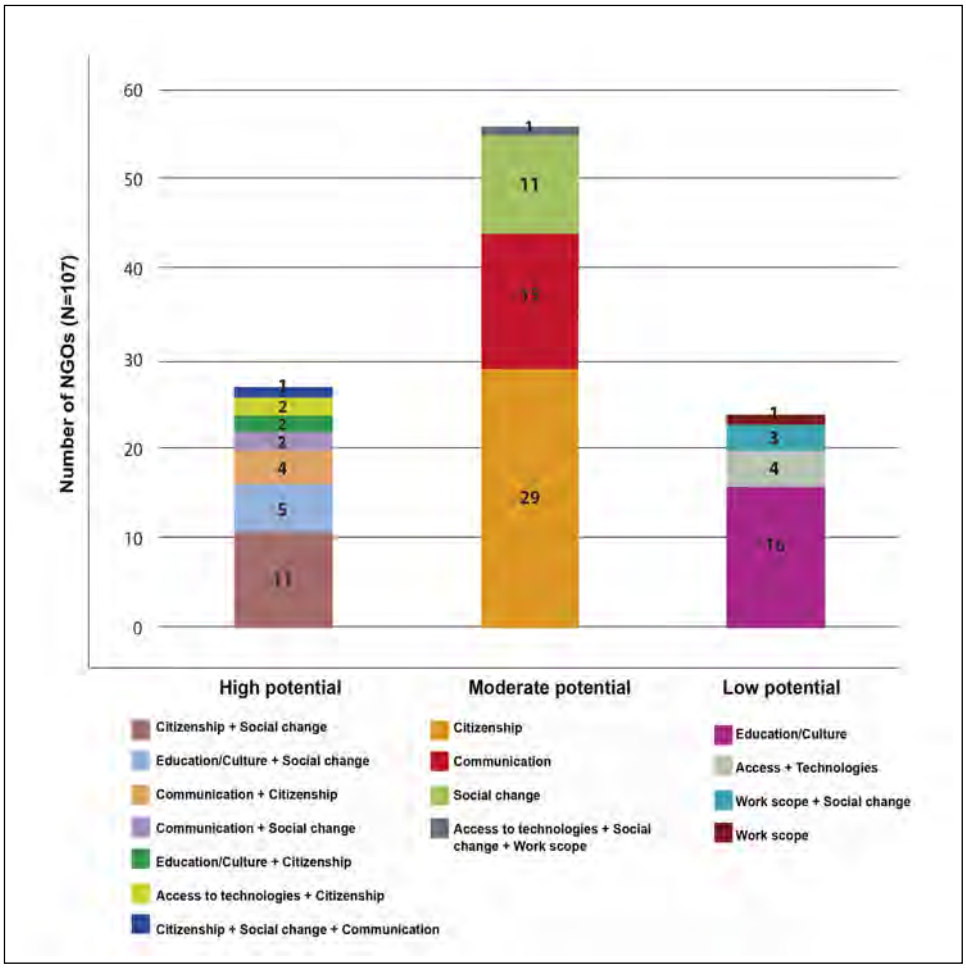
Even though all the objectives are related to some type of citizen empowerment, it is the proposal (or combination of proposals) performed by the NGO

that dictates if its media education activities are more or less effective in the task of empowering citizens as to their active part in communication. Thus, three great tendencies can be traced about the potential of the NGOs according to different, but complementary, goals. Graph 1 shows that 27 (25.2%) of the NGOs combine goals belonging to more than one group and work with objectives that are very meaningful for the empowerment of citizens through media education.

According to the analysis, 56 organisations (52.4%) focus solely on some goals which, even though they are important for exercising citizenship, do not seem to guarantee empowerment through media literacy, since they focus on goals in an exclusive manner, not a combined one. These institutions would have a moderate level of empowerment potential. Finally, the 24 remaining NGOs (22.4%) could be classified as institutions with a low level of empowerment through media education, because they work with more scattered objectives. It is necessary to emphasize, however, that this scenario of empowerment through media education is an observed tendency, and it would be necessary to study each case in particular to confirm it definitely. Still, it should be emphasized that practically half the projects –materially, 110 (45.8%) – have some type of connection with social groups at risk of social exclusion. This confirms the Hypothesis 3 of this study.

Figure 1 shows the synthetic and uniform distribution (Bastian, Heymann, & Jacomy, 2009) of the main interrelations between the non-formal media education projects analyzed in this project: the dimensions of media literacy, the recipients, and the different media used. The proximity between production activities aimed at young people and the connection between critical comprehension and audiovisual are clearly observable, as is the relationship between the dimension of access and use and the media associated with ICT. On the other hand, it was detected that digital media has not reached the impact one would imagine.

If we examine the projects in detail, one important aspect that should be considered is their connection to permanent community communication vehicles. The current scenario shows that this scope is still under developed, indicating a tendency correspondent to Hypothesis 4. From the 240 media education projects



Graph 1. Potential for empowering citizens related to the objectives for media education in Brazilian NGOs.

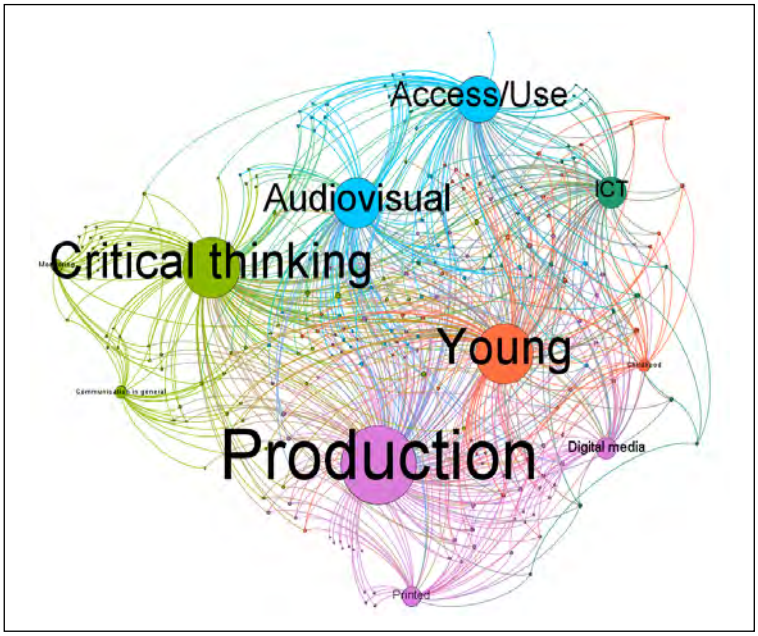


Figure 1. Network of interrelations and proximity between the main dimensions of media literacy, recipients and communication media in non-formal media education activities in Brazil.

present in this study, only 52 (21.7%) are associated to the production of some type of community communication somewhat permanently: 15 are initiatives that produce television programs (aired on university or community channels) or videos; 14 are printed media (newspapers, magazines, and newsletters); 12 are radiophonic media; and 11 are online or digital platforms (blogs, web pages, etc.). The audiovisual media are predominant, but it is surprising that digital platforms and media are still used so little, which means that technologies are much more used as production tools than as channels to air contents.

4. Discussion and conclusions

4.1. Situation

Faced with the high number of media literacy projects that make up the sample, which in future studies has to be extended to other Latin American countries, it can be said that media education carried out by the Brazilian civil society is mainly focused on the content production and that it has gained increasing importance over the last decades. In general terms, this study confirmed that the projects developed in non-formal educational environments contribute to the development of the rights and freedoms of citizens with regard to access to information, freedom of expression, and the right to education, as established by UNESCO (2013).

Most of the cases studied here give voice to certain communities of people who are usually excluded from traditional mass media. This is particularly important when we consider the sociocultural context of Latin America, where people have almost always been unable to speak, and had to settle for a culture of silence (Freire, 1967, 1979). It is no coincidence, therefore, that the production of contents and messages be the dimensions that were more emphasized by the media literacy projects analysed in this study.

The emphasis on audiovisual indicated by the data is consistent with the context of contemporary society, in which it is possible to notice a fascination with audiovisual language, which creates an almost hypnotic power (Martin-Barbero, 2003: 47). Image ultimately prevails over other types of speech because it is "the main substrate of the rhetoric of the media of mass communication" (Rabadan, 2015: 33). Interestingly, cinema can still be found in several projects studied here. We cannot forget that film literacy is a deep-rooted tradition in many countries, mainly in Europe, and identified as vital by experts of contemporary media education, since "mastery of the language of the moving image becomes more, not less, important in an era of widespread access to digital technologies" (Reia-Baptista, Burn, Reid, & Cannon, 2014: 356).

The instrumental relationship of many NGOs with communication, pointed out by the research, confirms the aspects mentioned by Kaplún, who stated that "for the base movement, communication is not an end in itself, but a necessary tool for the organisation´s service and for popular education" (1983: 41).

The empowerment of citizens proposed by the projects analysed in this study exemplifies the idea that Rivoltella (2005) put forward on the relationship between media education and citizenship and that, for him, becomes a dual exercise of citizenship: belonging and instrumental. In this sense, media education would call the attention of the civil society and political powers to the values associated with citizenship and also contribute to its construction. The media autonomy achieved by the subjects involved should also be

mentioned briefly (Gozálvez & Aguaded, 2012: 3).

On the other hand, the projects that work with digital inclusion are geared towards professional training and the acquisition of useful skills for the work environment, with no major concerns regarding media citizenship. Usually, technology is seen outside the scope of culture and seen only through its instrumental dimension (Martín-Barbero, 2003). However, this does not make it impossible to establish and require more connections between media and information literacy and its advantages for enterprises (Martínez-Cerdá & Torrent-Sellens, 2014), or in the scope of targeted actions, including to inmates (Neira Cruz, 2016).

Finally, it can be said that media education, mainly carried out by non-governmental organizations, can be a key tool for community development, since the creation of their own communication media can enhance and take advantage of the direct participation of citizens in the public sphere (Peruzzo, 1999). In fact, in countries like Argentina and Ecuador, one third of the electric radio spectrum is reserved to community media, which can be "a crucial tool for exerting social pressure on the traditional media powers and for empowering citizens and ensuring their active involvement in the public arena" (Cerbino & Belotti, 2016: 50).

The priority given to children and young people as recipients, and to content production, is observed internationally. In the United States, media literacy activities for young people also include aspects of participation, exercising citizenship, and prioritise the production of audiovisual media (Hobbs, Donnelly, Friesem & Moen, 2013; Martens & Hobbs, 2015).

4.2. Proposal for a model of description and analysis

The analysis shows that non-formal media education activities take into account interactions (learning), people (recipients), technologies (ICT and media) and places (rooms and community settings). And that is why it is important that they be regarded as integral work marks like the ones provided by social-technical systems (Leavitt, 1965), based on people (personal situations, etc.), structures (organisations, availability, etc.), tasks (use, communication, skills, etc.), and technologies (digital devices, social networks, etc.). Thus, this research also proposes a system model to describe and analyse media education projects in the field of non-formal education.

According to this model (figure 2), civil society's media education initiatives are more complete and effective when they cover more dimensions (quantitative scope) and focus on content production that empowers citizens (qualitative scope). The model is based on the image of a trapezoid, which can act as a megaphone to a citizen located at its lower base. It is designed from a range of models of indicators and media literacy skills that must be acquired by citizens. Specifically, it is based on three integrator studies which indicate the main levels to be developed (Ferrés, 2006; Celot & Pérez-Tornero, 2009; Pérez-Rodríguez & Delgado-Ponce, 2012). The proposed model allows one to view the amplifier potential that media education gives to people, and takes into account a description and analysis of the projects from the perspective of non-formal education, from the parameters set by their goals, characteristics and dimensions:

Dimension 1: Access and use:

- Enables access to products, means and forms of communication.
- Helps with the use of basic tools or with the instrumental management of technologies and media.

Dimension 2: Analysis, assessment and critical comprehension:

- Deciphers communicational languages and their construction.
- Analyses and offers tools for studying and comprehending contents, production processes and the functioning of media and their ideological implications.
- Analyses and monitors hegemonic communicational contents, enabling the generation of alternative messages.

Dimension 3: Creation of content:

- Offers the necessary knowledge for understanding communication processes and creation of contents, messages and contributions for mass media communication, through contents generated by users.
- Creates mechanisms that enable the recipients to create channels for permanently generating contents (community media).

Besides showing the characteristics of the activities, the proposed design also shows possible examples in each level. The intention is to offer a tool with which it would be possible to have a holistic understanding of the media education activities, going beyond a proposal based on indicators used to assess a possible ranking of projects. It should be emphasized that usually a project does not perform activities in all and each one of the levels proposed in the model, since NGOs develop complementary projects among themselves. In some cases, inferior levels are omitted because the recipients already have basic knowledge of how to use technologies and media.

From the proposed model, we observe that the final goal of media education activities developed by

the civil society could be the creation of permanent channels for community communication, with which the effective participation of citizens in social and communicational processes could be ensured.

4.3. Conclusions

In general, the scenario of media education in Latin America and in Brazil is very different from what is observed in Europe and North America. The initiatives from the North hemisphere are almost always linked to formal education, with activities that target students. While this can be found occasionally in Brazil, the great number of projects developed by NGOs seems to fill the gaps that exist in this type of public policy. From this perspective, the ideal situation for media education is to unify and seeks complementarities between formal public policies and initiatives developed in non-formal education, all of this in a context with great social differences.

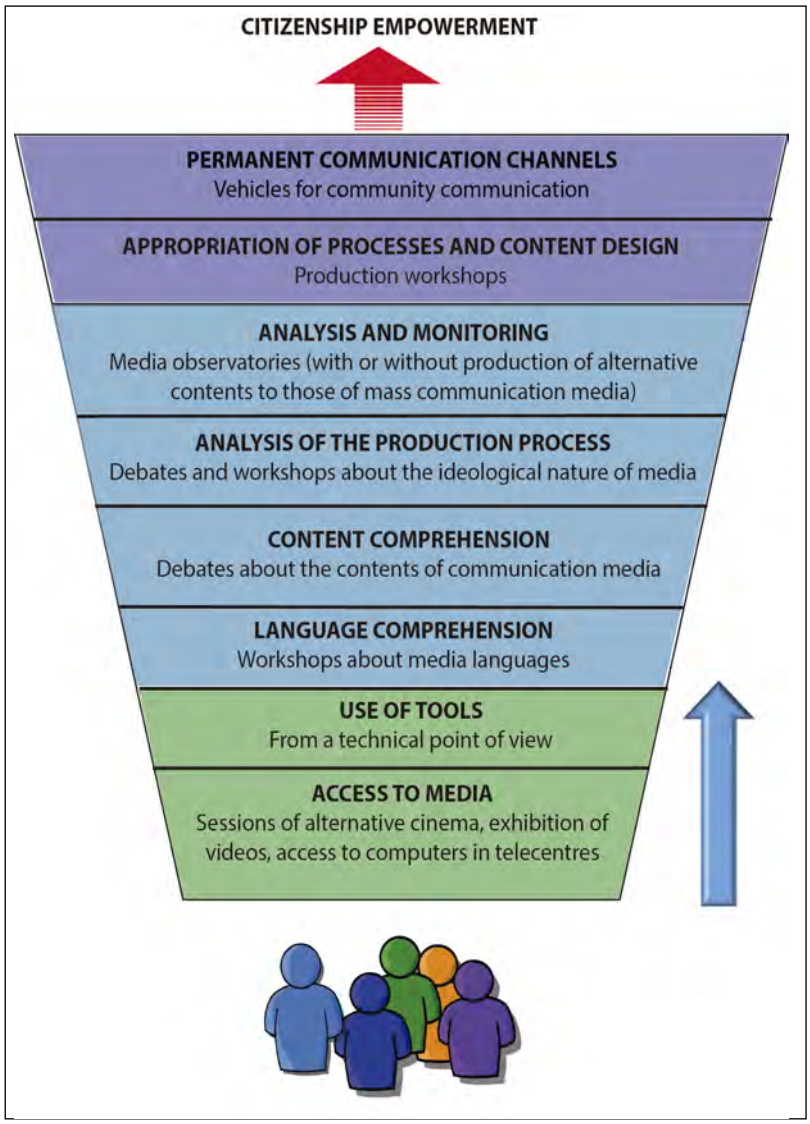


Figure 2. Model for the description and analysis of non-formal media education activities.

Non-formal media education activities enable a higher development of certain social settings which are distant from formal education, like the empowerment of citizens throughout life, community development, and media citizenship and autonomy in a global society that is immersed in a communicative environment in which citizens need to act critically and creatively towards traditional and hegemonic media.

Non-formal media education actions also help to complement projects for professional capacitation with the goal of social-economic integration of recipients, as well as establishing a defense of their rights and capacitation, with the adoption of abilities and useful skills to develop themselves as citizens and rightful workers.

Now that the introduction of media education to the official curriculum of countries like Brazil is put in debate, with investments in corresponding public policies, it is necessary to think about the experiences that have existed for several decades outside formal education settings, with the goal of taking advantage of their benefits.

Indeed, it is not enough to promote public policies for media or digital literacy, which many times result in simply installing technological tools: it is necessary to transfer the philosophy of non-formal media education projects to all scopes, which means to say that the empowerment of subjects in communication processes must be considered to be intrinsic to media education.

Notes

[1] For example: "Centre de Liaison de l'Enseignement et des Médias d'Information" (CLEMI), in France; "Conseil Supérieur de l'Educa-

tion aux Medias", in Belgium; "Department for Media Education and Audiovisual Media" (MEKU), in Finland; and "Mediawijzer", in the Netherlands.

[2] Details can be seen on: http://goo.gl/KNDFlh (2016-05-21).

[3] Ofcom is a regulating agency that is independent from the communication industry in the UK. Among other tasks, it promotes and researches media literacy.

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References

Aguaded, I. (1995). La educación para la comunicación: la enseñanza de los medios en el ámbito hispanoamericano. In I. Aguaded & J. Cabero (Eds.), *Educación y medios de comunicación en el contexto iberoamericano. Seminario Internacional sobre Educación y medios de comunicación en el contexto Iberoamericano* (pp. 19-48). Huelva: Universidad Internacional de Andalucía, La Rábida. (https://goo.gl/UYM9rg) (2016-02-25).

Bastian, M., Heymann, S., & Jacomy, M. (2009). Gephi: An Open Source Software for Exploring and Manipulating Networks. In *Third International AAAI Conference on Weblogs and Social Media* (p. 9). San José, California: The AAAI Press. (http://goo.gl/OHlnj2) (2016-02-25).

Buckingham, D. (2003). *Media Education: Literacy, Learning and Contemporary Culture*. Cambridge: Polity Press. (http://goo.gl/ya2l32) (2016-05-25).

Buckingham, D. (2005). *The Media Literacy of Children and Young People: A Review of the Research Literature on behalf of OFCOM*. London: OFCOM. (http://goo.gl/aJkrnh) (2016-02-25).

Celot, P., & Pérez-Tornero, J.M. (2009). *Study on Assessment Criteria for Media Literacy Levels*. Brussels: European Association for Viewers' Interests (EAVI). (http://goo.gl/wpzZnl) (2016-02-25).

Cerbino, M., & Belotti, F. (2016). Medios comunitarios como ejercicio de ciudadanía comunicativa: experiencias desde Argentina y Ecuador [Community Media as Exercise of Communicative Citizenship: Experiences from Argentina and Ecuador]. *Comunicar*, 24(47), 49-56. doi: http://dx.doi.org/10.3916/C47-2016-05

Fantin, M. (2011). Mídia-educacão: aspectos históricos e teórico-metodológicos. *Olhar de Professor*, 14(1), 27-40. doi: http://dx.doi.org/10.5212/olharprofr.v.14i1.0002

Ferrés, J. (2006). La competencia en comunicación audiovisual: propuesta articulada de dimensiones e indicadores. *Quaderns del CAC*, 25, 9-17. (http://goo.gl/2tWKEb) (2016-02-25).

Frau-Meigs, D. (Ed.) (2006). *Media Education: A Kit for Teachers, Students, Parents and Professionals*. Paris: UNESCO. (http://goo.gl/S3zDWb) (2016-02-25).

Frau-Meigs, D., & Torrent, J. (Eds.). (2009). *Mapping Media Education Policies in the World: Visions, Programmes and Challenges. New York: United Nations. Alliance of Civilizations*. UNESCO. European Commission. Grupo Comunicar. (http://goo.gl/lkQ7xl) (2016-02-25).

Freire, P. (1967). *Educação como prática da liberdade*. Rio de Janeiro: Paz e Terra.

Freire, P. (1979). *Conscientização. Teoria e prática da libertação. Uma introdução ao pensamento de Paulo Freire*. São Paulo: Cortez & Morales.

Girardello, G.G., & Orofino, I. (2012). Crianças, cultura e participação: um olhar sobre a mídia-educação no Brasil. *Comunicação Mídia e Consumo*, 9(25), 73-90. (http://goo.gl/wVKMaa) (2016-02-25).

González, J. (2007). Cibercultur@ como estrategia de comunicación compleja desde la periferia. *Información e Comunicación*, 4, 31-48. (http://goo.gl/H3FNWa) (2016-02-25).

Gozálvez, V., & Aguaded, I. (2012). Educación para la autonomía en sociedades mediáticas. *Anàlisi*, (45), 1-14. (http://goo.gl/OATuUw) (2016-05-21).

Gozálvez, V., & Contreras-Pulido, P. (2014). Empoderar a la ciudadanía mediática desde la educomunicación [Empowering Media Citizenship through Educommunication]. *Comunicar*, 21(42), 129-136. doi: http://dx.doi.org/10.3916/C42-2014-12

Hobbs, R., Donnelly, K., Friesem, J., & Moen, M. (2013). Learning to Engage: How Positive Attitudes about the News, Media Literacy, and Video Production Contribute to Adolescent Civic Engagement. *Educational Media International*, 50(4), 231-246. doi: http://dx.doi.org/10.1080/09523987.2013.862364

Kaplún, M. (1983). La comunicación popular ¿alternativa válida? *Chasqui*, 7. (http://goo.gl/GWKi3o) (2016-05-21).

Kellner, D., & Share, J. (2005). Toward Critical Media Literacy: Core Concepts, Debates, Organizations, and Policy. *Discourse: Studies in the Cultural Politics of Education*, 26(3), 369-386. doi: http://dx.doi.org/10.1080/01596300500200169

Leavitt, H.J. (1965). Applied Organizational Change in Industry: Structural, Technological and Humanistic approaches. In J.G. March (Ed.), *Handbook of Organizations* (pp. 1.144-1.170). Chicago: Rand McNally.

Martens, H., & Hobbs, R. (2015). How Media Literacy Supports Civic Engagement in a Digital Age. *Atlantic Journal of Communication*, 23(2), 120-137. doi: http://dx.doi.org/10.1080/15456870.2014.961636

Martín-Barbero, J. (2003). *La educación desde la comunicación*. Bogotá: Norma. (https://goo.gl/c2LHS1) (2016-05-25).

Martínez-Cerdá, J.F., & Torrent-Sellens, J. (2014). Alfabetización mediática y co-innovación en la microempresa: primeras evidencias para España. *El Profesional de la Información*, 23(3), 288-299. doi: http://dx.doi.org/10.3145/epi.2014.may.09

Neira-Cruz, X.A. (2016). Alfabetización mediática e integración social de la población reclusa anciana. *Revista Latina de Comunicación Social*, 71, 197-210. doi: http://dx.doi.org/10.4185/RLCS-2016-1091

O'Neill, B., & Barnes, C. (2008). *Media Literacy and the Public Sphere: a Contextual Study for Public Media Literacy Promotion in Ireland* (Reports) (p. 121). Dublin: Centre for Social and Educational Research. Dublin Institute of Technology. (http://goo.gl/mdnHYl) (2016-02-25).

Pérez-Rodríguez, M.A., & Delgado-Ponce, Á. (2012). De la competencia digital y audiovisual a la competencia mediática: dimensiones e indicadores [From Digital and Audiovisual Competence to Media Competence: Dimensions and Indicators]. *Comunicar*, 39, 25-34. doi: http://dx.doi.org/10.3916/C39-2012-02-02

Peruzzo, C.M.K. (1999). Comunicação comunitária e educação para a cidadania. *Comunicação & Informação*, 2(2), 205-228. (https://goo.gl/g9wuDH) (2016-05-25).

Peruzzo, C.M.K. (2008). Conceitos de comunicação popular, alternativa e comunitária revisitados e as reelaborações no setor. *Palabra Clave*, 11(2), 367-379. (http://goo.gl/iPiz0Q) (2016-02-25).

Peruzzo, C.M.K. (2009). Movimentos sociais, cidadania e o direito à comunicação comunitária nas políticas públicas. *Fronteiras-Estudos Midiáticos*, 11(1), 33-43. doi: http://dx.doi.org/10.4013/fem.2009.111.04

Rabadán, Á.V. (2015). Media Literacy through Photography and

Participation. A Conceptual Approach. *Journal of New Approaches in Educational Research*, 4(1), 32-43. doi: http://dx.doi.org/10.7821/naer.2015.1.96

Reia-Baptista, V., Burn, A., Reid, M.A., & Cannon, M. (2014). Literacía cinematográfica: Reflexión sobre los modelos de educación cinematográfica en Europa. *Revista Latina de Comunicación Social*, 69, 6-14. doi: http://dx.doi.org/10.4185/RLCS-2014-1015

Rivoltella, P.C. (2005). *Media Education. Fondamenti didattici e prospettive di ricerca*. Brescia: La Scuola. (http://goo.gl/l2lbiC) (2016-05-25).

Soares, I.O. (2014). Educomunicação e Educação Midiática: vertentes históricas de aproximação entre comunicação e educação. *Comunicação & Educação*, 19(2), 15-26. (http://goo.gl/HVo5JW) (2016-02-25).

Soares, I.O. (2015). *Base Nacional Comum Curricular: Existe espaço para a Educomunicação e a Mídia-Educação no novo projeto do MEC?* São Paulo: ABPEducom. (https://goo.gl/kTyO4s) (2016-02-25).

Thoman, E. (1990). *New Directions in Media Education*. Toulouse: International Media Literacy Conference in Toulouse/-UNESCO. (http://goo.gl/r34UTQ) (2016-02-25).

UNESCO (1982). *Grunwald Declaration on Media Education. Grunwald: International Symposium on Media Education*. Paris: UNESCO. (http://goo.gl/sK9f5) (2016-02-25).

UNESCO (2013). *Global Media and Information Literacy Assessment Framework: Country Readiness and Competencies*. Paris: UNESCO. (http://goo.gl/WLqXHZ) (2016-02-25).

Wilson, C., Grizzle, A., Tuazon, R., Akyempong, K., & Cheung, C.K. (2011). *Media and Information Literacy Curriculum for Teachers*. Paris: UNESCO. (http://goo.gl/Bz9Ei8) (2016-02-25).

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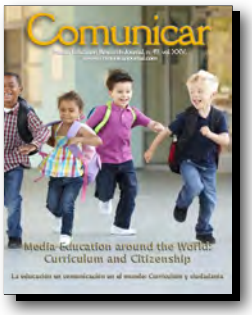

Media Competence of Teachers and Students of Compulsory Education in Spain

Competencia mediática del profesorado y del alumnado de educación obligatoria en España

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ABSTRACT
Faced with a society that uses the media from dawn until dusk, it is imperative to identify the relationship between users and media. Therefore, this quantitative research aims to determine media competence levels of teachers and students in compulsory education in six areas. Media competence offers a diagnosis of possible shortcomings and needs educational intervention in both groups. Primary education students have shown an intermediate level of media competence. Secondary education students are at a basic level of competence in all the areas, except for technology and media literacy, which are at an intermediate level of competence. Most teachers have a basic level of media competence in all areas. Despite having a curriculum that meets the needs of media literacy in compulsory education and the proliferation of policies supporting technology, this is the weakest area in participants. A critical revision of school curricula and a consensus in their design and development would facilitate students' shared training and minimize a possible exclusion in relation to media. Meanwhile an own curriculum and a training through a network of related professionals is the way to achieve higher levels of competence in both groups.

RESUMEN
Ante una sociedad en la que desde el amanecer se utilizan medios de comunicación, es necesario identificar las relaciones que se establecen con los mismos. Esta investigación de naturaleza cuantitativa pretende determinar los niveles de competencia mediática del profesorado y alumnado de educación obligatoria en las seis dimensiones que la integran. Estos niveles ofrecen un primer diagnóstico sobre posibles carencias y necesidades de intervención educativa. El alumnado de Educación Primaria demostró poseer unos niveles competenciales medios. El alumnado de Educación Secundaria, salvo para las dimensiones tecnología y estética, que se situaría en un nivel medio de competencia, en las restantes, el porcentaje mayoritario se sitúa en niveles básicos. La mayor parte del profesorado en todas las dimensiones de la competencia mediática se ubica en un nivel básico. A pesar de contar con un currículo escolar que responde a las necesidades de alfabetización mediática en la enseñanza obligatoria y proliferar políticas de apoyo a la tecnología, en la práctica la mayor debilidad de los participantes, sobre todo profesorado, se centra en el aspecto tecnológico. La revisión crítica de los currículos escolares y un consenso en el diseño y desarrollo de los mismos facilitarían una formación común del alumnado y alejarían el fantasma de una posible exclusión mediática. Mientras que un currículo propio y una formación mediante redes relacionales de profesionales son el camino para alcanzar mayores niveles competenciales en ambos colectivos.

KEYWORDS | PALABRAS CLAVE
Media competence, media literacy, students, primary education, secundary education, teachers, curriculum, training.
Competencia mediática, alfabetización mediática, alumnado, educación primaria, educación secundaria, profesorado, currículo, formación.

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1. Introduction

Access to the media has become an essential factor for national, political, economic, social and cultural development, as well as becoming a factor for change at all levels. According to Carlsson (2011), we are facing the dawn of a new media society defined by different patterns of communication, a different perception of space and time, a change in the concept of public and private, as well as a blurring of both frontiers, similar to what is happening between the real and the virtual.

The most traditional research into the media has focused on determining their influence on society and culture; the effects that advertising and media content have on their audiences; how the press influences political trends and the effect of videogames on children and teenagers, among other questions. However, everything needs to be redefined in a new context which has been defined as the mediatisation of the societies and cultures, according to Hjarvard (2008). It is now not time to analyse its influence, but to know what to do with the media (Carlsson, 2011).

In this new society not everyone accesses and uses the media in the same way, it varies depending on the age, gender, social class and geographical context. Therefore, we need to pay special attention at a particular group; young people. To Gómez-Mendoza & Alzate-Piedrahita (2014), their daily lives focus on a future insertion in the society to become citizens. Accordingly they build their identity and that of others through the TV programmes and the films that they watch, music they listen to on the radio and on their MP3 player and smartphone, the websites they visit, the books, magazines and comics they read (Chomski, 2012). Although this contact with the media is not the only factor that contributes to the development of their identity, it means that our younger generation will grow up building their own image and the image of the people around them according to the media contents they receive.

As previously mentioned, according to Ambròs & Breu (2011), the current society is dominated by audiovisual messages; however the control of its use is neither widespread nor homogeneous. These differences generate an unbalance between: "an elite who know how to use, understand and spread information and on the other hand, the majority who, although they are surrounded by information, they are unable to use it, understand it, interpret it and decode it. That is to say, "a functional illiteracy, like all kind of illiteracy, is a form of slavery" (Ambròs & Breu, 2011: 41).

This situation demands the concept of literacy to be widened. Traditionally linked to reading and writing, it now requires the inclusion of new access sources to the information and the ability to decode and understand the systems and symbolic forms of knowledge spread by the media. The literacy of citizens regarding the media is then a must for the educational policies aimed at creating equal opportunities regarding the access to culture (Area, 2012).

Along with this approach that claims the need of media literacy as a palliative measure of the "digital breach" or increase of a potential social exclusion, we also have the other point of view that warns about the risk of the media (Bringué, Sádaba, & Tolsa, 2011; Wan & Güt, 2011; Wilson, Grizzle, Tuazon, Akyempong, & Cheung, 2011; Tejedor & Pulido, 2012), as not being transparent (Masterman, 1993). In that respect, Livingstone & Haddon (2009) through the European Project "Kids Online" have demonstrated that northern European countries are classed in a category of "high use, high risk", southern countries are the denominated "low use, low risk", whereas those from eastern Europe are in a category called "new use, new risks". Equally, they have shown gender differences due to the fact that the boys generate conduct risks whereas the girls are more prone to risks through contents and contacts. One of the results of the project had identified the need to find a balance between the education and protection of young people.

In contrast with this vision of the media, we can consider a more positive view of the media that helps the development of imagination and language, the stimulation of the pleasure of asking and discovering, the knowledge of new languages and ways of communication, the increase of expository and reasoning capabilities, the durability of the knowledge based on the level of motivation that the media generates and the acquisition of the capacity of reflexion and ethical principles (Ambròs & Breu, 2011). In the same line of thought, Sánchez-Carrero & Aguaded (2009) pointed out that, after the application of a programme to foster critical reading among boys and girls based on the different TV programmes, there was a decrease in those classed as "not critical" and an increase in those considered "critical enough". These kinds of studies demonstrate the need to provide new citizens with the appropriate tools for their empowerment of the media. The education and therefore, literacy are understood as a right of the citizens (Area, 2012), and all citizens regardless age, gender or context.

The omnipresence of the media also reaches the education centres. On the one hand, the media content accompanies young people to school or to college, providing their own culture, different from the official

one (Chomski, 2012). On the other hand, teachers also use the media when they buy online, read the newspaper on their tablets, or computer, send texts on WhatsApp to their friends or communicate with their family through Skype thus providing their own grounding to the system (Pallarés, 2014). However, in spite of the fact that both protagonists of formal education live surrounded by daily media experiences, the inclusion of the media to the learning and teaching process cannot be appreciated in the majority of the schools.

Regarding the Spanish curriculum, various studies have demonstrated the appearance of media contents in the different branches of knowledge and in the curricular elements incorporated (Camps, 2009; Ramírez-García, Renés-Arellano, & Delgado-Ponce, 2014; Ramírez-García, Renés-Arellano, & García-Ruiz, 2014; Ramírez-García, Renés-Arellano, & González-Fernández, 2015; Ramírez-García, Renés-Arellano, & Sánchez-Carrero, 2013; Tucho, 2008). Nevertheless, the presence of the media in the school curricula appears quite blurred and influenced by the current branch of knowledge and interest of each autonomous community regarding the media literacy of their citizens. In Italy, the perception is similar, as indicated by Felini (2014), the institutionalization of the media education does not seem to be imperative for those that create the curricula and design the educational change.

Simultaneously, the organization and management of the education centres has become a factor that has a direct impact on the addition or not of media to the centres (Cabero, 2004) and therefore, a higher or lower inclination to implement measures of media literacy. A centre that decidedly bets on the addition of those media to its daily life, increases the contact of the teacher with the media, contextualizes the learning acquired in other contexts in a formal education world and increases the future application to their activities with the students.

Nevertheless, the reluctance of teachers to use the media, the new role that they are asked to play as a developer, careers adviser, motivator, point of reference and facilitator of experiences, creator of resources, researcher and co-apprentice, among others (López & Miranda, 2007), as well as their thoughts (Gewerc & Montero, 2013; Suárez, Almerich, Gargallo, & Aliaga, 2013; Tirado & Aguaded, 2014), their competences (Tejedor & García-Valcárcel, 2006) or their own academic education, implies a separation from those above and therefore, a step back in the acquisition of a true literacy of the media aimed for the future 21st century citizens and their teachers.

That is why la Agenda de Paris (2007) reveals the need for developing initiatives of media education for both teachers and students at all educational levels. A step forward has been taken with the publication of the report "Media and Information Literacy Curriculum for Teachers", supported by UNESCO in 2011, that recognises the need for media training for the development of an active population. It is imperative to implement a "media and information literacy, as it helps to expand the development of civic education, the teachers being the main change agent" (Wilson, Grizzle, Tuazon, Akyempong, & Cheung, 2011: 11).

> This situation demands the concept of literacy to be widened. Traditionally linked to reading and writing, it now requires the inclusion of new access sources to the information and the ability to decode and understand the systems and symbolic forms of knowledge spread by the media. The literacy of citizens regarding the media is then a must for the educational policies aimed at creating equal opportunities regarding the access to culture.

If students need to be educated and so do teachers, it is true that both groups are unable to face their relationship with the media. As a result, to check whether this belief is true or not, the scope of this research is to determine the level of competence that these two groups have towards the media.

2. Methods

The chosen design for the research was cross-sectional and descriptive because the research focuses on analysing the level and status of the variables at a given time in order to describe the phenomena and analyse their incidence at that time (Hernández, Fernández, & Baptista, 2006).

2.1. Participants

The participants of this research were, on the one hand, 581 students of fourth grade of primary school and 665 of secondary and on the other hand, 905 active teachers working within different levels of education (Pre-school education, primary, secondary, high school and vocational training education). Both groups, students and teachers, belong to centres in 10 Spanish provinces: Cantabria, Córdoba, Huelva, Granada, La Rioja, Lugo, Málaga, Murcia, Seville and Valencia.

The chosen samples were not stochastic, that is to say, they were established according to the related criteria of the research (Bisquerra, 2004). In that respect, the chosen criteria were as follows: authorization to apply the questionnaire in the education centres, differentiation of the various educational levels and heterogeneity of the centres (public, semi-private, and private).

2.2. Tools

The tools used in this research to gather the information were an online questionnaire about media competence for students in primary education (http://goo.gl/RA3mCt), as well as for those of compulsory secondary education (http://goo.gl/sd1P27), also including teachers (http://goo.gl/4Kd5Pa). In all the cases, the questionnaires have been designed ad hoc for this research and based on the systematized definition given by Ferrés (2007) in regards to media competence that tackles 6 out of the main areas that it comprises. In this sense media competence is associated with structures that include knowledge, skills, attitudes and aptitudes linked to these six areas: languages, technology, processes of perception and interaction, processes of production and dissemination, ideology and values and aesthetics. In table1 there are 6 areas shown which have been referred to and the items of the various questionnaires associated with them.

The tool applied to the students in primary education is made of 22 closed questions of multiple choice, 5 out of them are linked to demographic data. On their side, the students of secondary education answered 34 questions, being 6 out of them related to their personal identification. Regarding the teacher's questionnaire, this has 43 questions, out of which 6 were aimed to gather socio-demographic data. The questionnaires came along with their corresponding assessment headings that assessed the answers provided by the participants according to pre-established criteria, referring also to the level of competence.

Table 1. Areas of media competence

Area	Semantics definition	Items		
		Primary Education	Secundary Education	Teachers
Languages	Knowledge of the codes that make the visual language possible and ability to use them for simple, but effective communication. Ability to analyse the audiovisual messages from the perspective of sense and signification, the narrative structures and the categories and genres.	6.3 and 7.1	11, 12, 23, 23.1 and 24	11,12 and 13
Technology	Theoretical knowledge of the use of the tools that make the audiovisual communication possible, to be able to understand how the messages are made. Ability to use the most simple tools to communicate in an effective way in the audiovisual field.	8, 10 and 11	7, 7.1 and 16	14, 15, 16, 17, 18 and 19
Processes of perception and interaction	Ability to recognise themselves as active audience, especially when it comes to the use of digital technologies that allow participation and interactivity. Ability to critically assess the emotional, rational and contextual elements which make up part of the acceptance and assessment of audiovisual messages.	6.4, 6.5 and 8	15, 15.1, 15.2, 15.3, 18, 20, 20.1 and21,	20, 21, 22, 23, 24, 25, 26 and 27
Processes of production and dissemination	Knowledge of the functions and tasks assigned to the main agents of production and the stages in which the processes of production are decomposed and the planning of the various types of audiovisual productions. Ability to elaborate audiovisual messages and knowledge of their significance and implications on the new communication environments.	13,14, 15 and 16	17, 24 and 25	28, 29, 30, 31, 32 and 33
Ideology and values	Ability of comprehensive and critical reading of the audiovisual messages, as representations of the reality and consequently, as carriers of ideology and values. Ability of critical analysis of the messages, understood as both expression and support of interests, contradictions and values of the society.	6.2 and 6.3.	8, 9, 10, 10.1, 13, 13.1 and 22	34, 36, 36, 37 and 38
Aesthetics	Ability to analyse and assess audiovisual messages from the point of view of the formal and thematic innovation and education of the aesthetic meaning. Ability to link audiovisual messages with other ways of media and artistic performance.	6 and 6.1	14 and 14.1	39, 40 and 41

The validation of the questionnaire implied two procedures: the calculation validity and reliability. The validity was determined by using Delphi's technique (Barroso & Cabero, 2010), in which 15 experts participated, following the stages proposed by Bravo & Arrieta (2005) and

that implied the reformulation and elimination of some initial questions. With regard to the index of reliability, the questionnaire aimed at the students in primary education offered a Cronbach's Alpha of 0.787, for those students in secondary an alpha of 0.667 and in the case of the teachers, the questionnaire was structured in two scales: the first one which brought an alpha of 0,812 and the second one of 0.625.

2.3. Procedure

The application of the various questionnaires was carried out in consecutive stages in 2012, it started with primary education, followed by secondary and concluded with the teachers. In the case of the students, the permissions to access the education centres were requested, the availability of internet in the centres was checked and a day was agreed for the filling out of the questionnaire. In the case of the teachers the collaboration across the different media was requested: teaching centres, electronic mails to the actual centres or previous contact with the key informants. In all cases, the application was carried out simultaneously in the 10 provinces which participated within a timescale of a fortnight based on the dates agreed with the centres.

2.4. Analysis of data

The data was obtained through the various questionnaires and were gathered in a database generated by the online system where the questionnaires were designed. Later, we processed the transfer of the data into a statistical programme SPSS (v.18) and then the answers were categorized again according to the assessment heading previously designed for each questionnaire.

The analysis of data was initiated through descriptive statistics followed by central and dispersion-tendency measures. The percentile measure was also used to determine the levels of media competence across the different groups of participants. Equally, tests were also undertaken such as Pearson's chi-squared test, Phi and Cramèr's V.

3. Results

Regarding the students in primary education, in figure 1, we can see a lack of values in the areas of languages and ideology and values at the advance level of the competence. The answer options of the questionnaire did not take into consideration the responses at this level due to the complexity of some questions that were dismissed after the questionnaire was submitted. Both are placed as the highest in terms of training among the students with an intermediate competence level of 66.8% and 59.2% respectively, followed by perception and interaction (52.85%) and aesthetics (54%). The most basic levels are in the areas of technology (45.1%) and production and dissemination (50.4%). However, in these last areas we can also see a considerable percentage of students that achieved an advance level with 21.2% and 30.6% respectively.

Regarding the students of compulsory secondary education, the areas where they achieved the highest training are technology (41.2%) and aesthetics (87.4%), but in both cases at an intermediate competence level. In the case of the last area, it was necessary to eliminate some questions that impeded the configuration of an advance level of the competence. It is also important to note that a large percentage of the students from secondary are placed at the basic levels in the remaining areas - languages (49,1%), perception and interaction (56,7%), production and dissemination (43.7%), ideology and values (42,3%) (figure 2).

Remarkably, the teachers represent the basic training all over the areas that integrate this media competence -languages (51,5%), technology (48,4%), perception and interaction (40,1%), production and dissemination (51%), ideology and values (47,5%) and aesthetics (48,2%).

Comparatively, figure 1 shows the distribution of the three groups analysed against the levels of the different areas that comprise the media competence.

In order to determine the statistically significant differences between the socio-demographic variables and the levels of competence across the different areas that comprise the media competence, we proceeded to carry out an analysis of the contingency and the results of Chi-squared test, Phi and Cramèr's V. In short, in table 2 we can see those variables that have influenced the variability of the media competence's levels across the different areas that it comprises. Along the same lines, it is worth mentioning that technology area is shaped by all the socio-demographic variables that portray the sample of participants, for both students and teachers.

Regarding the students of primary education, apart from technology area, the areas of language and media literacy are influenced by the province of origin, gender, and the type of centre where students attend. The area of ideology and values are influenced by the province and the sort of education centre, whereas the area of production and dissemination are determined by the distinctive characteristics of the school. The areas of perception and interaction are influenced by none of the said variables.

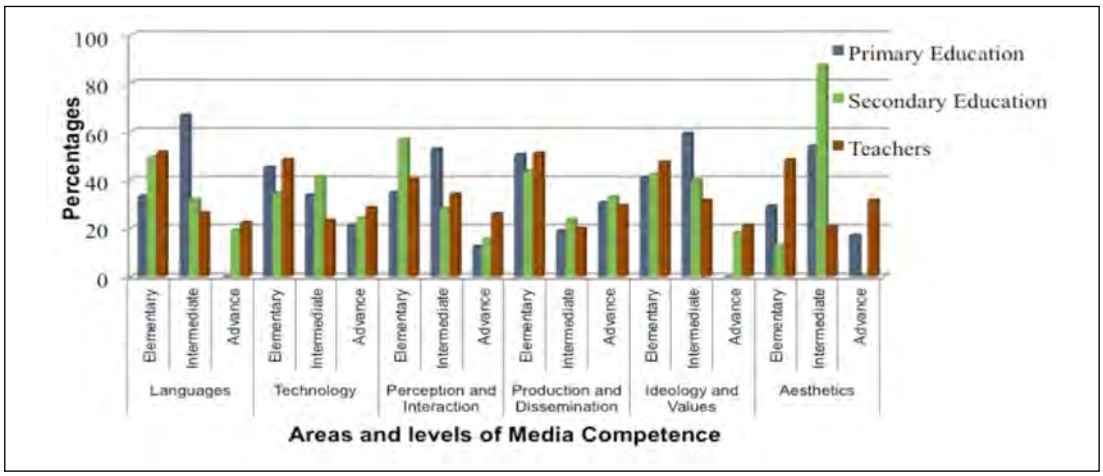

Figure 1. Distribution by area and level achieved by the teachers and students of Primary education and Secondary education.

With regard to the students of secondary education, the areas of production and dissemination point to just two variables, the province and the education, and these variables, along with the typology of the education centre, are those that determine the levels of the technology area.

As for the teachers, the training they have received is the variable that has a direct impact on all areas of the media competence, followed by the province of origin, gender of the participants, the education level at which they teach and finally, the education centre where they teach.

Although it would be interesting to do a detailed analysis of the differences found between the levels of competence across the different areas and the sociodemographic variables, for obvious reasons of lack of space, it is not possible to carry it out. Nevertheless, it would be worthy concentrating on the variable teacher's training, due to the educational impact that it may have.

In the different areas that comprise the media competence we could appreciate that the teachers with none or some training in the communication field are placed at the lowest level of the competence, while a higher training in the field implies a superior level of competence. This situation is obvious in the areas of perception and interaction and in the areas of ideology and values (table 3).

4. Discussion and conclusions

The scope of this research focuses on determining the levels of media competence that the students and teachers from primary and secondary education have. In that respect, the primary education students who have participated have demonstrated intermediate levels of competence, that is to say, the level of media competence across the different areas is at the intermediate level, standing out especially those referring to perception and interaction and to media literacy.

With regard to the area of perception and interaction, Ramírez-García, Renés-Arellano, & Sánchez-Carrero (2013) show that the curricular area of art education incorporates in its contents three basic aspects of this area:

a) Ability to explain why there are some media, some products, some contents that they like more. This aspect is also established in the curricular area of natural and social science (Ramírez-García, Renés-Arellano, & González-Fernández, 2015).

b) Ability to assess the cognitive effects of emotions.

c) Critical attitude towards the interaction of the screens.

The area of Castilian language and literature also contributes to the development of this final aspect of the perception and interaction area and includes others such as:

a) Ability to select, review and self-assessment of one's own media diet.

b) Ability to distinguish and manage possible dissociation between feeling and opinion and emotive nature and rationality.

c) Ability to interact with people and different groups in plural and multicultural groups (Ramírez-García, Renés-Arellano, & Delgado-Ponce, 2014).

As for the media literacy area, Ramírez-García & al. (2013) assert that this curricular area includes the following aspects of this competence:

a) Ability to link media productions to other artistic forms.

b) Sensitivity to recognise a media production.

c) Ability to produce basic and understandable messages contributing to increase the personal or collective levels of creativity, originality and sensibility. This ability has been also included in the curricular area of natural and social science (Ramírez-García & al., 2015).

d) Ability to manage and transform artistic production, encouraging creativity, innovation, experimentation and aesthetic sensibility.

Table 2. Socio-demographic variables that determine the levels of media competence across the different areas

Groups	Variables	Areas of media competence					
		Languages	Technology	Perception & Interaction	Production & Dissemination	Ideology & Values	Aesthetics
PE (Primary Education)	Province	x	x			x	x
	Gender	x	x				x
	Centre	x	x		x	x	x
CSE (Compulsory Secondary Education)	Province		x		x		
	Center		x				
Teachers	Province	x	x	x		x	x
	Gender		x	x	x	x	x
	Center	x	x				x
	Education	x	x	x	x	x	x
	Level	x	x	x			x

The previous contributions emphasize that the primary education curriculum includes some aspects that allow students of this level to achieve adequate levels of media competence in the said areas. However, the remaining areas are also present in the other curricular areas and this fact has not resulted in the acquisition of higher levels in certain areas such as technology, especially when the Education Law2/2006, of 3rd May, (LOE) and the Spanish Royal Order 1513/06, of 7th December, which establishes the curriculum of primary education, standardise the acquisition of some digital competence among students. It needs to be added that the educational policy in the field of technologies is also carried out by the different autonomous communities.

It is, therefore, paradoxical that one of the aspects that should have been most developed in the education centres, positions students at the elementary of this area.

The differences found on the level of the competence and variables such as province of origin and school could be explained by the curricular differences between the different autonomous communities; this would also explain a different application of the education rules. However, on the other hand, the differences could point to heterogeneous organisation and management of the centres (Cabero, 2004), and that is permitted due to the exercising of the pedagogical autonomy which has been recognised by the LOE (2006).

Regarding the secondary education curriculum, the study has not been undertaken as rigorously as it has been in the context of primary education, however the analysis of the Spanish Royal Order 1631/2006, of 29th December, which establishes the basic learning in compulsory secondary education, defines as one of its following main goals at this education level "To develop basic skills when using the sources in order to wisely acquire, new knowledge. To acquire elementary training in the technology field, especially in the curricular area of information and communication". There are two compulsory areas called "technologies" and "plastic and visual arts" which had to be taken from the first to the third year, as well as the acquisition of media competence "analysis of the information and digital competence".

Hence, these curricular subjects would guarantee higher levels of media competence among secondary education students. Nevertheless, the results across all

Table 3. Analysis of contingency between levels of competence in the areas of media competence and grade of training

Areas	Levels	Grade of Training (%)		
		None	Some	Sufficient
Languages	Elementary	20,8	70,4	8,8
	Intermediate	13,9	58,0	28,2
	Advance	10,0	57,2	32,8
Technology	Elementary	22,1	69,2	8,7
	Intermediate	11,0	66,2	22,9
	Advance	11,7	54,1	34,2
Perception and Interaction	Elementary	25,9	63,4	10,7
	Intermediate	11,0	68,5	20,5
	Advance	9,4	59,8	30,8
Production and dissemination	Elementary	21,4	14,0	11,0
	Intermediate	67,5	67,4	18,5
	Advance	11,0	56,2	34,0
Ideology and values	Elementary	20,5	63,7	15,8
	Intermediate	13,0	64,9	22,1
	Advance	13,2	64,2	22,6
Aesthetics	Elementary	22,5	68,1	9,4
	Intermediate	9,8	67,4	22,8
	Advance	11,9	56,1	31,9

the areas have demonstrated that this is not sufficient since the majority of the students were placed at the lowest level across all the areas, except for the areas of technology and media literacy where a significant percentage of students are at the intermediate level of competence.

Additionally, the differences found among the students in terms of the province of origin and the centre where they have been attending, could be explained by the same reasons stated when analysing the primary education level.

On the other hand, the analysis of the results gathered among the teachers shows such an alarming situation, since a high percentage of the teachers are placed at a basic level across all the areas of media competence. Nevertheless, there is also a substantial percentage of teachers who are placed at advanced levels of competence in the areas of technology, production, dissemination and media literacy. This polarization could be explained by the level and the subject taught, especially in secondary education. However, there is a remarkable influence of the teacher's training across all the areas of media competence. Therefore, it has been verified that the better the teacher's training, the higher the competence level achieved.

Thus, training seems to be the key point in the achievement of optimal levels or degrees of the competence. It is with good reason that the framework "long life learning" establishes specific training programmes for teachers based on the "realistic" approach recommended by Korthagen (2010). He points towards a continuous interrelation of theory and practice in any formative process. This is a point of view also accepted by Sykes, Bird y Kennedy (2010). The OCDE report (2013: 234) regarding assessing the competences of the adult population has concluded that "the results reveal a need for a continuous learning and permanent training, in the different professional, individual and social environments in addition to school learning, including the experiences and competences achieved throughout their lives". As far as the teachers are concerned, UNESCO (2011) has already defined the guidelines to follow in order to educate adults in media competence through an own curriculum. The next step is then to start formative processes that enable the teachers to achieve the highest media competence levels and accordingly to the international requests. In our opinion, these processes need to be linked to good docent assignments which can be used as a reference model. Therefore, the research carried out in Italy by Felini (2014) shows a set of criteria that can lead the way to approaching media competence and highlights the need to incorporate processes of co-teaching with more than one teacher taking part, the configuration of effective teamwork and the innovation of the formative activity on media literacy. These guidelines show that the teacher's continuous training needs to be reshaped and re-orientated. Rather than showing a teacher how to manage a tool such as Twitter, it is best to introduce them through a network of other innovative teachers and put them all in contact with each other so that they can exchange their experiences in situ. That is to say, the challenge lies in enabling the relationship among education professionals with the media, not only as applied technologies, but as cultural instruments. It is imperative to change the mentality of continuous training, generating networks where the professionals with the most knowledge and media experience can become mentors for the most inexperienced until they acquire enough control and assurance to wisely handle the media tools. This way, we could carry out the media literacy of the new audience.

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References

Ambròs, A., & Breu, R. (2011). *10 ideas clave para educar en medios de comunicación: la educación mediática*. Barcelona: Graó.

Area, M. (2012). La alfabetización en la sociedad digital (pp. 3-41). In M. Area, A. Gutiérrez, & F. Vidal (Eds.), *Alfabetización digital y competencias informacionales*. Barcelona: Ariel / Madrid: Fundación Telefónica.

Barroso, J, & Cabero, J. (2010). *La investigación educativa en TIC. Versiones prácticas*. Madrid: Síntesis.

Bravo, M.L., & Arrieta, J.J. (2005). El Método Delphi. Su implementación en una estrategia didáctica para la enseñanza de las demostraciones geométricas. *Revista Iberoamericana de Educación*, 35/3 (http://goo.gl/5GTkwU) (2016-01-10).

Bringué, X., Sádaba, C., & Tolsa, J. (2011). *La generación interactiva en Iberoamérica 2010. Niños y adolescentes ante las pantallas*. Madrid: Foro Generaciones Interactivas.

Cabero, J. (2004). Cambios organizativos y administrativos para la incorporación de las TIC en la formación. Medidas a adoptar. *Revista Electrónica de Tecnología Educativa*, 18. (http://goo.gl/gQoLRY) (2016-02-27).

Camps, V. (2009). La educación en medios, más allá de la escuela [Media Education beyond School]. *Comunicar*, 32, 139-145. doi: http://dx.doi.org/10.3916/c32-2009-02-012

Carlsson, U. (2011). Las perspectivas mundial y nórdica. Los jóvenes en la cultura de los medios digitales. *Infoamérica*, 5, 99-112. (http://goo.gl/oj1rmD) (2016-01-30).

Chomski, D. (2012). *L'uso didàctic dels mitjans de comunicación i les TIC a l'educació infantil*. Barcelona: UOC.

Felini, D. (2014). Quality Media Literacy Education. A Tool for Teachers and Teacher Educators of Italian Elementary Schools. *Journal of Media Literacy Education*, 6(1), 28-43. (http://goo.gl/eBXkAy) (2016-02-05).

Ferrés, J. (2007). La competencia en comunicación audiovisual: propuesta articulada de dimensiones e indicadores. [Competence in Media Studies: Its Dimensions and Indicators]. *Comunicar*, 29, 100-107. (http://goo.gl/TKYNes) (2016-02-03).

Gewerc, A., & Montero, L. (2013). Culturas, formación y desarrollo profesional. La integración de las TIC en las instituciones educativas. *Revista de Educación*, 362, 323-347. doi: http://dx.doi.org/10.4438/1988-592X-RE-2011-362-163

Gómez-Mendoza, M.Á., & Alzate-Piedrahita, M.V. (2014). La infancia contemporánea. *Revista Latinoamericana de Ciencias Sociales, Niñez y Juventud*, 12(1), 77-89. doi: http://dx.doi.org/10.11600/1692715x.1213040513

Hernández, R., Fernández, C., & Baptista, P. (2006). *Metodología de la investigación*. México: Mc Graw Hill.

Hjarvard, S. (2008). The Mediatization of Society. A Theory of the Media as Agents of Social and Cultural Change. *Nordicom Review*, 29(2), 105-134. (http://goo.gl/C1amnv) (2016-01-07).

Korthagen, F.A.J. (2010). La práctica, la teoría y la persona en la formación del profesorado. *Revista Interuniversitaria de Formación del Profesorado*, 68(24,2), 83-101. (http://goo.gl/LO853J) (2016-03-24).

Livingstone, S., & Haddon, L. (2009). *EU Kids Online: Final Report. London, LSE: EU. Kids Online* [EC Safer Internet Plus Programme Deliverable D6.5]. (http://goo.gl/y23jK2) (2016-01-30).

Ley Orgánica 2/2006 de Educación, de 3 de mayo. Boletín Oficial del Estado, 106, de 4 de mayo de 2006. (https://goo.gl/GcFeSD) (2016-01-30).

López, E., & Miranda, M.J. (2007). Influencia de la tecnología de la información en el rol del profesorado y en los procesos de enseñanza-aprendizaje. *RIED*, 10(1), 51-60. (http://goo.gl/41Owrd) (2016-01-09).

Masterman, L. (1993). *La enseñanza de los medios de comunicación*. Madrid: La Torre.

OCDE (2013). *Programa para la evaluación internacional de las competencias de adultos*. Paris: OCDE. (http://goo.gl/VPjiDd) (2016-02-02).

Pallarés, M. (2014). Medios de comunicación: ¿espacio para el ocio o agentes de socialización en la adolescencia? *Pedagogía Social*, 23, 231-252. doi: http://dx.doi.org/10.7179/PSRI_2014.23.10

Ramírez-García, A., Renés-Arellano, P., & Delgado-Ponce, Á. (2014). La competencia mediática y el área de Lengua Castellana y Literatura de Educación Primaria. Análisis curricular en España. *Caleidoscopio*, 12(3), 345-355. (http://goo.gl/xBFFaI) (2016-01-31).

Ramírez-García, A., Renés-Arellano, P., & García-Ruiz, R. (2014). Presencia de la competencia mediática en los objetivos curriculares de la etapa de Educación Primaria. *Teoría de la Educación*, 26(1), 137-159. doi: http://dx.doi.org/10.14201/teoredu2014261137159

Ramírez-García, A., Renés-Arellano, P., & González-Fernández, N. (2015). Análisis curricular nacional de la competencia mediática y el área de Conocimiento del Medio en Educación Primaria (pp. 555-573). In J. Díaz-Cuesta, & Gaona, C. (Coord.), *Creatividad e innovación en el espacio universitario*. Madrid: ACCI.

Ramírez-García, A., Renés-Arellano, P., & Sánchez-Carrero, J. (2013). Educación artística y competencia mediática en el currículo de Educación Primaria. *Historia y Comunicación Social*, 18, 673-686. (https://goo.gl/bxTNce) (2016-01-25).

Real Decreto 1513/2006, de 7 de diciembre, por el que se establecen las enseñanzas mínimas de Educación Primaria. Boletín Oficial del Estado, 293, de 8 de diciembre de 2006. (https://goo.gl/HZd5dZ) (2016-03-25).

Real Decreto 1631/2006, de 29 de diciembre, por el que se establecen las enseñanzas mínimas correspondientes a la Educación Secundaria Obligatoria. Boletín Oficial del Estado, 5, de 5 de enero de 2007. (https://goo.gl/qcLtmf) (2016-01-29).

Sánchez-Carrero, J., & Aguaded, I. (2009). Educación mediática y espectadores activos: Estrategias para la formación. *Anàlisi*, 39, 131-148. (http://goo.gl/Sej7oe) (2016-02-04).

Suárez, J.M., Almerich, G., Gargallo, B., & Aliaga, F.M. (2013). Las competencias del profesorado en TIC: Estructura básica. *Educación XXI*, 16(1), 39-62. doi: http://dx.doi.org/10.5944/educXX1.16.1.716

Sykes, G., Bird, T., & Kennedy, M. (2010). Teacher Education: Its Problems and some Prospects. *Journal of Teacher Education*, 61, 464-476. doi: http://dx.doi.org/10.1177/0022487110375804

Tejedor, S., & Pulido, C. (2012). Retos y riesgos de Internet por parte de los menores ¿Cómo empoderarlos? [Challenges and Risks of Internet Use by Children. How to Empower Minors?]. *Comunicar*, 39, 65-72. doi: http://dx.doi.org/10.3916/C39-2012-02-06

Tejedor, F.J., & García-Valcárcel, A. (2006). Competencias de los profesores para el uso de las TIC en la enseñanza. Análisis de sus conocimientos y actitudes. *Revista Española de Pedagogía*, 233, 21-44.

Tirado, R., & Aguaded, I. (2014). Influencias de las creencias del profesorado sobre el uso de la tecnología en el aula. *Revista de Educación*, 363, 230-255. doi: http://dx.doi.org/10.4438/1988-592X-RE-2012-363-179

Tucho, F. (2008). La educación en comunicación en la LOE y sus decretos de enseñanzas mínimas [Media Education in the Spanish Legislation]. *Comunicar*, 31, 547-553. doi: http://dx.doi.org/10.3916/c31-2008-03-049

UNESCO (2011). *Media and Information Literacy. Curriculum for Teachers*. (http://goo.gl/Bz9Ei8) (2016-01-31).

Wan, G., & Güt, D.M. (2011). Objetivos en los procesos formativos. El caso de los adolescentes chinos y estadounidenses. *Infoamérica*, 5, 83-97. (http://goo.gl/5EoYwW) (2016-01-16).

Wilson, C., Grizzle, A., Tuazón, R., Akyempong, K., & Cheung, C.K. (2011). *Media and Information Literacy Curriculum for Teachers*. París: UNESCO.

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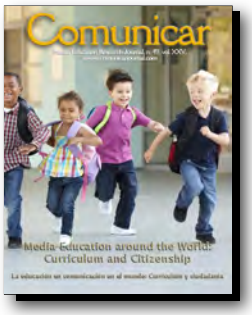

The Wiki Learning Project: Wikipedia as an Open Learning Environment

El proyecto Wiki Learning: Wikipedia como entorno de aprendizaje abierto

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ABSTRACT

Traditional educational models limit learning possibilities to formal and closed environments. However, mobile technologies and digital platforms are changing this paradigm, expanding learning opportunities. Based on the principles of peer knowledge production, we argue that Wikipedia can be used as an open learning environment that serves several purposes: a) it allows the acquisition of basic skills; b) it contributes to collective intelligence; c) it shortens the global knowledge gap; and, d) it enables the creation of global learning networks. The aim of this study is to introduce the process, strategies, and results of the implementation of the Wiki Learning project at a Mexican university, as an open learning model for the use of Wikipedia as a learning tool. This project included a variety of activities, from article production to workshops by and for students and teachers; 115 students and 57 teachers were surveyed to identify their perception about Wikipedia, its use and potential as educational tool. The results showed that, although the majority are Wikipedia users, there is still a lack of knowledge about its functioning, structure and communities, and a negative perception of the Wikipedia. This poses a great challenge to overcome this stigma and recover the value of collective knowledge production, the purpose of the encyclopedia and its place as a relevant product of collective intelligence.

RESUMEN

Los enfoques predominantes en el sistema educativo tradicional circunscriben las posibilidades de aprendizaje a entornos formales y cerrados. Sin embargo, las tecnologías móviles y plataformas digitales están transformando este paradigma, expandiendo las posibilidades de aprendizaje. A partir de esta condición y en el marco de la producción del conocimiento entre pares, sostenemos que Wikipedia puede ser utilizada como un entorno de aprendizaje abierto que cumple varios propósitos: a) permite adquirir competencias básicas; b) contribuye a la inteligencia colectiva; c) acorta la brecha global de conocimiento; y, d) facilita la construcción de redes globales de aprendizaje. Este estudio de caso tiene como objetivo presentar el proceso, estrategias y resultados del proyecto Wiki Learning, como modelo de aprendizaje abierto a través del uso de Wikipedia en una universidad mexicana. El proyecto abarcó desde la producción de artículos hasta talleres para el desarrollo de capacidades de profesores y estudiantes. Se realizaron encuestas a 57 docentes y 115 alumnos para identificar la percepción acerca de Wikipedia, su uso y posibilidades como herramienta educativa. Los resultados demostraron que a pesar de que todos son usuarios de Wikipedia, existe un desconocimiento general sobre su funcionamiento, estructura y comunidades, además de cierta desconfianza. Se presenta un desafío para romper el estigma y recuperar el valor de la gestión compartida del conocimiento, el propósito de la enciclopedia y su lugar como producto de la inteligencia colectiva.

KEYWORDS | PALABRAS CLAVE

Internet, knowledge, Information, skill, university, students, teachers.
Internet, conocimiento, información, competencia, universidad, estudiantes, profesores.

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1. Introduction and state of the art

We live in an age where the mechanisms for producing, circulating and consuming knowledge are being reconfigured, and this poses profound implications for learning. Castells (1996) states that we find ourselves within a new information paradigm which displaces the previous one based on energy production. Like never before in history, "with access to open educational resources and free or inexpensive communication platforms, groups of people can learn together outside as well as inside formal institutions" (Rheingold & al.,, 2013). The possibilities in so far as to the amount of access to information and the possibilities for interaction and participation offered through digital technologies go beyond the constraining limitations of mass media and traditional pedagogy (Buckingham, 2010). Under these circumstances, we need to rethink the goals and meaning of learning in formal educational environments in a way that institutions can respond adequately to social demands and global changes.

We face a complex challenge; on one hand, the transformation of the learning processes as a result of the accelerated technological development; on the other, the deficiencies of the formal educative system. Because of these, it is essential to insist in the necessary development of basic cognitive skills, but also, assign a prominent place for other competencies relating to the management of information, creativity and problem solving. Furthermore, students should develop ethical and civic competences during their academic formation so they can positively affect their communities.

Wikipedia is the largest resource of knowledge created through crowdsourcing and the seventh most visited site in the world (Alexa, 2016). We argue that Wikipedia can be understood as an open learning environment for the development of a diverse set of skills. In this text we will go over the theoretical categories related to peer knowledge production, learning in the digital age and Wikipedia. Later we will present the process, strategies and results of our pedagogical proposal to put these principles into action in the case of the project Wiki Learning. Finally, based on these results, we will argue how complex it is to change the current perception on Wikipedia into an environment associated to the paradigm of open and distributed knowledge.

1.1. Peer knowledge production

The debate on knowledge is framed in contexts of permanent tension: on one hand, the establishment of cognitive capitalism (Moulier-Boutang, 2011) is characterized by the concentration and privatisation of information and knowledge; on the other, as a result of this process of accumulation, the disparity in the production of information and knowledge on a global level generates new forms of control, inequality and exclusion (Ostrom & Hess, 2007; Graham & Zook, 2013, Graham, Hogan Straumann, & Medhat, 2014). Contrary to these, it emerges the understanding of knowledge as a commons, or shared good, which must be conceived, defended and construed (Ostrom & Hess, 2007). Finally, the current state of the development of socio-technical structures and the growing complexity of the digital and communications ecosystem either recreates or attempts to transgress the routes of production, dissemination and consumption of the dominant knowledge. These scenarios provide a frame of reference to approach the problem of knowledge production either as a commodity or as a commons, and account for the way in which these tensions materialize through the merger of structures of knowledge production, both socio-technical and communicative.

If we assume that knowledge production possesses social, cooperative and historic components (Fuchs, 2008: 161) and that responds to the logic of cognitive capitalism, it is necessary that we use this as a starting point to locate our pedagogical and educative practice. Because of this fact, we would like to call attention on the need to develop frames of reference that situate the development of competences in a wider socio-technical level, which includes reflecting on the process of peer production (Benkler, 2013; Benker, Shaw, & Hill, 2015) and the place of knowledge production in the educative process.

1.2. Learning in the digital age

According to United Nations 2030 Agenda (2015), learning cannot be constrained to age, place, time or a particular situation; and it is necessary to guarantee the conditions so every person may "acquire the knowledge and skills needed to exploit opportunities and to participate fully in society". To think on learning as a permanent process that covers formal, non-formal and informal learning, without restrictions of time and space, is essential to "reformulate the purpose of current educative systems at all levels and give cause to a generation of alternative contexts and strategies that allow individuals to potentiate their capabilities to the fullest" (Ricaurte, 2013: 7).

The technological development and the generation of a digital ecosystem have potentiated the construction of open environments that added to collective knowledge production and peer learning (Rheingold

& al., 2014); they allow that the learning processes transcend the classroom walls. Open learning environments (Hannafin, Land, & Oliver, 1999; Mott & Wiley, 2013), through supporting student-centered learning and the possibilities offered by technology, allow broadening the perspectives on education, on the abilities students can develop and the relevance of creativity, collaboration and problem-solving. We maintain that incorporating open learning in digital environments to the principles of formal educative institutions constitutes an opportunity for the students to develop attitudes, competences and values associated with a digital culture that is participative, collaborative and borderless.

1.3. Wikipedia

Several authors have evaluated the educative experience of Wikipedia as a learning tool, and they highlight both the development of the competences as the nature of the platform as a space for the production of collective knowledge. Staub and Hodel (2016) state that Wikipedia is an important and successful learning tool and recommend its use within educative environments as writing articles and managing content are founded on the principles of producing open and decentralized knowledge. These activities reinforce consulting and citing abilities in students, who also learn to work in a collaborative environment (Alonso-de-Magdaleno y García, 2013). What is more, the concept of wiki (a platform where everyone can contribute) questions the traditional notion of the construction of formal academic knowledge (hierarchic, authorial, individual), and defends the vision of knowledge as the result of interaction and cooperation. In this respect the model of knowledge productions promoted by Wikipedia can be thought of as an epistemology and methodology of peer production and open learning that aims to generate collective intelligence (Levy, 2004) through collaborative and creative infrastructures that support the development of multiple competences.

1.4. Competences in the digital age

There is abundant literature focused on measuring digital competences both for university students as well as for university academics. Pérez-Rodríguez & Delgado-Ponce (2012) present an analysis of six studies (Área, 2008; Celot & Pérez-Tornero, 2009; Churches, 2009; Di-Croce, 2009; Ferrés, 2007; and Marquès, 2009) dealing with the issue of digital and audiovisual literacies; and they establish a series of indicators that define media competence. López & Aguaded (2015) analyze the needs and deficiencies in media education in Spanish universities. Gewerc, Montero, Pernas and Alonso (2011) found that digital competences are usually ignored, while specific competences, belonging to one area of knowledge, are prioritized. Therefore, they point out the need of new pedagogic patterns that adjust to current technological changes.

> We face a complex challenge; on one hand, the transformation of the learning processes as a result of the accelerated technological development; on the other, the deficiencies of the formal educative system. Because of these, it is essential to insist in the necessary development of basic cognitive skills, but also, assign a prominent place for other competencies relating to the management of information, creativity and problem solving.

Marcelo, Yot and Mayor (2015) study the level and learning activities in which teachers use technologies. Hepp, Prats and Holgado (2015: 38) reflect on the importance of the development of digital competences as part of the training of teachers. Fernández-Cruz and Fernández-Díaz (2012) state that teacher's competences determine the competences students might be able to develop.

It is possible to identify diverse points of view to define which competences should be prioritized both in the training of teachers as well as in the education of students. In many cases, institutional policies constrain the development of competences to the use of applications and tools, but are not associated to theoretical or pedagogical models that justify their use. Therefore, we argue that the development of digital competences should be holistic and must be associated with a set of principles related to the production of knowledge and cooperation in the digital age.

We consider Wikipedia to be an environment that allows the development of a wider scope of competences. Through Wikipedia students can:

- Incorporate technology and digital media as meaningful learning tools.
- Develop the abilities of critical thinking, information management, research, and content curating.
- Develop linguistic competences in their own language and in others through translation.
- Produce and disseminate knowledge about their culture.

To incorporate an innovative experience in learning processes implies a challenge for the institution as well as for the teachers and the students. It is essential to have institutional support for the teacher training, the availability of the appropriate spaces, resources, as well as curricula flexibility for the incorporation of activities that are not measured through traditional parameters. From the teachers, it requires an additional effort: the development of certain technological competences and to be convinced of the importance of transforming their pedagogic experience through new paradigms.

- Develop a culture of respect to copyright and partake in promoting a free culture, through the production of contents and resources under Creative Commons licensing.
- Engage in the philosophy of open knowledge and open learning.
- Receive external feedback, erasing the physical and formal constrains of the classroom and becoming part of a global community.

2. Materials and method

Wiki Learning is a project that proposes the use of Wikipedia as an open, collaborative and global learning environment. It is part of a model of innovative education promoted by a private Mexican university. The project emerges from a change in paradigm on the production of knowledge that materializes in Wikipedia. The strategic design is not centered only in the encyclopedia, but in diverse features of the wiki world: Wikimedia Foundation, Wikimedia's Education Program, GLAM (Galeries, Libraries, Archives and Museums), Wiki Initiative, Wikimedia Commons (a repository of images and other resources), Wikipedia in Spanish, Wikipedia in English, and the events of the Wikimedia Foundation (like Wikimania). The study presented in this article, part of an on-going project, analyses the results of the work carried out during the 2014-2015's academic year. Its impact appears on different levels that go from article writing to the development of abilities in teachers and students. Here we present a descriptive approach supported on surveys whose goal was to explore the perception, the use and the experience when using Wikipedia. First, 57 surveys were carried out to explore the previous pedagogic experience in teachers during two Wikipedia workshops imparted during the summer of 2014. The workshops were part of a training program with curricular value. And second, 115 students were surveyed during an edit-a-thon (a marathon of editing), organized by the institution and that lasted for three days, in March 2015.

The questionnaire was designed to identify the notion that both teachers and students have about the encyclopedia, the experience of using it and editing it, the politics of use in the classes, its incorporation in the educative practice as a tool, and their expectations in relation to the possibilities of its use in the future. Seven items composed the questionnaire, divided in qualitative questions (those concerning the users' perception) and quantitative (usage). An additional item was included in the students' survey to evaluate their learning after the edit-a-thon.

2.1. Process and strategy for impacting the different areas of Wikipedia

a) Wikimedia Foundation, Wikipedia's Educative Program and GLAM. Wikimedia Foundation has two great programs to get institutions involved: Wikipedia's Educative Program and the GLAM initiative. Numerous institutions and organizations that have a global

reach, such as the British Museum, the City of Sidney, Germany's Federal Archives, The Smithonian System, and Harvard University among others participate in these programs. The programs offer the best opportunities for the students to gain access to people and national and international institutions; for favoring the generation of content for Wikipedia; and for the community to recognize and adopt it as a valuable learning experience.

b) Teacher training and Wikipedists in Residence (WER). For increasing the activities in Wikipedia and get more people involved it is necessary to form a team of qualified individuals.

c) Production of audiovisual resources (images and audio) for Wikimedia Commons. Although writing and editing texts is the main activity, donating photographs and other resources to Wikimedia Commons repository is essential. Only those resources freed through Wikimedia Commons can appear in Wikipedia, since it is a way to guarantee that they possess the proper licenses for their reuse and free circulation. In Wikimedia Commons each image has its own page, with a description, links to the donator (in this case the institution) and metadata. These pages are categorized, and are easily located with search engines.

d) Production of Content for Wikipedia in Spanish, English and other languages.

e) The creation of an institutional program. To have a presence and receive formal support from Wikipedia, the projects need to be recognized institutionally; this means that they are part of a specific group designed to collaborate with Wikipedia. It is important that the participation is structured as a permanent program so it can have a larger impact and reach. An institutional program is characterized by its development of a culture of production of distributed open content, so the group of teachers can have a deep understanding of how Wikipedia's technology and community work. It is not easy to contribute properly to Wikipedia as, to be successful, students and teachers need mentors to guide them in this task. Wikimedia Foundation has developed a system of ambassadors, volunteers who work as mentors to the teachers and the students.

It is also important that the teachers who receive the training from Wikipedia belong to different departments so that the students may take more advantages of the existing opportunities. To support this process, the institution must have at least one teacher who is an expert on Wikipedia, known as a "Wikipedian on Residence" (WER). WERs must be in contact with other teachers and other campus instances to develop programs and make the universities presence visible in the communities of editors.

f) Student Wikipedian. The concept of Wikipedian in Residence can also be applied to students. There are many museums, archives and other institutions that can benefit from collaborations with Wikipedia but do not know how to do it. The project contemplates training Wikipedians with experience that can continue to learn through collaborating with these institutions. These student Wikipedian "experts" are a great support to the expansion of program.

g) Production of content to be used later in Wikipedia. One restriction Wikipedia imposes on the content is that it does not allow the use of primary sources, that is, original information that has not been previously published in trustworthy sources (books, articles, magazines, newspapers). Many subjects that should be part of Wikipedia have not yet been covered because of the lack of sources. One way in which the universities can solve this problem is by creating an institutional publication based on primary sources: interviews, research, news articles about people or topics, and then use them to write articles for the encyclopedia. With the project Wiki Biography students can carry out interviews and research projects under the guidance of their teachers. Then they can publish the articles in Wiki Biography (with attribution) through free licensing and then adapt the text for Wikipedia with links to the original text.

h) Representation in Wikipedia Communities. Wikipedia has its own community of editors in each language, and these communities possess different idiosyncrasies. If more academics understand how Wikipedia in Spanish works, there are more possibilities for supporting, correcting and judging the articles written by the students. Furthermore, this community of editors helps with the creation of groups to guide the teachers that work on projects in Wikipedia in Spanish. It is important to think about incorporating students and teachers that speak other languages and to sign agreements with other institutions to produce articles in more languages.

i) Attendance to international Wikipedia events. Wikimedia Foundation and other organizations support several events related to the dissemination of Wikipedia and the wiki world. The most important one is Wikimania, which takes place every year. It is necessary that the Wikipedists attend these events to get to know the community and create international networks that allow them to make known the work of their institution with Wikipedia.

We think that this model of incorporating Wiki-

pedia as a learning tool contributes to increase the participation of a larger number of people as editors for the encyclopedia. Thus, the institution can achieve an important place in the production of knowledge in different disciplines of the culture of the country in Spanish, in English, and, when possible, in other languages.

The project generated synergies between different areas of the organization; institutional contents were donated; training workshops were imparted; students were integrated into the project as part of their social service; and activities were designed so they could be incorporated by teachers into their regular classes.

Table 1. Activities from Project Wiki Learning

Activities	Results
Donations to Wiki Commons	601 photographs (summer 2014); 3838 photographs (August-December 2014); 7 graphics, 27 animations and 3 videos.
Day of the Dead Photography contest, Wiki 2014 Style	36 participants, 594 photographs
Presentations at national and international conferences	A representation of Wiki Learning in Wikimedia's Annual Conference and exhibit in London. Participation in the group Education Collaborative (leading programs in education using Wikipedia and sibling projects), with meetings and participation in Wikimedia Education Program in Prague (March 2014), and Edinburgh (November 2014). Participation in the Professional Events 2014 at Monterrey's International Book Fair. Participation in the VII and VIII Research Innovation and Educative Management Congress and in the First International Congress for Innovative Education, in Mexico.
Training	9 workshops on Wikipedia as a learning platform in open digital environments. 8 training workshops for students. Workshops for librarians on Basic Editing for Wikipedia.
Social service	12 social service students (summer 2014) 132 Wikipedia articles in Spanish.
Wikipedia in the Classroom	5 teachers, 145 students and 9 classes participated.
Redacting of the Articles created, edited and translations	Creation or improvement of 132 Wikipedia articles in Spanish (summer 2014). 185 articles added to Wikipedia in Spanish, one to Wikipedia in English, 28 articles in Wikipedia in Spanish revised as part of a basic course in composition (August-September 2014).
Edit-a-thon	For three days in March 2015, in Mexico City's metropolitan area an edit-a-thon was carried out with the collaboration of Festival Cervantino and CONACULTA.
Wikimania 2015	A documentary Video about Wiki Learning Project. A paper on Wikipedia and the production of knowledge between peers. A presentation of the project's results on a panel on worldwide educative program.
Creation of the biographies of the distinguished guests	Cristóbal Cobo, Gilles Lipovetsky, Michael Kleiman, Enrique Metinides, Paul Seligson, Sergio González Rodríguez, among others.

3. Analysis and results

The surveys were used as an instrument to identify participants 's background and their perception of the experience with the encyclopedia through the Wiki Learning project. The results allowed us to establish a starting point and to adjust the model based on the areas that required more attention and competence development.

The results from the perception and Wikipedia use survey (Ricaurte & Carli, 2016) show that for a great percentage of the surveyed students (42.6%) Wikipedia is a source of information. For another group (12.1%), Wikipedia has a negative image, and they considered it an unreliable source.

Most of the students (87%) have not edited a Wikipedia article, mainly because they do not know how to do it. A percentage (4.4%) of those who have done it felt that editing was easy, while a minority thought it was difficult (3.5%). In the case of the teachers, an equal percentage (3.5%) found it to be either easy or confusing. Although 66.7% of them said that they used Wikipedia, most of the participants in the survey (80%) have not used it as a learning tool. Regarding the teacher policy on letting students consult Wikipedia, 27% agree in allowing them to use it as a reference. There is a positive response to the expectative of Wikipedia use, since 24.3% would like to learn how to use it, while 17.3% would like to use it in the classroom to support their classes or their area of expertise. Only 5.2% does not want to do anything with Wikipedia. For 9.5% Wikipedia represents collaborative knowledge, and 3.4% hopes they can participate in the collaborative content.

While all the students know about Wikipedia, a small percentage of the teachers (3.5%) does not. The difference between teachers and students who have edited content is less than a percentral point. Only 10.5% of the teachers mentioned having a policy that allows the use of Wikipedia, in contrast with 27% of the students. In its majority, neither the teachers nor the students use Wikipedia as a learning tool.

In general, we were able to see that there are positive expectations in respect to the possibilities of using Wikipedia. Both students (66.6%) and teachers

(69.9%) show interest in learning to use it as an educative tool or participate in some way producing knowledge through Wikipedia.

The additional question included in the student questionnaire is on what they learned through their use of Wikipedia. Most of them indicated that they learned about Wikipedia and the use of the platform (22.6%). The second most frequent answer was about the open and collective character of knowledge production, and the notion of the open and participative character of the encyclopedia (11.3%). Another group (10.4%) mentioned the development of linguistic competences –orthography, composition, translation–. The rest of the answers had to do with critical thinking and the search for valuable sources of information. Less significant are the values concerning the learning of text editing, teamwork, the knowledge about the topics developed in the articles and the resignification of the encyclopedia as a reliable source of information.

4. Discussion and conclusions

Based on the survey results, it is possible to see that there are not big differences between the responses given by teachers and by students. In both cases, there is still lack of awareness about how Wikipedia works, especially as a learning tool. This demonstrates that Wikipedia could be included as a tool for the development of digital competences in the field of education, but educators are taking advantage of its potential. One of the motives for this lack of engagement is the general lack of teachers and students trust, as the questionnaires revealed (21% and 12.1% respectively, do not consider Wikipedia to be a reliable source.

If we go back to the argument made by Fernández-Cruz and Fernández-Díaz (2016) and consider that the teacher competences determine the competences in the students, we should give a greater role to the development of digital competences when training teachers. In the models of competences we documented there was not specific attention paid to the production of knowledge between peers as a specific competence. Although collaboration is highlighted as a fundamental element, collective construction of knowledge in open digital contexts is not emphasized as a specific learning goal. None of the teachers surveyed had the intention or had considered using Wikipedia to generate collaborative content. Teachers should explore new approaches that allow them to take advantage of the pedagogic possibilities of the digital space; design activities, use tools that make possible the generation of collective knowledge and integrally develop abilities. We maintain that Wikipedia contributes to fulfilling this purpose and that the Wiki Learning project was a way of bringing the encyclopedia and its possibilities closer to the university community.

Some of the transformations that the institutions require to become places that promote the development of the competences for the 21st century include flexibility in their programs and in their learning spaces; intercultural competence; critical thinking; linguistic competence; processes of co-production of knowledge in digital contexts; and creativity.

Based on the questions asked to the students about their learning after their experience of using Wikipedia, it is possible to see that the pedagogic work with the encyclopedia can potentiate the acquisition of competences for their personal and professional life in a place outside the physical limits of the classroom; it can favour the inclusion of technology in their learning process, the production of collective knowledge, critical thinking, information management and content curation, and the improvement of their linguistic and intercultural abilities. Furthermore, it can facilitate being acquainted with the values of free culture and open learning, and the enriching of students' learning

Table 2. Competences developed through the use of Wikipedia (from the students perspective)

	Students	f	%
What do you think you learned from working with Wikipedia	Use of Wikipedia/Platform	26	22.6
	Participating in the collaborative creation of knowledge/Everyone can edit	13	11.3
	Orthography/composition	12	10.4
	Translating	8	6.9
	Sources of information	5	4.3
	Text editing	4	3.4
	Learning about the topic of the article	4	3.4
	Learning to code	3	2.6
	Teamwork	2	1.7
	Unreliable source	2	1.7
	Nothing	1	0.8
	Other	16	13.9
	Didn't answer	23	20

experience through peer-to-peer learning. However, it is necessary to design a pedagogic proposal that allows the effective acquisition of multiple competences.

This change in the paradigm is neither immediate nor simple. In the case of the Wiki Learning project, even though training workshops for more than 100 teachers were imparted, few teachers worked formally through the semester to develop projects with Wikipedia. Although there was a good disposition on behalf of the teachers, almost none had any previous work experience with the Wikipedia (only 19.2% had used it as a learning tool). This meant a larger challenge for the first training given in this project, because we had to begin with the notion that most of them were not acquainted, namely the educative possibilities of the platform. In order to get a professional commitment with Wikipedia after receiving their first training it was necessary a significant effort that required personalized monitoring, more training and technological support. Therefore, it is necessary to develop a better institutional strategy that allows more teachers to join so that the obstacles can be reduced and motivate the participation of the teachers. In spite of these issues, the project achieved considerable results thanks to the participation of students, which was linked to the grades in a unit or as participation in their social service.

To incorporate an innovative experience in learning processes implies a challenge for the institution as well as for the teachers and the students. It is essential to have institutional support for the teacher training, the availability of the appropriate spaces, resources, as well as curricula flexibility for the incorporation of activities that are not measured through traditional parameters. From the teachers, it requires an additional effort: the development of certain technological competences and to be convinced of the importance of transforming their pedagogic experience through new paradigms. From the students, it requires the development of a digital culture that gives special relevance to collective knowledge production, authentic collaborative competences and networks of learning on a global scale. Therefore, it is necessary to generate synergies that facilitate embedding Wikipedia as part of the academic and digital culture of the community.

References

Alexa (2016). *The Top 500 Sites on the Web*. (http://goo.gl/D7O3vu) (2016-02-27).

Alonso-de-Magdaleno, M., & García, J. (2013). Colaboración activa en Wikipedia como método de aprendizaje. *RIED*, 16(1), 13-26. (http://goo.gl/LXo4dV) (2016-02-27).

Area, M. (2008). Innovación pedagógica con TIC y el desarrollo de las competencias informacionales y digitales. *Investigación en la Escuela*, 64, 5-18. (http://goo.gl/snnyVs) (2016-02-27).

Benkler, Y. (2016). Peer Production and Cooperation. In J.M. Bauer, & M. Latzer (Eds.), *Handbook on the Economics of the Internet*. Cheltenham: Edward Elgar. (http://goo.gl/UM0yzw) (2016-02-27).

Benkler, Y., Shaw, A., & Hill, B.M. (2015). Peer Production: A Form of Collective Intelligence. In Malone, T.W., & Bernstein, M.S. (Eds.). *Handbook of Collective Intelligence*. Cambridge, MA: MIT Press. (https://goo.gl/AsMzxE) (2016-02-27).

Buckingham, D. (2010). Do we Really Need Media Education 2.0? Teaching Media in the Age of Participatory Culture. In Drotner, K., & Schrøder, K. (Eds.). *Digital Content Creation* (pp. 287-304). New York: Peter Lang. (http://goo.gl/CfmWny) (2016-02-27).

Castells, M. (1996). *The Rise of the Network Society. The Information Age: Economy, Society and Culture. Vol. I*. Cambridge, MA, Oxford: Blackwell.

Celot, P. & Pérez-Tornero, J.M. (2009). *Study on Assessment Criteria for Media Literacy Levels. A Comprehensive View of the Concept of Media Literacy and an Understanding of How Media Literacy Level in Europe Should be Assessed*. Brussels: European Commission. (http://goo.gl/fSDcgr) (2016-02-27).

Churches, A. (2009). *La taxonomía de Bloom para la era digital. Educational Origami*. Blog. (http://goo.gl/YygnfL) (2016-02-27).

Di-Croce, D. (2009). *Media Literacy. Teacher Resource Guide*. Toronto: Canadian Broadcasting Corporation.

Fernández-Cruz, F., & Fernández-Díaz, M. (2016). Los docentes de la Generación Z y sus competencias digitales. [Generation Z's Teachers and their Digital Skills]. *Comunicar*, 46, 97-105. doi: http://dx.doi.org/10.3916/C46-2016-10

Ferrés, J. (2007). La competencia en comunicación audiovisual: propuesta articulada de dimensiones e indicadores. *Quaderns del CAC*, 25, 9-17.

Fuchs, C. (2008). *Internet and society: Social Theory in the Information Age*. New York: Routledge.

Gewerc, A., Montero, L., Pernas, E., & Alonso, A. (2011). Competencia digital y planes de estudio universitarios. En busca del eslabón perdido. *RUSC*, 8(2), 14-30. doi: http://dx.doi.org/10.7238/rusc.v8i2.1070

Graham, M., & Zook, M. (2013). Augmented Realities and Uneven Geographies: Exploring the Geolinguistic *Contours of the Web. Environment and Planning A*, 45(1), 77-99.

Graham, M., Hogan, B., Straumann, R.K., & Medhat, A. (2014). Uneven Geographies of User-Generated Information: Patterns of Increasing Informational Poverty. *Annals of the Association of American Geographers*, 104(4), 746-764.

Hannafin, M., Land, S., & Oliver, K. (1999). Open Learning Environments: Foundations, Methods, and Models. In Reigeluth, C.M. (Ed.). *Instructional-design Theories and Models: A New Paradigm of Instructional Theory, 2*. New York, London: Routledge, 115-140.

Hepp, P., Prats, M.A., & Holgado, J. (2015). Formación de educadores: la tecnología al servicio del desarrollo de un perfil profesional innovador y reflexivo. *RUSC*, 12(2), 30-43. doi: http://dx.doi.org/10.7238/rusc.v12i2.2458

Lévy, P. (2004). *Inteligencia colectiva. Por una antropología del ciberespacio*. Washington: Organización Panamericana de la Salud.

López, L., & Aguaded, M.C. (2015). La docencia sobre alfabetización mediática en las facultades de Educación y Comunicación [Teaching Media Literacy in Colleges of Education and Communication]. *Comunicar*, 44, 187-195. doi: http://dx.doi.org/10.3916/C44-2015-20

Marcelo, C., Yot., C., & Mayor, C. (2015). Enseñar con tecnologías digitales en la Universidad [University Teaching with Digital Technologies]. *Comunicar*, 45, 117-124. doi: http://dx.doi.org/10.3916/C45-2015-12

Marquès, P. (2009). *Aportaciones sobre el documento puente: competencia digital*. (http://goo.gl/xxs9t3) (2016-02-27).

Mott, J., & Wiley, D. (2013). Open for Learning: The CMS and the Open Learning Network. *Education*, 15(2), 3-22.

Moullier-Boutang, Y. (2011). *Cognitive Capitalism*. Cambridge: Polity Press.

Hess, C., & Ostrom, E. (2007). *Understanding Knowledge as a Commons: from Theory to Practice*. Cambridge, MA: MIT Press.

Pérez-Rodríguez, M.A., & Delgado-Ponce, A. (2012). De la competencia digital y audiovisual a la competencia mediática: dimensiones e indicadores. [From Digital and Audiovisual Competence to Media Competence: Dimensions and Indicators]. *Comunicar*, 39, 25-34. doi: http://dx.doi.org/10.3916/C39-2012-02-02

Rheingold, H., Corneli, J., Danoff, C., Pierce, C., & MacDonald, L. (Eds.) (2015). *Peeragogy Handbook: A Guide for Peer-Learning and Peer Production. V.3*. Arlington, MA: Peirce Press.

Staub, T., & Hodel, T. (2016). Wikipedia vs. Academia: An Investigation into the Role of the Internet in Education, with Special Focus on Wikipedia. *Universal Journal of Educational Research*, 4(2), 349-354. doi: http://dx.doi.org/10.13189/ujer.2016.040205

Ricaurte, P. (2013). Pedagogía de pares. In D. Aranda, A. Creus & J. Sánchez-Navarro (Eds.), *Educación, medios digitales y cultura de la participación*. Barcelona: UOC Press.

Ricaurte, P., & Carli, A. (2016). *Encuesta de percepción y uso de Wikipedia*. (https://goo.gl/EsRtgF). doi: http://dx.doi.org/10.6084/m9.figshare.3409375

United Nations (2015). *Transforming our World: The 2030 Agenda for Sustainable Development. Sustainable Development Knowledge Platform*. Department of Economic and Social Affairs. (https://goo.gl/pqYoAS) (27-02-2016).

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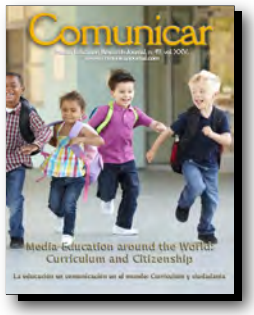

Digital Skills in the Z Generation: Key Questions for a Curricular Introduction in Primary School

La competencia digital de la Generación Z: claves para su introducción curricular en la Educación Primaria

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ABSTRACT

Media convergence and massive usage of Internet-connected devices, distinguishing features of our current society, cause changes in the way that new generations learn and access knowledge. In addition, emerging new digital skills are necessary for the Z generation to face the challenges of a digital society. This quantitative study, with a sample of 678 Primary School students, aims to provide empirical evidence about the level of digital skills of students belonging to this generation. The results show that the acquisition of digital competences is not inherent to use, but require specific instruction. Otherwise, there is a danger of creating a digital divide, not due to frequency of use or access to connected devices but to lack of instruction on how to use them. The absence of significant variance in the overall level of digital competence among Primary School students of different grades reflects, to some extent, that this level is largely acquired by informal activities with ICTs in an informal context, rather than by developing competences in a school context that affords gradual and progressive skills acquisition. The results show the need to address digital competence in schools, focusing on the systematic development and enhancement of its component areas to move beyond the informal level and reach the academic level, thus facilitating digital natives' access to future employment.

RESUMEN

La convergencia mediática y el uso masivo de dispositivos conectados a Internet, rasgos distintivos de la sociedad actual, provocan cambios en el modo en el que las nuevas generaciones aprenden y acceden al conocimiento. Además, emergen nuevas competencias, las digitales, que la Generación Z necesita para afrontar los retos de una sociedad digitalizada. El estudio presentado, de corte cuantitativo, con una muestra de 678 alumnos de Educación Primaria, pretende aportar evidencias empíricas sobre el nivel de competencia digital del alumnado perteneciente a dicha generación. Los resultados revelan que no adquieren habilidades digitales de forma inherente sino que precisan de educación al respecto, atisbándose el peligro de una brecha digital, no por uso o acceso a ellas, sino por falta de competencia. La ausencia de diferencia significativa en el nivel general de competencia digital entre el alumnado de diferentes cursos de la etapa de Educación Primaria refleja que, en cierta medida, ese nivel se adquiere más por convivencia con las TIC en contextos informales que por un adecuado desarrollo en el contexto escolar que potencie gradual y progresivamente su adquisición. De los resultados se desprende, por tanto, la necesidad de abordar la competencia digital en la escuela, incidiendo en el desarrollo de las áreas que la componen y potenciándola para superar el nivel de uso en la vida cotidiana y acercarla al nivel académico que facilitará su inclusión al mundo laboral.

KEYWORDS | PALABRAS CLAVE

Digital skills, digital literacy, curriculum, students, Generation Z, education, Internet, Primary School.
Competencia digital, alfabetización digital, currículum, alumnos, Generación Z, educación, Internet, Educación Primaria.

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1. Introduction

The knowledge society generates immense and irreversible epistemological and structural changes in all facets of life. Education is not oblivious to all these transformations but is rather immersed in finding answers to one of the challenges derived from this new information context: educating a generation born and raised in an era of technological explosion and currently encompassing the student body of our schools.

These are students who, as described by Feixa (2006: 13), "from the moment they begin to understand their environment, are surrounded by electronic devices that have configured their vision of life and the world". Many terms have been fashioned to refer to this group since Prensky (2001) mentioned digital natives, among which we find, as described by Fernandez & Fernandez (2016), the Z Generation, the V (Virtual) Generation, the C (Contents or Community) Generation, the Silent Generation, the Internet Generation or even the Google Generation, where the common link is technophilia and the incorporation of ICTs in their daily activities.

The expeditious transformation that ICTs impart to essential habits, learning styles and interaction modalities produces a vast array of possibilities as unknown as they are incalculable (Wolton, 2000; Tapscott, 2008), which education must not only confront, but also offer educational responses. This fact underscores the importance of knowing in depth the characteristics of the above mentioned Z Generation (Schroer, 2008), a term that identifies the cohort born between 1995 and 2012 –most of whom are currently incorporated in the education system– with the objective of pondering the use of ICTs by this generation, the degree to which they are integrated in daily life, and the level of digital skills that should be reflected on the teaching-learning processes developed in the classroom.

1.1. Characteristics of the Z Generation student body

From a socio-cognitive perspective, the Z Generation student body is characterized by distinctive features that differ from students of previous generations, amply described by Bennett & al. (2008), Gallardo (2012), and Fernández & Fernández (2016). These authors coincide in emphasizing a capacity of said generation for rapid response, a desire for immediacy and for continuous interaction. In the same vein, the authors state that the student body of the Z Generation considers itself as expert and competent in ICT, attributing high expectations to technology, where learning tends to be independent or autodidactic.

Other notable characteristics are a preference for visual information and ease of performance in digital and visual environments accomplishing several tasks simultaneously, a phenomenon known as multitasking (Cassany & Atalaya, 2008; Reig & Viched 2013). These characteristics are evidenced in the context of a formal education that must adapt to a student body also known as the "copy and paste in school" generation (Mut & Morey, 2008), which is increasingly distinguished from previous generations in the distinct needs, demands, and behavior patterns brought into and clearly displayed in the classroom. In this regard, some authors such as Fernández and Fernández (2016) question the capacity of current teachers to meet adequate teaching-learning processes for Z Generation students; a concern seeking answers to the issues arising from inadequate skills in preparing future citizens for the demands of their adult lives.

1.2. Digital literacy within the context of Primary Education

The Spanish education system regards digital literacy as a third key proficiency for the student body to acquire by the end of the compulsory schooling phase. As reflected in Order ACD/65/2015 of 21 January, "digital skills are those that encompass creative, critical, and safe use of ICTs to reach the goals related to work, employability, knowledge, use of free time, inclusion, and participation in society. These skills assume, in addition to an ease in adjustment to changes introduced by new technologies in literacy, reading, and writing, the capacity to adapt to a new set of knowledge, abilities and attitudes that are necessary in this day and age to be competent in a digital environment" (Order ECD/65/2015, I).

Digital skills and new literacies for Primary School students are priority themes on government agendas (A Digital Agenda for Europe and a Digital Agenda for Spain). In this regard, as indicated by González & al. (2012), this priority is substantiated by the directives of what is known as School 2.0 and summarized in a modified definition of literacy: digital literacy.

The term refers to a multidimensional outlook comprising the cognition, attitude, and capacity of individuals to utilize digital tools and sources to recognize, access, negotiate, evaluate, analyze and synthesize digital resources to build knowledge, create multimedia contents, communicate with others, and exercise critical skills in virtual contexts, so that constructive social actions are established. (Martin, 2008; Thomson & al., 2014).

In a European context, the most representative

study on digital skills was conducted by the Institute for Prospective Technological Studies. Started in 2011, the research yielded four reports that constitute the most comprehensive European study on digital skills and is the foundation on which all subsequent actions are based (Ala-Mutka, 2011; Janssen & Stoyanov, 2012, Ferrari, 2012; 2013). That investigation gave rise to the development of digital skills in five competence areas: information, communication, content creation, problem solving, and security (used for the construction of the instrument).

It is important to note that research regarding digital skills in an education context has mostly addressed higher levels of education, i.e., secondary education and particularly in a university context (Cabero & Llorente, 2008; Larraz, 2013; Gros & Forés, 2013; Sendín, Gaona & García, 2014), where the evaluation and development of digital skills has been the focus of the largest number of investigations.

A review of the research conducted in a primary education context in Spain finds investigative work related to the incorporation of Internet and ICTs (Sigalés & Mominó, 2004; Sigalés & al., 2008), contributions which primarily analyze the impact on innovation and improvement in education. There are also studies on the attitude of primary teachers towards ICTs (Almerich & al., 2005; Sáez, 2011). However, specific research on the digital skills or digital literacy of the Primary School student body in our education system has not been, in general, a focus of study, despite the existence of some comprehensive research on the matter (Aguaded & al., 2015; Pérez-Escoda, 2015).

Therefore, we consider it important to conduct a diagnostic evaluation of digital skills of the student body at this level, which corresponds to the Z Generation: Primary School students from 2nd to 6th year (aged 7 to 12). With that aim we propose the following investigation, focusing on the achievement of five objectives:

- Determine the extent of the use of technological devices as well as the Internet by the student body in informal environments.
- Ascertain the degree to which ICTs are integrated into the daily life of the Z Generation.
- Ascertain the levels of digital skills by competency areas: information, communication, context creation, security, and problem solving.
- Analyze the results as a function of the sample characteristics for a better generalization of findings.
- Understand the possible implications of the findings in terms of teaching and training of the student body and, in view of the results obtained, study the curricular inclusion potential.

Education has the challenge and responsibility of offering a response tailored to this reality, transitioning toward a School 2.0 that does not overestimate the digital skills of the student body and that allows students the possibility to not just sit in front of screens, but to do so in an effective manner, repositioning the need for critical and participative literacy in the handling, creation, and dissemination of information.

2. Material and method

2.1. Sample

The sample comprised pupils in primary education from the Spanish region of Castile and Leon. It was a convenience sampling, consisting of 678 students: 347 public school children and 331 children from private schools. Eight schools in Castile and Leon, from rural as well as urban environments, and from Leon, Salamanca, Segovia, Zamora, Valladolid, Burgos and Avila, collaborated with the study.

The sample consisted of 52.4% boys and 47.6% girls, ranging in age from seven to twelve. There were 52 students from 2nd grade (7-8 yrs.), 125 students from 3rd grade (8-9 yrs.), 164 from 4th grade (9-10), 178 students from 5th grade (10-11) and 159 students from 6th grade (11-12 yrs.). First-grade students (6-7 yrs.) did not participate in the study as they have not yet mastered their reading-writing skills, which would have created an impediment in the methodological application of questionnaires.

Although the sample is limited in its ability to generalize, we consider that the results obtained can be considered representative and of interest to the education community, since there was a diagnostic evalua-

tion process of digital skills of a primary education student body that aims to trigger, through its findings, thoughtful consideration of the status of such skills.

2.2. Information gathering instrument

The choice was to design a questionnaire of closed questions in order to simplify answering by the children and control the consistency level, thus avoiding confusion for the children as they answered the questions (Creswell, 2009). The questionnaire was composed of four differentiated blocks (table 1) as a function of variable type and data collected.

Table 1. Study Variables by Blocks or Items

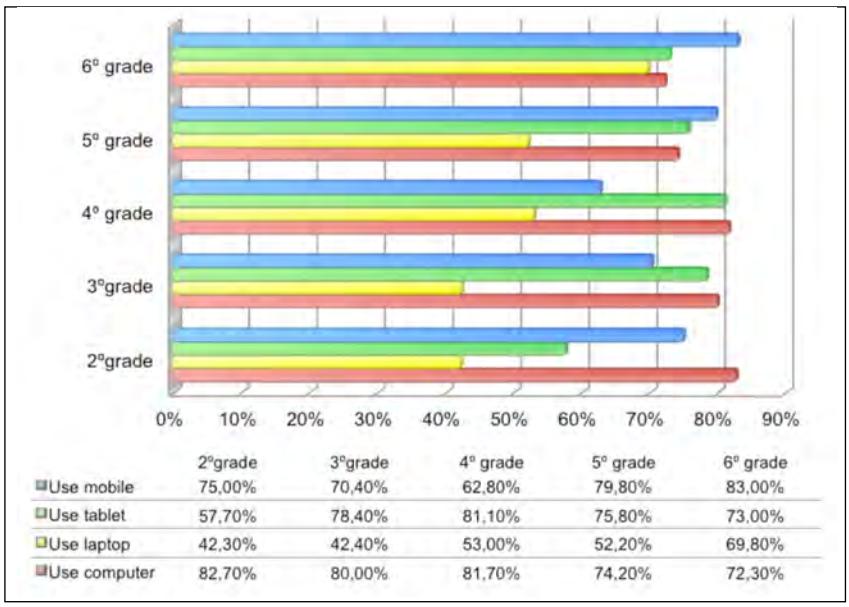
Block	Items		
I. Demographic information	• Age	• School	
	• Grade	• Father's occupation	
	• Number of siblings	• Mother's occupation	
	• Gender	• Location	
II. ICT use and frequency of use in informal environments	• How long have you used a computer		
	• Daily time spent using computer		
	• With whom did you learn to use the Internet		
	• Amount of daily time spent on the Internet		
	• When did you start using the Internet		
III. Degree of ICT integration in daily activities	• Play	Studying the frequency and device used (computer, laptop, tablet, mobile, none)	
	• Use Internet to search for information		
	• Search for videos or music		
	• Do homework		
	• Chat, talk with Friends		
	• Write emails		
IV. Dimensions of digital skills	Information area	• Surf the Net	
		• Select information	
		• Print and save information	
		• Copy and paste information from the Internet	
		• Watch YouTube videos	
	Communication area	• Send emails	
		• Use social network	
		• Participate in chats	
	Content creation area	• Write assignments with text	
		• Make presentations with images and text	
		• Record videos (with mobile, tablet)	
		• Record CDs	
		• Take and edit photos	
	Security area	• Start a program	
		• Download music from Internet	
		• Download new apps	
		• Disclose personal data	
		• Download information from one device to another	
	Problem solving area	• Update apps	
		• Restart computer, tablet or mobile	
		• Learn new apps from others	

The first block addresses contextual variables, demographic data and sample identification. The second block consists of five questions to evaluate ICT usage and time spent utilizing them. The third block evaluates the degree of integration of ICTs into daily life. Finally the fourth block, composed of 21 items, focuses on the dimensions of digital skills by competency areas.

The internal consistency of the designed questionnaire was measured for validity and reliability. An initial exploratory analysis of the set of items allowed us to conclude that, given the nature of questionnaire blocks, it was better to perform psychometric analyses in a differential manner and with the purpose of obtaining a clear justification, particularly in the block that measured digital skills. Thus, in block three we found the Cronbach's α correlation coefficient of item-total values to be higher than 0.89, which indicates a high reliability in the block. The content was validated with a pilot application of 15 children from different grade levels with the aim of evaluating from 2nd grade to 6th grade of Primary School. This pilot was used to obtain the final version of the questionnaire, with semantic modifications applied according to comments made by the group.

The phases that guided the investigation took full account of the ethical issues that should steer any investigation involving children, ensuring their freedom to participate. The schools' management teams were contacted first, to explain the project and its goal. Once a favorable response to participation was obtained, information circulars were sent to families describing the proposed study and requesting their approval for involvement.

To promote a sense of security among the students, data collection was performed in the participating schools by their own teachers, who were instructed about how to proceed, thus avoiding the presence of strangers in the classrooms. The questionnaires were administered in writing due to the impossibility of online access for all students in participating schools that lacked the adequate infrastructure.



	2ºgrade	3ºgrade	4º grade	5º grade	6º grade
Use mobile	75,00%	70,40%	62,80%	79,80%	83,00%
Use tablet	57,70%	78,40%	81,10%	75,80%	73,00%
Use laptop	42,30%	42,40%	53,00%	52,20%	69,80%
Use computer	82,70%	80,00%	81,70%	74,20%	72,30%

Figure 2. Length of time spent using computer in daily life.

3. Analysis and results

3.1. ICT use and computer time used

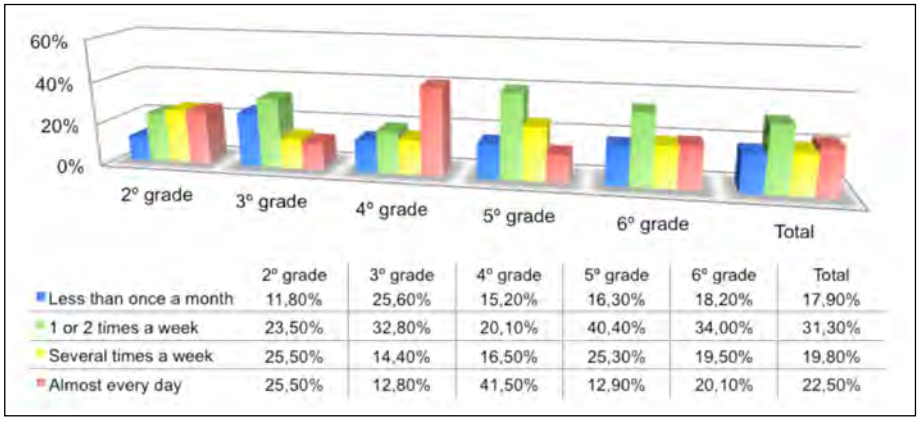
The data gathered from the questionnaire reveal a high frequency in the use of technological devices by the Primary School student body, with computers being the most utilized (77.3%) followed by tablets (75.5%), mobiles (74.3%) and laptops (54%). These findings suggest the hegemony of the computer and its pervasive presence in the homes of the students.

Data analyses of findings by grade (see figure 1) indicate the laptop as the least utilized device at all levels. When results are analyzed by grades, we see that Primary School 2nd graders use computers more often than those in higher grades, 82.7% of 2nd graders versus 77.3% of 6th graders. Another interesting finding is that 75% of 2nd graders use mobile devices.

Results obtained in this content block show how the student body in Primary Schools is capable of using different technological devices with ease in their daily life. In fact, 82.7% of 2nd graders claim to use more than one device, and the numbers increase with the academic level, with 96.9% of 6th graders stating that they use more than one technological device in their daily life.

Regarding the item "with whom did you learn to use the computer and Internet," data show the highest percentages corresponded to family (68% of students) and autodidactic; friends or by themselves was indicated by 29.7% of students; while the response "with teachers" was the least selected, at 19.2%. An analysis of these findings in relation to the context variable "rural or urban environment" demonstrates that rural students are more likely to have learned from teachers (21.2%) compared to those from urban environments (16.9%). However, students from an urban environment say they have learned more with family (78.9%) than those from a rural environment (59%). Finally, the student body in rural environments tends to be more autodidactic (29.4%) than those in an urban environment (21.5%).

The analysis of the variable "time spent" addresses those students who say they use computers in their daily life by asking how often they use them. As can be observed in figure 2, the majority of students in all grades use the computer once or twice per week.



	2º grade	3º grade	4º grade	5º grade	6º grade	Total
Less than once a month	11,80%	25,60%	15,20%	16,30%	18,20%	17,90%
1 or 2 times a week	23,50%	32,80%	20,10%	40,40%	34,00%	31,30%
Several times a week	25,50%	14,40%	16,50%	25,30%	19,50%	19,80%
Almost every day	25,50%	12,80%	41,50%	12,90%	20,10%	22,50%

Figure 2. Length of time spent using computer in daily life.

Students from 2nd and 4th grade report the highest use of computers (almost daily).

Computer use and specifically Internet use by the Primary School student body leads us to analyze how long children have been accessing the Net. In this regard, the data throw up striking results, since over 34% of 2nd graders have been using the Net for over a year. Almost 30% of third graders have been accessing the Net for over 3 years and finally, 22% of 4th graders, 26% of 5th graders, and 16.4% of 6th graders have been surfing the Net for over 5 years. These findings demonstrate an increasing trend of younger children using the Internet. When looking at the gender variable to analyze this indicator, it is revealing that girls have started to use Internet and computers earlier, as shown by figure 3 (https://goo.gl/K2wUC1), even though an independent sample t-test as a function of gender did not find statistically significant differences (n.s. 0,05) in the use of ICTs between gender and frequency of use (Table 2).

Table 2. Independent samples t-test as a function of gender in the use of ICTs and frequency of use in informal environments

Use of ICTs and frequency of use	$\overline{X}_{Boy}$	$\overline{X}_{Girl}$	t	p
Which devices do you usually use?	1,91	1,94	-1,407	0,16
How long have you been using computers?	2,15	2,27	-1,205	0,229
How often do you use the computer?	2,05	2,13	-0,794	0,428
How long have you been using the Internet?	2,36	2,22	1,511	0,131
How often do you use the Internet?	2,64	2,62	0,144	0,885

3.2. Degree of integration of ICTs in daily activities

In this section we analyze the degree of ICT integration in daily activities: play, search for information, search for videos, watch movies, do homework, chat, and write emails. As seen in table 3, data show that the most popular activity is play, with the highest mean (1.5), followed by searching for information (1.34) and searching for videos or music (1.3). However, when analyzing the frequency of use of different devices, data show each activity has a different device frequently used. By way of example, play and searching for videos/music, a tablet is most frequently used, with 64.9% and 49% respectively, while the computer is the most utilized device to search for information on Internet (48.7%), to do homework (50.4%) and to watch movies (33.3%). Finally, the mobile device has the highest frequency of use for chatting and talking with friends (58.2%) and writing emails.

The distribution of the amount of time students use ICTs for daily activities (table 4) indicates that the tasks to which they dedicate most time (almost every day) are playing (32.7%), chatting or talking with friends using technological devices (31.3%) and searching for videos or music (31.3%).

3.3. Level of digital skills among Primary School students

The third proposed objective was to determine the level of digital skills by competency areas as reported by the students, in order to establish lines of action aimed at enhancing their training. Three digital skill levels were established for this purpose according to the answers students gave to each item. Using a Likert scale, the levels were determined as nil, low, little, some, sufficient, and much. Based on the answers, the levels were finalized as follows:

- Level nil: From lowest value to 19th percentile.
- Level low: Percentiles 20 to 41.
- Level medium: Percentiles 42 to 63.
- Level advanced: Percentiles 64 to maximum value.

Table 5 shows the number and percentage of students in each established competency level.

From the distribution of the student body among the three levels of digital skills, it is evident that competency is heterogeneous; but it is remarkable that only 5% of the student body is classified in the advanced level versus 22.5% that show no digital skills at all (see more details by competency areas in table 5.1 (https://goo.gl/ZweFIV). Digital skills levels can be affected by conditional variables such as grade level, gender, rural or urban environment of the student. Because of this, if we study the block by variables, the tendency is confirmed. Table 6 shows specifically how the lowest percentages are found in the

Table 3. Analysis of mean, deviation, and frequency of using ICTs for daily activities

Activity	Mean	Std. Dev.	(%) Computer	(%) Laptop	2(%) Tablet	3 (%) Mobile	N
1. Play	1,5	0,602	39,4	27,9	64,9	49,6	678
2. Search for information on Internet	1,34	0,659	48,7	33,8	41	28,5	678
3. Search for videos or music	1,33	0,643	34,1	26,8	49	45,1	678
4. Watch movies	0,88	0,726	33,3	25,7	27,5	8,4	678
5. Do homework	1,04	0,642	50,4	29,9	24,0	10,1	678
6. Chat or talk with friends	0,91	0,652	10,1	9,3	19,8	58,2	678
7. Write emails	0,68	0,739	21,6	18,2	16,2	21,2	678

advanced level for all grades.

Furthermore, an analysis of the gender variable yields statistically significant differences, especially in the content creation competency level, where an independent sample t-test shows disparity between genders with significant bilateral values 0.030, 0.000 and 0.007 for the three variables in this area (as shown in table 7: https://goo.gl/AnZ1uW).

Finally, in the ANOVA analysis of variance the differences in this block are studied according to grade levels. Evidently, the striking feature here is not the difference in skills levels among grades (which is completely expected) but the absence of statistically significant differences between the youngest and the oldest with the item "record videos" (within the content creation competency level, Table 8: https://goo.gl/lx6io5).

Table 4. Time spent in activities using ICTs

Activity	Mean	Std. Dev	(%) No time spent	(%) Several times per month	(%) 1-2 times per week	(%) 3-4 times per week	(%) Almost every day	N
1. Play	2,68	1,91	5,7	11,5	30,1	19,9	**32,7**	672
2. Search for information on Internet	2,27	1,941	10,2	19,1	**28**	24	18,4	674
3. Search for videos or music	2,39	1,515	9,6	18,1	27	17,5	**27,7**	675
4. Watch movies	1,27	1,142	**32,3**	26,4	28,3	7,9	5	674
5. Do homework	1,44	1,109	19,5	**40,4**	22,7	11,3	6,1	673
6. Chat or talk with friends	2,11	1,588	26,2	11,3	19,5	11,8	**31,3**	673
7. Write emails	1,08	1,308	**48,7**	19,1	15,3	8,9	8	672

4. Discussion and conclusions

The coexistence of the student body corresponding to the Z Generation, currently at the primary education stage, and ICTs is clear. Access to technology at an early age is a characteristic of this generation, as noted in the theoretical framework (Prensky, 2001; Feixa, 2006; Schroer, 2008). This is also apparent from the present investigation, where we found that the student body at lower grade levels (2nd grade of primary) uses ICTs and demonstrates an amount of usage time higher than that of the student body in the highest primary grade. These data reinforce the arguments that with increasing precocity children are intensely engaged with screens (García, Callejo, & Walzer, 2004; Blanco & Römer, 2011), since - as research demonstrates - before they learn to read and write with ease they surf the Net and use all kinds of digital devices.

However, this study demonstrates that simple exposure to, use of and coexistence with media and technology do not imply development of digital skills. Data obtained in the evaluation of digital competency of the student body belonging to the Z Generation indicate low skill levels, in contrast with expectations of digital natives. These results point to a new type of digital divide among those born with technologies, not due to lack of use or access but to a lack of digital skills (Van-Deursen & Van-Dijk, 2010). We therefore agree with the premise indicated by several authors (Cabra-Torres & Marciales-Vivas, 2009; Cobo & Moravec, 2011) who refer to the fallacy of the digital native. From our perspective, this concept would assume that the child has access to and coexists with ICTs, not that the child knows how to use digital technologies. In this regard, Horizon Report Europe 2014 (Johnson & al., 2014) points to the insufficient digital skills of European children and adolescents, which corresponds to the present findings of the sample we analyzed, where the lack of significant variance in the general level of digital skills among the students in primary education grades reflects, to some extent, that such a level is acquired by coexisting with ICTs and not because of adequate development in a school context that increases acquisition in a gradual and progressive manner.

Table 5. Level of digital skills among Primary School students

Level	N	%
Nil	153	22,5%
Low	282	41,6%
Medium	210	30,9%
Advanced	33	5%
Total	678	100%

While we understand that this study has limitations, it does nonetheless offer objective clues for future lines of investigation that reinforce the need to address digital skills in school, focusing on the development of their component areas, enhancing them to surpass the level of daily use and raise them to an academic level that will eventually facilitate the development of digital abilities for the world of employment (Diario Oficial de la UE, C451, 2014). If, as we have noted, current digital skill levels correspond largely to the stimulation of a socio-familiar context and the child's contact with ICTs, there is a danger that these skills, if not well developed or cared for in an educational context, will propitiate inequalities in the promotion of digital competency. Education has the challenge and responsibility of offering a response tailored to this reality, transitioning toward a School 2.0 that does not overestimate the digital skills of the student body and that allows students the possibility to not just sit in front of screens, but to do so in an effective manner, repositioning the need for critical and participative lite-

racy in the handling, creation, and dissemination of information (Suñé & Martínez, 2011).

To achieve this it is necessary to sensitize teaching staff as to the actual digital competence level of the student body, focusing on the fact that digital literacy is not inherently achieved through the use of technology but rather needs adequate instruction (Cabero & Marín, 2014). The following are some guidelines that may steer the teaching-learning process of the student body of a Z Generation, which tends to place high expectations on technology and develops independent or autodidactic learning, and perhaps facilitate a real and effective inclusion of digital skills in the Primary School curriculum:

• Design assignments that assume the student body will apply skills and strategies to access information, to decode and construct new messages in an ethical and critical manner that favors the development of transmedia navigation and an ability to follow the flow of media information.

• Organize tasks and undertakings that entail the utilization of technology in a collaborative manner, incorporating networking activities.

• Organize activities that entail the development of critical judgment to evaluate the reliability and veracity of the information sources being accessed.

• Assume that the role of the instructor in the classroom should be more as an energizer and supervisor and not so much as a transmitter of information.

• Develop problem-solving through technological resources from a collective, participative and active perspective.

• Introduce gamification as a teaching strategy, incrementing motivation, team work and development of ethical values.

These strategies, in our view, should help favor the development of a School 2.0 that responds with quality and efficacy to the need for digital and media literacy in a student body which is exposed to electronic devices and should acquire digital skills to utilize technologies in a critical and effective manner (Ferrés, García, & al., 2011).

Table 6. Contingency analysis between skill levels by grade

		Nil	Low	Medium	Advanced	Total
Second grade	Count	27	16	8	1	52
	% within the grade	**51,9%**	30,7%	15,3%	1,9%	100%
Third grade	Count	40	50	28	7	125
	% within the grade	32%	**40%**	22,4%	5,6%	100%
Fourth grade	Count	43	71	46	4	164
	% within the grade	26,20%	**43,20%**	28%	2,40%	100%
Fifth grade	Count	26	77	67	8	178
	% within the grade	14,60%	**43,20%**	37,60%	4,40%	100%
Sixth grade	Count	17	68	61	13	159
	% within the grade	10,60%	**42,70%**	38,30%	8,10%	100%

References

Aguaded, I., Marín-Gutiérrez, I., & Díaz-Pareja, E. (2015). La alfabetización mediática entre estudiantes de Primaria y Secundaria en Andalucía (España). *RIED*, 18(2), 275-298. doi: http://dx.doi.org/10.5944/ried.18.2.13407.

Ala-Mutka, K. (2011). *Mapping Digital Competence: Towards a Conceptual Understanding*. IPTS, European Commission. Luxembourg: European Commission. (http://goo.gl/S3bN3H) (2016-05-12).

Almerich, G., Suárez, J., Orellana, N., Belloch, C., Bo, R., & Gastaldo, I. (2005). Diferencias en los conocimientos de los recursos tecnológicos en profesores a partir del género, edad y tipo de centro. *Revista Electrónica de Investigación y Evaluación Educativa*, 11(2). (https://goo.gl/SNg7yF) (2016-05-22).

Bennett, S., Maton, K., & Kervin, L. (2008). The Digital Natives Debate: A Critical Review of the Evidence. *British Journal of Educational Technology*, 39(5), 775-786. doi: http://doi:10.1111/j.1467-8535.2007.00793.x

Blanco, I., & Römer, M. (2011). *Los niños frente a las pantallas*. Madrid: Universitas.

Cabero, J., & Llorente, M.C. (2008). La alfabetización digital de los alumnos. Competencias digitales para el siglo XXI. *Revista Portuguesa de Pedagogía*, 42(2), 7-28. (http://goo.gl/k30zXH) (2016-04-17).

Cabra-Torres, F., & Marciales-Vivas, G.P. (2009). Mitos, realidades y preguntas de investigación sobre los 'nativos digitales': una revisión. *Universitas Psychologica*, 8(2), 323-338. (http://goo.gl/TzPrWO) (2016-05-15).

Cassany, D., & Ayala, G. (2008). Nativos e inmigrantes digitales en la escuela. *CEE, Participación Educativa*, 9, 53-71. (http://goo.gl/VSFlg1) (2016-03-20).

Creswell, J.W. (2009). *Research Design. Qualitative, Quantitative, and Mixed Methods Approaches*. Thousand Oaks, CA: Sage.

Cabero, J., & Marín, V. (2014). Miradas sobre la formación del profesorado en TIC. *Enl@ce*, 11 (2), 11-24. (https://goo.gl/BEBkcG) (2016-04-20).

Cobo, C., & Moravec, J.W. (2011). *Aprendizaje invisible. Hacia una nueva ecología de la educación*. Barcelona: Laboratori de Mitjans Interactius / Publicacions i Edicions de la Universitat de Barcelona, Col.lecció Transmedia XXI. (http://goo.gl/kzAMW6) (2016-05-17).

Diario Oficial de la EU (2014). *Dictamen del Comité Económico y Social Europeo sobre la Sociedad Digital C451: Acceso, educación, formación, empleo, herramientas para la igualdad*. (http://goo.gl/Vol1NC) (2016-02-20).

Feixa, C. (2006). Generación XX. Teorías sobre la juventud en la era contemporánea. *Revista Latinoamericana de Ciencias Sociales, Niñez y Juventud*, 4(2), 21-45. (http://goo.gl/kmdCI2) (2016-01-12).

Fernández, F.J., & Fernández, M.J. (2016). Los docentes de la Generación Z y sus competencias digitales [Generation Z's Teachers and their Digital Skills]. *Comunicar*, 46, 97-105. doi: http://dx.doi.org/10.3916/C46-2016-10

Ferrari, A. (2012). *Digital Competence in Practice: An Analysis of Frameworks*. JRC Technical Reports. Joint Research Center. European Commission. doi: http://dx.doi.org/10.2791/82116

Ferrari, A. (2013). *A Framework for Developing and Understanding Digital Competence in Europe*. IPTS Reports. Luxembourg: Euro-

pean Commission. doi: http://dx.doi.org/10.2788/52966

Ferrés, J., García-Matilla, A., Aguaded, I., Fernández, J. Figueras, M., & Blanes, M. (2011). *Competencia mediática. Investigación sobre el grado de competencia de la ciudadanía en España*. Madrid: Instituto de Tecnología Educativa. (http://goo.gl/ZRfeHm) (2016-02-15).

Gallardo, E. (2012). Hablemos de estudiantes digitales y no de nativos digitales. *UT, Revista de Ciències de l Educació*, 7-21. (https://goo.gl/6mxgj7) (2016-05-12).

García, A., Callejo, J., & Walzer, A. (2004). *Los niños y los jóvenes frente a las pantallas: situación de los medios de comunicación y las nuevas tecnologías de la información en España en el ámbito de la infancia y la adolescencia*. Madrid: INJUVE, Ministerio de Trabajo y Asuntos Sociales.

González, J., Espuny, C., & de-Cid, M.J. (2012). INCOTIC-ESO. Cómo autoevaluar y diagnosticar la competencia digital en la Escuela 2.0. *Revista de Investigación Educativa*, 30(2), 287-302. doi: http://dx.doi.org/10.6018/rie.30.2.117941

Gros, B., & Forés, A. (2013). Usos de la geolocalización en Educación Secundaria para la mejora del aprendizaje situado: Análisis de dos estudios de caso. *Relatec*, 12(2), 41-53. (http://goo.gl/20eVLJ) (2016-02-19).

Janssen, J., & Stoyanov, S. (2012). *Online Consultation on Experts Views on Digital Competence. JCR Technical Reports. Joint Research Center.* Luxembourg: European Commission. doi: http://dx.doi.org/10.2791/97099

Johnson, L., Adams- Becker, S., Estrada, V., Freeman, A., Kampylis, P., Vuorikari, R., & Punie, Y. (2014). *Horizon Report Europe: 2014 Schools Edition*. Luxembourg: Publications Office of the European Union, & Austin, Texas: The New Media Consortium. (https://goo.gl/swgTRu) (2016-05-16).

Larraz, V. (2013). *La competencia digital a la Universitat. (Tesis doctoral)*. Universitat d´Ándorra. (http://goo.gl/WvYJHq) (2016-02-07).

Martin, A. (2008). Digital Literacy and the Digital Society. In C. Lankshear, & M. Knobel, (Eds.), *Digital Literacies: Concepts, Policies and Practices* (pp.151-176). New York: Peter Lang.

Mut, A., & Morey, M. (2008). Preferencias en el uso de Internet, televisión, videoconsolas y teléfonos móviles entre los menores de las Islas Baleares. *Edutec*, 27. doi: http://dx.doi.org/10.21556/edtec.2008.27.460

Orden ECD/65/2015, de 21 de enero, por la que se describen las relaciones entre las competencias, los contenidos y los criterios de evaluación de la Educación Primaria, la Educación Secundaria Obligatoria y el Bachillerato. *Boletín Oficial del Estado (España)*, 25, de 29 de enero de 2015. (http://goo.gl/opAkCi) (2016-02-16).

Pérez-Escoda, A. (2015). *Alfabetización digital y competencias digitales en el marco de la evaluación educativa: Estudio en alumnos y profesores de Educación Primaria de Castilla y León. (Tesis Doctoral)*. Salamanca: Universidad de Salamanca. (http://goo.gl/1AvJBP) (2016-03-16).

Prensky, M. (2001). Digital Natives, Digital Immigrants. Part 1. *On the Horizon*, 9(5), 1-6. (http://goo.gl/93tth3) (2016-01-05).

Reig, D., & Vilchez, L. (2013). *Los jóvenes en la era de la hiperconectividad: tendencias, claves y miradas*. Madrid: Fundación Telefónica.

Sáez, J.M. (2011). Opiniones y práctica de los docentes respecto al uso pedagógico de las tecnologías de la información y la comunicación. *Revista Electrónica de Investigación y Docencia*, 5, 95-113. (http://goo.gl/tVwLv1) (2016-04-27).

Schroer, W. (2008). Defining, Managing and Marketing to Generations X, Y and A. *The Portal*, 10, 9. (http://goo.gl/1sKPQr) (2016-04-10).

Sendín, J., Gaona, P., & García, A. (2014). Nuevos medios: usos comunicativos de los adolescentes. Perspectivas desde los nativos digitales. *Estudios sobre el Mensaje Periodístico*, 20(1), 265-280. (http://goo.gl/btHTR8) (2016-05-02).

Sigalés, C., & Mominó, J. (Eds.) (2004). *La escuela en la sociedad Red. Internet en el ámbito educativo no universitario*. Barcelona: UOC. (http://goo.gl/VZHjUo) (2016-05-02).

Sigalés, C., Mominó, J.M., Meneses, J., & Badia, A. (2008). *La integración de Internet en la educación escolar española: situación actual y perspectivas de futuro. Informe de Investigación*. Barcelona: Universitat Oberta de Catalunya / Fundación Telefónica. (http://goo.gl/FlGO9j) (2016-11-06).

Suñé, X., & Martínez, I.S. (2011). *La Escuela 2.0 en tus manos. Panorama, instrumentos y propuestas.* Madrid: Anaya Multimedia.

Tapscott, D. (2008). *Grown Up Digital: How the Net Generation is Changing Your World*. Madrid: McGraw-Hill.

Thomson, K., Jaeger, P., Greene, N., Subramanian, M., & Bertot, J. (2014). *Digital Literacy and Digital Inclusion*. Meryland: Rowman & Littlefield.

Van-Deursen, A., & Van-Dijk, J. (2010). Internet Skills and Digital Divide. *New Media and Society*, 13 (6), 893-911. doi: http://dx.doi.org/10.1177/1461444810386774

Wolton, D. (2000). *Surviving the Internet*. Barcelona: Gedisa.

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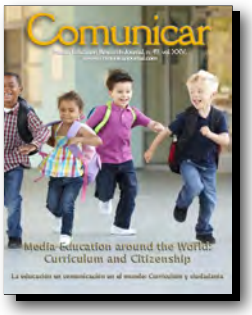

Teachers' Perceptions of the Digital Transformation of the Classroom through the Use of Tablets: A Study in Spain

Percepción docente sobre la transformación digital del aula a través de tabletas: un estudio en el contexto español

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ABSTRACT

This study examines the transformation of classroom dynamics brought about by the use of tablets for educational purposes. The empirical bases of this study were defined by the "Samsung Smart School" project, which was developed by Samsung and Spain's Ministry of Education during academic year 2014-15, in which teachers and 5th and 6th year students attending 15 primary schools across several Autonomous Communities in Spain were provided with tablets. The research sample comprised 166 teachers. A qualitative analysis strategy was applied by means of: a) non-participant observation, b) focus groups, c) semi-structured interviews with teachers, and d) content analysis of teaching units. These techniques enabled us to extract and examine six dimensions of teaching (educational objective, teaching approach, organization of content and activities, teaching resources, space and time, and learning assessment). Our findings show that teachers tend to apply a transversal approach when using tablets to work on different competencies, focusing more on activities than on content through the use of apps. They reclaim the act of play as part of the learning process, and indicate tablet use encourages project-based learning. To sum up, this study shows that teachers view tablets not only as a technological challenge, but also as an opportunity to rethink their traditional teaching models.

RESUMEN

El presente estudio examina la trasformación de la dinámica del aula a través del uso educativo de las tabletas. La base empírica de este estudio se enmarca en el proyecto «Samsung Smart School», desarrollado entre Samsung y el Ministerio de Educación de España en el curso 2014-15. Se dotó de tabletas a profesores y alumnos de aulas de 5º y 6º de primaria de 15 centros de Educación Primaria de distintas comunidades autónomas del territorio Español. En suma el estudio se llevó a cabo con una muestra comprendida por 166 docentes. Se empleó una estrategia analítica cualitativa mediante: a) observación no participante, b) grupos focales, c) entrevistas semiestructuradas al profesorado y d) análisis de contenido de unidades didácticas. Dichas técnicas permitieron abordar el estudio de seis dimensiones pedagógicas (finalidad educativa, enfoque pedagógico, organización de contenidos y actividades, recursos didácticos, espacio y tiempo y evaluación del aprendizaje). Los hallazgos evidencian la tendencia del profesorado a trabajar con tabletas de forma transversal distintas competencias, centrarse en las actividades más que el contenido a través de las apps, asumir el reto de recuperar el juego como parte del aprendizaje y poner en práctica el aprendizaje basado en proyectos. En suma, la principal evidencia es que los docentes entienden la tableta no solo como un reto tecnológico, sino como la oportunidad para repensar sus modelos pedagógicos tradicionales.

KEYWORDS | PALABRAS CLAVE

Educational technology, teaching, tablets, learning, m-learning, school culture, cooperative learning, educational apps.
Tecnología educativa, pedagogía, tabletas, aprendizaje, aprendizaje móvil, cultura escolar, aprendizaje cooperativo, aplicaciones educativas.

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1. Introduction and state of the question

The use of mobile devices in the classroom is currently a subject of keen interest for the teaching community (Johnson, Adams-Becker, Estrada, & Freeman, 2014), not only for the huge potential they offer for enriching the educational process (Traxler & Wishart, 2011) but also for their broad acceptance, accessibility and the educational expectations they generate (Maich & Hall, 2016). This recognition is not just a question of the increasingly sophisticated nature of these technological devices in terms of their use in education (Kanematsu & Barry, 2016), but also due to factors such as: the increase in sales of mobile devices over personal computers, the exponential development of educational devices, the potential to access educational resources or the experience of ubiquitous anytime connection that opens up new paths for education and learning (Haßler, Major & Hennessy, 2015; Kim & Frick, 2011).

The huge increase in the use of personal devices at home and school poses important questions concerning their usage and role in the development and process of learning (Chiong & Shuler, 2010, Crescenzi & Grané, 2016; Price, Jewitt, & Crescenzi, 2015; Ruíz & Belmonte, 2014). The presence of these devices in students' everyday lives means that we can now talk in terms of some serious emerging educational alternatives, with technology such as BYOD (Bring Your Own Device) (Arias-Ortiz & Cristia, 2014) or "the flipped classroom" (Davies, Dean, & Ball, 2013). The potential is even greater when you find the same, or even more, technology at home than at school (Mascheroni & Kjartan, 2014).

However, although the advantages of using mobile devices in the classroom seem evident, the "positive impact" of their emergence in formal education is by no means overwhelming. Several studies show that their use in the classroom improves the quality of education as opposed to traditional learning methods, while others do not find sufficient empirical evidence to justify such positive claims. In this sense, Nguyen, Barton and Nguyen (2015) show that although the use of tablets in the educational context enhances the learning experience, it does not necessarily lead to improvements in performance. Similar studies coincide with works by Leung and Zhang (2016) and Dhir, Gahwaji and Nyman (2013), who point out that while tablet use can stimulate motivation towards learning, its real impact is limited. Instead, motivation to learn is based on challenge, curiosity, cooperation and competitiveness rather than the use of these devices in the classroom (Ciampa, 2014).

Studies on the use of tablets in education tend to report on what works and what does not, or on the scenarios and conditions that must be in place for technology and "mobile learning" to function in class. In other words, they provide good practice models that aim to act as a teacher toolkit on the subject. The question posed by educational studies on tablet use should not be about whether these devices are effective or not, but how they can be deployed in the classroom and whether their use continues to be conditioned by traditional pedagogical or text book-based models (Marés, 2012).

Apart from academic performance, tablets can also enhance the learning experience in the classroom. For example, Kucirkova (2014) shows that the academic value of a tablet depends on the features of the apps and how their content can influence participation in the classroom. Likewise, Falloon (2013) shows how app design and content are crucial for learning in a productive and motivating setting, as demonstrated by the author with an effective intervention programme based on a careful selection of apps for the classroom. Falloon (2015) also shows that tablet usage in the classroom can consistently broaden students' learning provided there is a carefully designed itinerary based on collaboration, debate and negotiation, and sufficient role changing when group work is undertaken. This type of study, like the work we present here, insists on the pedagogical rather than the technological component (Flewitt, Messer, & Kucirkova, 2015).

According to Ciampa (2014), academic research into tablet use in the classroom should focus on the pedagogical benefits, the device's potential for self-directed learning, personalization of the device, team work, increasing and improving communication and collaboration, reinforcing autonomous learning, students' commitment and motivation, the potential for individualized learning (personalized), more effective special needs teaching and the creation of interactive classroom environments (Kim & Jang, 2015). All this forms part of the "pedagogical culture" surrounding technology, and tablets, that all teachers need to develop (Freire, 2015).

So, the use of technology in general, and tablets in particular, should adhere to the premise that pedagogy involves technology, not the reverse (Hennessy & London, 2013). Without an alternative pedagogical model based on good practices, mobile devices amount to no more than a sophisticated resource in the teaching and learning process, one more piece of academic furniture (Suárez-Guerrero, 2014). So, the objective of our study is to understand and characteri-

ze the pedagogical model designed to promote the educational use of tablets in the classroom rather than determine if there is a causal link between tablet use and improved academic performance. Our work is aligned to Botha and Herselman (2015) in terms of understanding the process of integrating tablets as one part of the technological and pedagogical ecosystem.

Table 1. The digital education toolkit - environments and challenges
(Suárez-Guerrero & al., 2015)

Areas of intervention	Challenges
Students	Safety in the online digital environment Lack of digital literacy required for learning Using play as a way of learning (gamification)
Teachers	Technical aspects Increased workload New pedagogical approaches for mobile learning between school and home. New teaching roles The combination of "content and activities" Too much focus on technology Rigidity in the curriculum Assessment
School context	Resistance from the family Loneliness of the innovator

To discover teachers' perceptions of the digital transformation of the classroom via the educational use of tablets, we analysed the "Samsung Smart School" project set up by Samsung Electronics Iberia, in collaboration with Spain's Ministry of Education, Culture and Sport, and several of the country's Autonomous Communities involved in the project. The project analysed the educational changes that occurred in classroom dynamics as a result of the implementation of the "Samsung Smart School" in Spain in academic year 2014-15. The project encouraged the use of tablets in 5th– and 6th-year primary schools students in the Autonomous Communities of Aragón, Asturias, Canarias, Cantabria, Castilla-La Mancha, Castilla y León, Extremadura, Galicia, Islas Baleares, La Rioja, Madrid, Murcia, Navarra, and the Autonomous Cities of Ceuta and Melilla.

Given that understanding the process by which teachers appropriate the technology is fundamental to identifying the challenges of technology in education, and in order to help teachers manage this process, the study we made also led us to design a Digital Education Toolkit for just such users. The toolkit provides 13 structured didactic recommendations covering three major areas of intervention (table 1) so that teachers in general, and those teachers involved in the "Samsung Smart School" in particular, can learn how to manage tablets better from an educational perspective (Suárez-Guerrero, Lloret-Catalá, & Mengual-Andrés, 2015). This article describes the research process and the results on which the toolkit is based.

2. Material and methods

2.1. Aim of the study

The aim of this was to discover the pedagogical changes that occurred in the classroom as a result of the use of the tablet, based on teachers' activities and perspectives, within the framework of the "Samsung Smart School" project in Spain in academic year 2014-15. For this project Spain's Ministry of Education, Culture and Sport, through the National Institute of Educational Technologies and Teacher Training (INTEF), and the educational authorities in Spain's Autonomous Communities and Samsung selected one primary school centre from each of the participating Autonomous Communities and from the Autonomous Cities of Ceuta and Melilla, based on the following criteria: a) schools in remote rural areas, b) areas with high school drop-out rates, c) areas with high levels of unemployment, d) Special Education centres.

2.2. Design

This research applied a qualitative approach based on Grounded Theory (Glaser & Strauss, 2009) and aimed to study the educational uses of tablets in primary school settings through six pedagogical dimensions:

- Educational Objective: Which competences does the teacher aim to develop in the classroom with tablets?
- Teaching approach: Which approach for student learning does the teacher apply in the use of tablets in the classroom?
- Content and activities: What content does the teacher use and how does he/she develop it with the tablet?
- Teaching resources: What materials does the teacher use to develop learning through tablets?
- Space and time: How do tablets transform education in the classroom and how does the teacher manage time?
- Learning assessment: How are tablets used to evaluate students' learning?

We studied these dimensions by applying four

qualitative data-gathering techniques: a) non-participant observation, b) focus groups, c) virtual interviews, d) analysis of the content of the project's teaching units.

2.3. Participants and procedure

The study population consisted of 166 teachers and 766 students from 15 primary education centres. Of the teachers, 29.8% were men and 67.5% women, and their average age was 40.5 years. Among the students, 44.5% were girls and 55.5% were boys, aged between 10 and 11.

> The question posed by educational studies on tablet use should not be about whether these devices are effective or not, but how they can be deployed in the classroom and whether their use continues to be conditioned by traditional pedagogical or text book-based models

Firstly, we carried out a non-participant observation in four of the primary education centres involved in the project, in the provinces of Zaragoza, Guadalajara, Madrid and Murcia. These specific units were chosen by random sample. Three observers were responsible for developing this phase of the project. A check table was used to monitor the behaviour of the teachers and students related to the analysis of the dimensions proposed. A total of 12 check lists were formulated for subsequent treatment and analysis.

Secondly, focus groups were set up, and in order for all the centres to be represented, two focus groups were established, each holding a parallel two-hour session, one that consisted of teachers (n=7) and ambassadors –teachers who acted as project coordinators– at the project centres (n=8). The participants were selected by a cluster sampling procedure. The structure of the dynamic dealt with: a) habits, the relation to, and effect of, the use of tablets on students' attitudes; b) a SWOT analysis of classwork using technology; c) assessment of the "Samsung Smart School" project experience: perceptions, its potential and suitability for profiles/centres, optimization, and recommendations for implementation. The advantage of small-scale focus groups is that each participant's voice and opinion is heard (Wibeck, Dahlgren, & Oberg, 2007); it is also a common technique for gathering qualitative information in educational research (Puchta & Potter, 2004). Both sessions took place at the same time in two observation rooms with one-way mirrors, and were directed by two expert researchers who had been trained to prevent any deviation from the dimensions of the study. The project researchers had contact with session directors, and they monitored the sessions for later treatment and analysis.

The project also developed 13 virtual interviews consisting of at least one teacher/ambassador in each of the project centres. Using a semi-structured script of 10 open questions based on the six study dimensions, the 30-minute interviews –developed via Adobe Connect– gathered the perceptions of the interviewee on his/her experience of the integration of the technology in the classroom, the difficulties encountered and the recommendations and solutions they saw as feasible for other teachers in order to optimize the "Samsung Smart School" project. The 13 interviews were videoed for later treatment and analysis.

Finally, a qualitative content analysis (Mayring, 2000) was carried out on 80 teaching units used by the centres in the programme. The aim of this analysis was to understand the planning behind the teaching and learning process with tablets, as well as to detect good practices in the design of curricula with technology.

2.4. Data gathering and analysis

The data for this study were collected between December 2015 and May 2015. The interviews were videoed for subsequent analysis, with prior authorization from the interviewees. Data on the non-participant observations and focus groups were recorded manually while the teaching units were processed in RTF format. The content of the recordings, the observations, interviews and the teaching units were stored, processed and analysed, always with the utmost respect for the anonymity of the participants. The transcripts of the focus groups, interviews and non-participant observations generated a huge amount of information, so the approach of the analysis in terms of the study objectives helped us to manage these data

(Krueger & Casey, 2014). The data gathered by the instruments were processed and analysed using Atlas.ti 7 software, enabling us to analyse the content of the video recordings without the need to transcribe them. Likewise, the use of RTF and PDR files saved time on transcription and analysis.

Content analysis is a research technique suitable for formulating valid reproducible inferences from particular information that can be understood within the study context (Krippendorff, 1990). So, we performed a mixed (deductive and inductive) coding process based on the six dimensions of the study, which gave us an emergent coding (Strauss, 1987). By means of a qualitative analysis estimation –inferring relations rather than generating hypotheses– (Krippendorff, 1990), we ran an individual thematic analysis of the data by reading, codifying, recodifying, family assignation and data categorization –framed by the study dimensions- (Braun & Clarke, 2013). The themes generated were reviewed by the authors together in order to reach common agreement on the findings. The validity of the method used in this research is, therefore, rooted in compliance with the criteria described by Cresswell and Miller (2000): a) triangulation with data and researchers; b) reviewing with the members of the research team.

3. Analysis and results

Here we present the results of the analysis of the non-participant observations, the interviews, focus groups and analysis of the content of the teaching units organized around the six dimensions of the study:

3.1. Educational objective

In the teaching units generated within the project framework, the content analysis and observations reveal a clear trend towards developing learning activities with tablets that integrate the key competences in the various curricular areas. Nevertheless, the analysis of the teaching units shows a marked emphasis on developing the linguistic communication and digital competences. In contrast, mathematics and basic competences in science and technology receive least attention. It is worth noting that the very nature of the "Samsung Smart School" project enabled teachers to develop digital competence to an extent that had not been possible before due to limited access or family financial constraints: "If it weren't for the project, we could not have stimulated the development of the digital competence" (interview 7).

Furthermore, the interviews and focus groups showed that the teachers on the project saw the use of tablets in terms of learning activities related to the search for, and selection, organization and use of information, either individually or in groups. They also agreed that the educational use of tablets connected to Internet generated different expectations in the students in terms of information sources.

3.2. Teaching approach

The teachers in the interviews and focus groups insisted that tablets in the classroom could only be used effectively if there was a change in methodology, and that such a change must lead to the adoption of active methodologies like Project-Based Learning (PBL) and collaborative learning.

The participants also pointed out that when no pedagogy exists to exploit their educational potential, tablets amount to no more than a sophisticated reproducer of monotonous tasks. For example, one teacher from the ambassadors' focus group commented that "if you have no pedagogy, then tablets won't work in the classroom". And this pedagogy is not necessarily about improving teaching in the classroom but understanding the new activities that students are capable of doing when they use tablets in their learning, either as individual learners or in groups. This means that although PBL and collaborative learning are distinctive features of the project, there are also other pedagogical challenges that can be exploited to get the most out tablets in the classroom.

3.3. Content and learning activities

The interviews and focus groups showed that teachers now view the tablet as a notebook for students to manage their own learning in digital form. Beyond reading and writing, this "new notebook" can stimulate other activities such as investigation or multimedia-based tasks. So, for many teachers on the project, the main function of the classroom tablet is not to provide content, as if it were a book, but to enable students to get involved in, and develop, new types of activities and manage their own learning. One teacher put it like this: "After using a tablet, a class given in the traditional format no longer interests them…teachers must now reinvent their educational activities" (interview 11).

The analysis of the content of the teaching units revealed that two thirds of these units clearly aim to stimulate collaborative use of the tablet among students. In the main, they direct students towards enquiry and dialogue rather than individual work and competition between students. Little of the content analysed attempts to limit tablet usage to the development of one single type of curricular content.

The interviews and focus groups show how teachers now recognize that they are no longer the single source of information, and that the students are now an active component of classwork. Data also show that teachers recognize the considerable creative potential of tablets in the classroom, for example in editing documents, making presentations, scheduling a radio programme, online investigation, book design and editing photos and videos. And these are tasks that can be developed individually and in collaboration thanks to tablet technology.

3.4. Teaching resources

Data show a trend among the teachers to use apps that are not necessarily linked to specific content but which are generic in nature and allow students to perform a variety of learning activities across a spectrum of subject areas. The most popular are "sound and image treatment" apps that enable the students to create and design content (the camera, Tellagami, Aurasma, audio and video editor, etc.), and apps for communication and information browsing. The analysis of the didactic units demonstrated that the teachers use these apps to create activities: "Tablets can help us create learning activities, not just searching for information, which is the function of the book" (interview 4).

Yet the tablet is not the only resource in the classroom. The analysis of the teaching units and the visits to the centres showed how teachers use the tablet for teaching via the TV screen or the interactive digital whiteboard (PDI), if the centre had one, as well as by laptop/PC, and even cell phone. The teachers used tablets in different ways in the classroom, and opinions on their use varied. For example, the interviews revealed how some teachers thought that tablets were more versatile in fomenting the classroom dynamic than the laptop, and others said that PDIs were technological devices that reproduce traditional pedagogical models as opposed to tablets which clearly reinforce group work.

Another useful complement for teachers in class is the digital pencil S Pen, often used in conjunction with the S Note app. The teaching units' analysis showed that teachers made extensive use of the S Pen in activities involving writing by hand from note taking to drawing, which added value to the teaching in the classroom.

An important aspect that came up in the observations and focus groups was how the teachers saw that tablet as a tool for personalizing learning. In contrast to the conventional blackboard or PDI, which the teachers associated to the dissemination of content towards the class, the tablet represents an important advance in giving students individual attention and monitoring their work more closely. However, the teachers pointed out that to make this work successfully, more time would be needed to plan and develop activities for use on the tablet.

Another positive aspect for teachers is sustainability, which saves on photocopying, but also throws up a new problem in technological incompatibility between operating systems, web apps and files.

3.5. Space and time

The observations, interviews and focus groups noted the teachers' remarks on the fact that the students are also aware of the changes that have taken place in the classroom, not just due to the physical presence of technology but also for the change in the type of learning activities, the role of the teacher and student, as well as the physical reorganization of the classroom. In the focus group one teacher said: "The students are no longer sat in rows looking at other students' backs. Classes are now mobile".

The classroom is no longer a rigid environment with students lined up in rows listening to a teacher but an open flexible space endowed with a different dynamic in which everyone can stand up, walk around and talk to everybody else, and all this thanks to the tablet. Yet the analysis of the teaching units also showed how the teachers rarely used the tablet to move out of the classroom and occupy another area and transform it into an educational space.

The project teachers' opinions varied in terms of the time students need to be able to work autonomously with a tablet. There was no agreement on a definitive average time required for students to be tablet self-sufficient, as the responses to this question showed, because students' previous experience with technology and the frequency of tablet use in the classroom were important unquantifiable factors. However, all teachers insisted that the students needed to be given time to manage the device independently and to evolve from using the tablet as a toy to using it as a learning tool.

3.6. Assessing student learning

Although from the visits, interviews and focus groups we learned that some teachers feel that assessment "is the big unresolved issue", most of the project participants cited four changes in the way students are assessed: assessment as a game, the introduction of rubrics, the immediacy of feedback and the use of onli-

ne multiple choice assessment. The tools most widely used in this respect are Socrative, Kahoot, Rubistar or Google questionnaires. Analysing the teaching units helped us to see how traditional forms of assessment mixed easily with alternatives such as joint-assessment, self-assessment or even the opportunity to personalize learning. As one focus group member said: "The tablet gives you more flexibility; you can design material specifically for one particular student".

4. Discussion and conclusions

This study forms part of an emergent line of investigation in education, digital pedagogy. This pedagogy is under construction, and is fundamentally centred on assessing educational models that use technology in the classroom, and on detecting its potential use, the challenges it represents and trends in other educational spaces (Boling & Smith, 2014; Chai, Koh, & Tsai, 2013, Gros, 2015; Harris, 2013). This line of investigation, as this present research, is not about technology in itself but aims to know what technology can actually do in the classroom (Flewitt, Messer, & Kucirkova, 2015).

However, we must point out that this study was carried out in optimum technological conditions since, thanks to the "Samsung Smart School" project, teachers and students each had access to a tablet and an Internet connection. So, these pedagogical findings should be measured against settings and situations in which technology access for all students and teachers is not an issue.

The content analysis of the data generated by the four qualitative techniques enables us to infer (Braun & Clarke, 2013) that the project teachers face the challenge of the table not just from a technological perspective but also construct a pedagogical vision of its use in education (Butcher, 2016). Configuring the tablet with this pedagogical vision, as shown in the categorization of the six dimensions studied, is evident in the teachers' activity with, and perception and programming of, the tablets.

And despite what one might think, the project teachers' pedagogical vision of the tablet is evident not only in answer to the question "what tool do I use to learn?", which is associated to the apps in this study, but also in the definition of the educational objective, the conception of the didactics, the development of activities, the representation of educational space and time, and in the assessment of learning. As the results show, technology opens up a wide range of new educational functions that the teacher assumes as part of his/her curricular activity. This seems to be the trend in terms of the educational value of the new conditions generated by mobile devices for learning (Traxler & Kukulska-Hulme, 2016).

In terms of the main educational functions the Internet-connected tablet offers the primary school classroom dynamic, the project teachers recognize that although the most widely worked competences are linguistic communication and digital competence, the tablet enables them to work with various other competences transversally, and that the use of this device for educational purposes involves a change in teaching methodology that fits neatly with the development of Project-Based Learning and collaborative learning. Of course, tablets provide access to information but its main didactic use is not to contribute specific content but, thanks to the generic apps it contains, to develop a wide range of activities that evolve from information consumption to production, and which implies the development of a digital competence that is directly linked to multimedia language. And, the use of tablets can open up a rich seam for personalizing learning and joint-assessment (Botha & Herselman, 2015)

As the interviews and focus groups have shown, it is essential to understand that tablets presage –which does not mean to say that they cause– a series of transitions: the evolution of the tablet from toy to learning tool, from pedagogies of information consumption to pedagogies of creation, from static pedagogies to mobile pedagogies, from the potential of the text book to that of the digital notebook, from content to activities, from managing achievements to managing errors, and

> **Changes in education are not just about the use of the tablet in the classroom, rather it is the symbolic tool that teachers can use to think about all the pedagogical elements that range from new functions to transitions that demand going beyond the mere replacement of the old with the new.**

the biggest jump, from the image of technology as a neutral tool to one that stimulates change in standard classroom culture.

Changes in education are not just about the use of the tablet in the classroom, rather it is the symbolic tool that teachers can use to think about all the pedagogical elements that range from new functions to transitions that demand going beyond the mere replacement of the old with the new.

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References

Arias-Ortiz, E., & Cristia, J. (2014). *El BID y la tecnología para mejorar el aprendizaje: ¿Cómo promover programas efectivos?* IDB Technical Note (Social Sector. Education Division), IDB-TN-670. (http://goo.gl/EaJ97e) (2016-05-02).

Boling, E., & Smith, K.M. (2014). Critical Issues in Studio Pedagogy: Beyond the Mystique and Down to Business. In B. Hokanson, & A. Gibbons (Eds.), *Design in Educational Technology* (pp. 37-56). doi: http://dx.doi.org/10.1007/978-3-319-00927-8_3

Botha A., & Herselman M. (2015). A Teacher Tablet Toolkit to Meet the Challenges Posed by 21st Century Rural Teaching and Learning Environments. *South African Journal of Education*, 35(4). doi: http://dx.doi.org/10.15700/saje.v35n4a1218

Braun, V., & Clarke, V. (2013). *Successful Qualitative Research: A Practical Guide for Beginners*. London: Sage. (https://goo.gl/JG4ZTQ) (2016-05-02).

Butcher, J. (2016). Can Tablet Computers Enhance Learning in Further Education? *Journal of Further and Higher Education*, 40(2), 207-226. doi: http://dx.doi.org/10.1080/0309877X.2014.938267

Chai, C.S., Koh, J.H.L., & Tsai, C.C. (2013). A Review of Technological Pedagogical Content Knowledge. *Journal of Educational Technology & Society*, 16(2), 31-51. (http://goo.gl/jjdJly) (2016-05-02).

Chiong, C., & Shuler, C. (2010). *Learning: Is there an App for that? Investigations of Young Children's Usage and Learning with Mobile Devices and Apps*. New York: The Joan Ganz Cooney Center at Sesame Workshop (http://goo.gl/MsnjV4) (2016-05-02).

Ciampa K. (2014). Learning in a Mobile Age: An Investigation of Student Motivation. *Journal of Computer Assisted Learning*, 30(1), 82-96. doi: http://dx.doi.org/10.1111/jcal.12036

Crescenzi, L., & Grané, M. (2016). Análisis del diseño interactivo de las mejores apps educativas para niños de cero a ocho años [An Analysis of the Interaction Design of the Best Educational Apps for Children Aged Zero to Eight]. *Comunicar*, 46, 77-85. doi: http://dx.doi.org/10.3916/C46-2016-08

Cresswell, J.W. & Miller, D.L. (2000). Determining Validity in Qualitative Inquiry. *Theory into Practice*, 39(3), 124-130. doi: http://dx.doi.org/10.1207/s15430421tip3903_2

Davies, R.S., Dean, D.I., & Ball, N. (2013). Flipping the Classroom and Instructional Technology Integration in a College-level Information Systems Spreadsheet Course. *Educational Technology Research and Development*, 61(4), 563-580, doi: http://dx.doi.org/10.1007/s11423-013-9305-6

Dhir, A., Gahwaji, N.M., & Nyman, G. (2013). The Role of the iPad in the Hands of the Learner. *Journal of Universal Computer Science*, 19, 706-727. doi: http://dx.doi.org/10.3217/jucs-019-05-0706

Falloon, G. (2013). Young Students Using iPads: App Design and Content Influences on their Learning Pathways. *Computers & Education*, 68, 505-521. doi: http://dx.doi.org/10.1016/j.compedu.2013.06.006

Falloon, G. (2015). What's the Difference? Learning Collaboratively Using iPads in Conventional Classrooms. *Computers & Education*, 84, 62-77. doi: http://dx.doi.org/10.1016/j.compedu.2015.01.010

Flewitt, R., Messer, D., & Kucirkova, N. (2015). New Directions for Early Literacy in a Digital Age: The iPad. *Journal of Early Childhood Literacy*, 15(3), 289-310. doi: http://dx.doi.org/10.1177/1468798414533560

Freire M.M. (2015). The Tablet is on the Table! The Need for a Teachers' Self-hetero-eco Technological Formation Program. *International Journal of Information and Learning Technology*, 32(4), 209-220. doi: http://dx.doi.org/10.1108/IJILT-1020140022

Glaser, B. G., & Strauss, A. L. (2009). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. New Brunswick: Aldine Pub. Co.

Gros, B. (2015). The Dialogue between Emerging Pedagogies and Emerging Technologies. In B. Gros & M. Maina (Eds.), *The Future of Ubiquitous Learning. Learning Designs for Emerging Pedagogies* (pp. 3-23). doi: http://dx.doi.org/10.1007/978-3-662-47724-3_1

Harris, K.D. (2013). Play, Collaborate, Break, Build, Share: Screwing around in Digital Pedagogy. *Polymath: An Interdisciplinary Arts and Sciences Journal*, 3(3). (https://goo.gl/btNntM) (2016-05-02).

Haßler B., Major L., & Hennessy S. (2015). Tablet Use in Schools: A Critical Review of the Evidence for Learning Outcomes. *Journal of Computer Assisted Learning*, 32(2), 138-156. doi: http://dx.doi.org/10.1111/jcal.12123

Hennessy, S., & London, L. (2013). *Learning from International Experiences with Interactive Whiteboards: The Role of Professional Development in Integrating the Technology*. doi: http://dx.doi.org/10.1787/5k49chbsnmls-en

Johnson, L., Adams-Becker, S., Estrada, V., & Freeman, A. (2014). *NMC Horizon Report: 2014 K-12 Edition*. Austin, Texas: The New Media Consortium. (http://goo.gl/04lpc2) (2016-05-02).

Kanematsu, H., & Barry, D.M. (2016). From Desktop Computer to Laptop and Tablets. In H. Kanematsu, & D. M. Barry (Eds.), *STEM and ICT Education in Intelligent Environments* (pp. 45-49). doi: http://dx.doi.org/10.1007/978-3-319-19234-5_8

Kim H.J., & Jang H.Y. (2015). Factors Influencing Students' Beliefs about the Future in the Context of Tablet-based Interactive Classrooms. *Computers and Education*, 89, 1-15. doi: http://dx.doi.org/10.1016/j.compedu.2015.08.014

Kim, K.J., & Frick, T.W. (2011). Changes in Student Motivation during Online Learning. *Journal of Educational Computing Research*, 44(1), 1-23. doi: http://dx.doi.org/10.2190/EC.44.1.a

Krippendorff, K. (1990). *Metodología de análisis de contenido: Teoría y práctica*. Barcelona: Paidós.

Krueger, R., & Casey, M. (2014). *Focus Groups: A Practical Guide for Applied Research* (Fifth Edition). London: Sage. (https://goo.gl/U5g4yb) (2016-05-02).

Kucirkova, N. (2014). iPads in Early Education: Separating Assumptions and Evidence. *Frontiers in Psychology*, 5. doi: http://dx.doi.org/10.3389/fpsyg.2014.00715

Leung, L., & Zhang R. (2016). Predicting Tablet Use: A Study of Gratifications-sought, Leisure Boredom, and

Multitasking. *Telematics and Informatics*, 33(2), 331-341. doi: http://dx.doi.org/10.1016/j.tele.2015.08.013

Maich, K., & Hall, C. (2016). Implementing iPads in the Inclusive Classroom Setting. *Intervention in School and Clinic*, 51(3), 145-150. doi: http://dx.doi.org/10.1177/1053451215585793

Marés, L. (2012). *Tablets en educación, oportunidades y desafíos en políticas uno a uno.* Buenos Aires: EOI. (http://goo.gl/w0cHpc) (2016-05-02).

Mascheroni, G., & Kjartan, O. (2014). *Net Children Go Mobile. Risks and Opportunities.* Milano: Educatt (http://goo.gl/a7CB5H) (2016-05-02).

Mayring, P. (2000). Qualitative Content Analysis. *Forum Qualitative Social Research*, 1(2), Art. 20. (http://goo.gl/5tRTeY) (2016-05-02).

Nguyen, L., Barton, S.M., & Nguyen, L.T. (2015). iPads in Higher Education – Hype and Hope. *British Journal of Educational Technology*, 46(1), 190-203. doi: http://dx.doi.org/10.1111/bjet.12137

Price S., Jewitt C., & Crescenzi L. (2015). The Role of iPads in Pre-school Children's Mark Making Development. *Computers and Education*, 87, 131-141. doi: http://dx.doi.org/10.1016/j.compedu.2015.04.003

Puchta, C. & Potter, J. (2004). *Focus Group Practice*. London: Sage Publications.

Ruiz, F.J. & Belmonte, A.M. (2014). Young People as Users of Branded Applications on Mobile Devices [Los jóvenes como usuarios de aplicaciones de marca en dispositivos móviles], *Comunicar*, 43, 73-81, doi: http://dx.doi.org/10.3916/C43-2014-07

Strauss, A. (1987). *Qualitative Analysis for Social Scientists*. New York: Cambridge University Press.

Suárez-Guerrero, C. (2014). Pedagogía Red. *Cuadernos de Pedagogía*, 449, 76-80. (http://goo.gl/Ni0vll) (2016-05-02).

Suárez-Guerrero, C., Lloret-Catalá, C., & Mengual-Andrés, S. (2015). *Guía práctica de la educación digital*. Madrid: Samsung. (http://goo.gl/MA9TZ3) (2016-05-02).

Traxler, J., & Wishart, J. (2011). *Making Mobile Learning Work: Case Studies of Practice.* Bristol: ESCalate, HEA Subject Centre for Education, University of Bristol. (http://escalate.ac.uk/8250) (2016-05-02).

Traxler, J., & Kukulska-Hulme, A. (2016). *Conclusion: Contextual Challenges for the Next Generation. Mobile Learning: The Next Generation* (pp. 208-226). doi: http://dx.doi.org/10.4324/9780203076095

Wibeck, V., Dahlgren, M.A., & Oberg, G. (2007). Learning in Focus Groups: an Analytical Dimension for Enhancing Focus Group *Research*. *Qualitative Research*, 7(2), 249-267. doi: http://dx.doi.org/10.1177/1468794107076023

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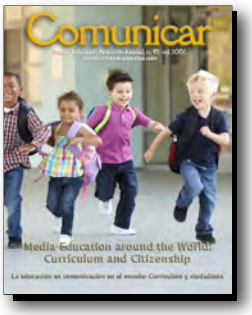

Dimensions and Indicators of the Information Quality in Digital Media

Dimensiones e indicadores de la calidad informativa en los medios digitales

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ABSTRACT

The current information ecosystem, crossed by a logic mediamorphosis, is increasingly generating the emergence of digital media and information portals that do not follow the formal publishing procedures of conventional media. The crisis of traditional media has also changed the way we become informed. However, information quality remains a factor for discussion in the absence of unified criteria for analysis. In this regard, the question arises: how do we evaluate and assess the quality of information in digital media? This study aims to seek agreement between academics and media professionals on the areas and dimensions of information quality of digital media according to objective or quantifiable values. For this, a taxonomy of the dimensions related to information quality was created, based on the review of scientific literature and further evaluated and validated by 40 experts, including scholars and media professionals alike, who focused on verifying the classification´s reliability. As a result, three macro areas of information quality, containing 21 areas, inherently comprised of a total of 75 dimensions, were validated. Lastly, this study proposes a structured model that will allow for the analysis of information quality of digital media, both in its pre-information phase catalogued in the media-business and on the media-workers' socio-occupational characteristics, as well as its final product and informational content.

RESUMEN

El actual ecosistema informativo, atravesado por una lógica de mediamorfosis, está generando con gran velocidad el surgimiento de medios digitales y portales informativos que no siguen los procedimientos editoriales formales de los medios convencionales. La crisis de los medios de comunicación tradicionales ha cambiado también nuestra forma de informarnos. Sin embargo, la calidad informativa sigue siendo un factor de discusión al no existir unidad de criterios para su análisis. En este sentido surge la pregunta ¿Cómo evaluar y valorar la calidad informativa de los medios digitales? Este trabajo contribuye a buscar convergencias entre académicos y profesionales de la comunicación sobre las áreas y dimensiones de la calidad informativa de los medios digitales en función de valores objetivos o cuantificables. Para ello se ha realizado una taxonomía de dimensiones de la calidad informativa a partir de la revisión de la literatura científica, para posteriormente someterla a la evaluación y validación por juicio de 40 expertos, académicos y profesionales de la comunicación, para verificar su fiabilidad. Como resultado, quedaron validadas tres macroáreas de la calidad informativa, que contienen 21 ámbitos que consideran intrínsecamente un total de 75 dimensiones. Esta investigación propone finalmente un modelo estructurado que permitirá analizar la calidad informativa de los medios digitales, tanto en su fase pre-informativa, catalogadas en el medio-empresa, las características sociolaborales de los trabajadores del medio, así como el producto final y el contenido informativo.

KEYWORDS | PALABRAS CLAVE

Digital media, information quality, information, journalism, Internet, digital journalism, evaluation.
Medios digitales, calidad informativa, información, periodismo, Internet, periodismo digital, evaluación..

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1. Introduction

Communication media are a fundamental pillar of society, as it is through the construction of information that public discourse is created, shaping the realities of our surroundings (Gieber, 1964; Searle, 1997; Watzlawick, 1976: 173). The role or public opinion as a counterweight guarantees democracy (Shoemaker, 2006; Shoemaker & Cohen, 2006), inserted in a context of western liberties and values (Schultz, 2000; McQuail, 1992: 23-66).

Mediamorphosis, characterized by a process of changing consumption habits, and the immediacy and gratuity of most of the media found on the Internet (Aguaded & Romero-Rodríguez, 2015: 45-56), has made many traditional media move to digital interfaces, pitting them "head-to-head" with novel undertakings that take advantage of the Net's simplicity for their development. This evidences the imposition of the information production model of the written press in these new stages (Barnhurst, 2013), and even calls into question the belief that the digital media generate novel information, different from what is produced by their conventional analogues (van-der-Wurff, 2008).

This information stage, ruled by immediacy and pushed into an ecosystem that does not necessarily rely on an editorial validation process, can decline into superficiality, imprecision and even infoxication and disinformation (Salaverría, 2005; Craig, 2011; Urban & Schweiger, 2014). Moreover, as commercialization difficulties increase, ergo the financial management of the media, due to exponential growth in competition, they (news outlets) could plunge into vices and violations of information quality norms in order to stay in the market (Bogart, 2000; Beck, Reineck & Schubert, 2010).

Therefore, it is very common and obvious to see a reduction of payroll in communication media outlets, cancellation of correspondents abroad, pay cuts and the violation of information worker's rights, in order to reduce information production costs to guarantee the media outlet's subsistence. All of this while the contents gravitate towards sensationalism (Gómez-Mompart, Gutiérrez-Lozano & Palau-Sampio, 2015; Romero-Rodríguez, De-Casas-Moreno, & Torres-Toukoumidis., 2015: 33), leisure and pseudo-information to garner attention from audiences and to increase internet traffic, which is translated as returns of capital investment.

This loss of media quality has led to loss of credibility from audiences (Ramírez-de-la-Piscina, Zabalondo, Agirre, & Aiestaran, 2015), due to the factual errors, as well as to the ignorance of journalistic principles of equality and impartiality. These were the conclusions of a 3-year public-opinion study conducted by the "American Society of Newspaper Editors" (1998), coinciding with later analysis such as those conducted by Wyss (2000), Singer (2005), Fortunati and others (2009) and Gómez-Mompart, Gutiérrez-Lozano and Palau-Sampio (2013). These analyses insist on prioritizing the creation of theories on dimensions and indicators of information quality of the media in view of being able to determine the right formulas for offering high-quality journalism.

2. Information quality: State of the art

Defining informational quality is not easy, as the term "quality" covers dimensions where the characteristics of an object –in this case the information product- are compared with certain standards that are linked to norms and values (Rosengren, Tagerud, & Carlsson, 1996). Therefore, quality is an indefinable term, defined through the subjective perception and interpretation of the user (Leggat, 1996). In practice, having a single criterion that is agreed upon by journalists, academics and audiences is a near impossible task (Wallisch, 1995; Gómez-Mompart & al., 2013; Urban & Schweiger, 2014). While for audiences that read some kind of information, quality can be expressed and defined by the clarity of presentation of a message or it is derived implicitly from the media outlet's brand or agency that created it, for a journalist, this could be based on the time it took to conduct the investigation, access to reliable sources, and the contrasting of information. However efforts have been made in the academic world to try to define quality and its components, based on more or less objective criteria.

For Picard (2004: 54-66), information quality is present when the amount of self-produced information is greater than that generated by external agents, and when information and education take precedence over leisure content. Also, it should be taken into account that said content should follow a method of information obtention, such as relying on diverse and contrasting of informational sources, as well as technical efficiency of the organization that allows the products to be well organized and understandable.

For Schultz (2000), information quality depends on three existing elements: availability of adequate resources, political and legal regulations that protect and guarantee the exercise of freedom by the communication media, and the journalist's adherence to professional standards. In addition, other essential aspects are the diversity of media and ideologies represented, as well as objectivity. In addition, the author explains

that informational quality is not only subject to internal conditions of the media, but also to the context where it is found.

This understanding is also supported by McQuail (1992: 23-66), who defines informational quality from the perspective of public interest, where the evaluation criteria are deduced from Western values such as liberty, equality and order. The authors do not conceive that information quality of the media could exist in countries that have democratic deficit, limitations to the exercise of associated liberties such as expression, information, access to official sources, nor in those countries lacking adequate available resources –whether economic, human or technological– for the journalistic endeavor.

Rosengren (1979: 31-45) arrived at the conclusion that the most adequate method for verifying the existence of information quality was to measure the journalistic discourse against statistical data or independent documentation. However, this method is limited to understanding quality only in terms of truthfulness or contrast, but does not take into account events that do not come or are not shown in official documents.

Two decades earlier, Lang and Lang (1953: 2-12) ensured that the formula for measuring truthfulness and objectivity of a journalist narrative is the comparing and contrasting of published information directly with witnesses present at the event. Halloran, Elliot and Murdock (1970) as well as Meyer (1987) have also recommended this method, but this is an evaluative process that due to the complexity of its execution, is impossible to perform for a representative amount of samples.

A third group of authors, among which we find Martin (2008), Bird (2010), Madianou (2010) and Costera-Meijer (2012), consider that excellence in the exercise of journalism is confronted with changes in the habits of information consumption, a tendency that prioritizes leisure content over any evidence of quality.

2.1. Taxonomies and models of evaluation

Most of the structural efforts for cataloguing normative dimensions of information quality have been performed by German and Dutch academia (Schatz & Schulz, 1992; Pottker, 2000; Arnold, 2009). Urban and Schweiger (2014: 823) unify these catalogs into six basic dimensions of informational quality: 1) diversity (of points of view and sources); 2) relevance (in terms of the usefulness of the information for the making of decisions); 3) exactness (of the information with respect to the events); 4) understandability (so that it is understandable by the audiences); 5) impartiality (to guarantee neutral and balanced informational coverage); 6) ethics (respect the fundamental rights of the people and maintain moral attitudes). On is part, Costera-Meijer (2012) presented a second method of evaluation and evaluation of journalism through the experiences of the user through common patterns such as participation (interactive component), representation (semantic component) and presentation (aesthetic component).

A third model, from authors van-der-Wurff and Schönbach (2011), catalogues and evaluates the elements of informational quality, as a function of codes of conduct and transparency using a 5-point scale, as follows: Carefully verify the facts (4.7); Separate editorial content from advertising (4.6); Complete identification of the sources (4.5); Avoid using journalist pseudonyms (4.4); Not manipulating images or declarations (4.4); Diversity of opinions (4.4); Understandability of the information (4.2); Transparency (4.1); Separating facts from opinion (4.1); Objectivity (3.9); Protection of privacy (3.8); Classification of the news as a function of their importance (3.7); Separate

> This means that information quality is not only subject to the final product of the media –the information–, but also to internal conditions and the context where the media is found. Therefore, when referring to quality and information standards of the media, far from being an unreachable subject due to its diverse subjective interpretations, all the stages of the productive process should obligatorily be taken into account, and the final product should be analyzed as an objective function of its indicators, dimensions and areas.

information from entertainment (3.5); Only publish information with informational value (3.0); Publish fast (2.9); Answer the audience's requests (2.4); and entertain the audience (2.2).

It is important to highlight that since 1995, a research team from the University of Chile, led by Silvia Pellegrini and Constanza Mujica (2006: 14-15), has started to apply a model of evaluation of journalistic quality in various countries in South America, creating the formula "Journalistic Added Value" (VAP). This formula is based on putting into operation concepts of equality, exactness, relevance and fairness –a concept inspired by Hagen (1995) and Hagen and Beren (1997: 158-178)–, so that they can be later measured in content analysis of the information (Alessandri, Edwards, & Porath, 1999: 114-115; Pellegrini & Mujica, 2006: 14-15). This analytical taxonomy studies the work by communication media exclusively through their content, taking into account two key moments in the journalistic process: the selection of information and the creation of units of information, each one with their respective indicators. Another important research effort is the one by Iglesias-García y González-Díaz (2012), who analyzed the quality of the digital newspaper VilaWeb through a model constructed "ad hoc" where indicators and score values were verified.

On their part, De-Pablos and Mateos (2004: 341-365) have developed a set of quality tags for printed media, which they state should be freely available to audiences. These take into consideration two aspects of the internal context of information production: media as a business and media as a place of work, as well as how information product (content) would be evaluated.

With regard to the first aspect, related to the business dimensions of the medium, De-Pablos and Mateos (2004: 359) explain that the composition of shareholders, the state of the accounts and distribution and sales data should be made available to the public. These data would allow readers to understand the economic and political interests of the medium, as well as its editorial inclination. In second place, in agreement with the social-work dimension, the authors ask that worker conditions be measured as a function of their number, productivity, professional qualification, degree of specialization on the designated source, deontological and style norms, degree of labor conflict, salary, shifts and workdays, as well as the staff's work benefits. Lastly, the model of quality tags, as well as the VAP model explained above (Pellegrini & Mujica, 2006), reviews the content as a function of the final product's quality, evaluating aspects such as: diversity of sources, frequency of use of corporate sources, use of document databases, percentage of their own subject matter, percentage of investigative journalism and degree of linguistic correctness.

We now proceed to posit an articulated taxonomy for the evaluation and assessment of information quality of digital communication media, focused on "online" editions of printed media, as well as those that have only a digital presence. The analysis of cyber-media aims to determine parameters of quality and to identify guidelines or tendencies. Also, the objective is to establish comparisons between the many existing digital media, and to create a reliable model of information quality.

3. Materials and methods

Starting with the literature review and the analysis of diverse methods mentioned in the academic literature, we now proceed to posit an articulated taxonomy for the evaluation and assessment of information quality of digital communication media, focused on "online" editions of printed media, as well as those that have only a digital presence. The analysis of cyber-media aims to determine parameters of quality and to identify guidelines or tendencies. Also, the objective is to establish comparisons between the many existing digital media, and to create a reliable model of information quality. For this, we start by structuring three macro-areas or index that have close relationship with information quality. These are: a) Business characteristics of the medium; b) Social-work conditions of the information professionals; c) Content and final product.

For each of these macro-areas or index, a set of areas and dimensions that come from the academic literature review are established a priori, especially the works by Alessandri and others (1999: 114-11), De-Pablos and Mateos (2004: 341-365), Pellegrini and Mujica (2006: 14-15), van-der-Wurff and Schönbach (2011) and De-Urban and Schweiger (2014: 823).

After the initial structuring of the taxonomy of information quality elements and their organization intro three macro-areas that contain 21 areas and 75 dimensions, their evaluation and validation by expert judgement was performed in order to verify the reliability of the model. Also, the granting of a quantitative assessment to each dimension would in practice allow for obtaining a score for each unit of analysis of the digital media.

3.1. Methodological strategies

The methodological framework that supports this empirical study was conducted through a selective methodology, with the objective of obtaining quantitative information from the population or professional branch, using a design that externally controls the correct selection of the elements of analysis and the systematization of the gathering of data on information quality of digital media (Gómez, 1990). In order to create the questionnaire, the main theoretical references that comprise this research were taken into account, pointing to the most-significant indicators to justify the object of study. In this sense, the validation of areas, dimensions and indicators was made through a quantitative poll comprised of 75 questions using a Likert scale of 1 to 5, where 1 corresponds to "completely disagree" and 5 to "completely agree".

Therefore, an expert judgement was used for the development of this tool which, according to Cabero and Llorente-Cejudo (2013: 14), consists in soliciting a set of people's judgements towards an object or opinion on a specific aspect. In this way, a total of 40 evaluators were used, of which 32 were European and 8 Latin American. We intended to delve into a double academic and professional viewpoint, with the aim of attaining an instrument with high index of reliability. From the total sample, 55% belonged to the academic sector, and 45% were journalism professionals or another sector related to communication. In order to obtain a high-quality tool, construct validation of the content was performed (Jaime, Galán, & Pacheco, 2016: 9). This was done with the aim of studying the units of analysis of the digital communication media, as well as the order and coherence of the proposed items, to subsequently conduct an exploratory factorial analysis tending to the mean and the standard deviation of each of the 75 items.

To measure the degree of agreement between the experts consulted, the statistical program SPSS was used, establishing the need to not reject the subjective elements that the judging could provide. In this way, if the agreement was high, there would be a greater consensus in the process of assessment, and therefore, a greater possibility of response by the instrument of measurement (Escobar-Pérez & Cuervo-Martínez, 2008; Robles & Rojas, 2015).

The internal consistency of the test was highly reliable, with a Cronbach's Alpha of .884, confirming the measuring of the multiple inter-related factors. According to George and Mallery (2003: 231), when the Alpha coefficient is >.90, we could say that the reliability of the instrument is excellent, and if it is >.80, we can say that it is good. On their part, Welch and Comer (1988) confirm that the reliability and internal consistency of the questionnaire can be calculated with Cronbach's Alpha and the correlation of the items through the use of a Likert-type scale that were used in this study. Then, when comparing the different items proposed, it can be stated that the internal consistency is good, as none of the indicators had a Cronbach's Alpha that was below .879.

4. Analysis of the results

In order to explain the validation of the instrument, it should be noted that the descriptive statistical data of the 75 items are presented, as well as the means, thus establishing a differentiation between the groups of those polled (academics or professional) that comprised our sample of expert judgment.

The first macro-area, focused on the business characteristics of the medium, received values close to 3, at the academic as well as at the professional level. The overall high values were found for items 10, 8 and 2, while the lowest scores were detected in items 4, 15 and 1. Also, the highest values in the academic sector were linked to items related to economic interests (4.77/item 2), the obligation of the right to respond (4.77/i10) and the code of ethics rules (4.64/i8). On their part, at the professional level, the values that garnered the highest results were the existence of a code of ethics rules (4.89/i8), the obligation of the right to respond (4.89/i10) and the acceptance of prizes given to journalists (4.78/i6).

On the other hand, the data on the lowest scores granted by the economic sector were those related to the legal entity (3.45/i1), the personnel hiring laws (3.82/i5) and the acceptance of prizes (3.91/i4). On

their part, the professional sector granted the lowest scores to the legal entity (3.61/i1), the personnel hiring laws (3.72/i15) and the acceptance of prizes (3.89/i4). Despite having an elevated mean in the work area, it can be concluded that there was unanimity among those polled (table 1).

Table 1. Descriptive statistical data of the business areas of the media

	Work type of those polled		
	Academia	Professional	Total
Business areas of the media			
1. Legal entity	3.45	3.61	3.52
2. Economic interest links	4.77	4.72	4.75
3. Transparency	4.41	4.39	4.40
4. Mean acceptance of prizes	3.91	3.89	3.90
5. Acceptance of prizes-editor	4.36	4.00	4.20
6. Acceptance of prizes journalists	4.23	4.78	4.47
7. Norms prizes and perks	4.23	4.22	4.23
8. Code of ethics norms	4.64	4.89	4.75
9. Disciplinary procedure norms	4.41	4.61	4.50
10. Obligation to reply norms	4.77	4.89	4.83
11. Right to reply norms	4.50	4.61	4.55
12. Obligation to rectify norms	4.09	4.06	4.07
13. Policies of internal communication	4.45	4.44	4.45
14. Plans for continuous training	4.18	4.22	4.20
15. Hiring of personnel norms	3.82	3.72	3.77
16. Manual of obligations and functions	4.05	4.06	4.05
17. Complaints and dismissals	4.00	4.22	4.10

The second macro-area, related to the social-work conditions of the professional sector, received a score close to 3, with some high scores in a few dimensions. The high scores at the academic level were given to items related to the mean of editor and directors in communication media (4.82/i20), the mean of members of the Editorial Board (4.77/i19). Lastly, the mean of members of the Management Board, the mean of staff and the mean of photographers, all obtained the same score (4.5/i18, i21, i22). As for the professional sector, the highest assessment was linked to the mean of the members of the Editorial Board and the mean of editor and directors, both with the same score (4.83/i19, i20), and the mean of staff and the mean of photographs, also with similar values (4.72/i21, i22).

On the other hand, the lowest-scored items in the group of academics were given to the columnist's salary (3.50/i31), the percentage of junior journalists (3.41/i37) and health coverage (3.18/i33). On their part, the professional sector gave the lowest scores to study grants (3.44/i34), the average salary of their collaborators (3.33/i32) and health coverage (3.11/ i33).

It should be noted that this dimension had a more centered mean, despite counting with elevated values in some items. Also, it is necessary to indicate that there is a differentiation between the answer of some polled according to the sector they belonged to, but overall, only on the lowest scores (table 2).

Lastly, the third macro-area, whose aim was to analyze the content and the final product, received very high mean values, closer to 4. From the total obtained, the higher calculations corresponded to items 73, 75, 71 and 72, while the lowest scores belonged to items 60, 64 and 65. Therefore, the results that had the highest scores as given by the academic sector were found for the items related to: the coherence of the photographs (4.86/i75), linguistic correctness and understandability (4.77/i73) and with the same values, the use of primary sources, the ideological equilibrium of the columnists, the process of selection of front page news, and the statistical indicators (4.55/i49, i66, i71, i74). As for the professional sector, the data with the highest scores were connected to linguistic correctness and understandability (4.83/i73), coherence of photographs (4.72/i75) and the quality of basic elements of information (4.67/i72).

On the other hand, the lowest scores given by the academic sector were associated to the average of international information from agencies (3.64/i46), the average of news from geographical sub-areas per issue (3.59/i64) and geographical diversity of the columnists (3.18/i65). While in the professional field, the items with the lowest scores were those like the average of pseudo-information (3.56/i63) and with the same value, the use of self-created photographs, the average of educational content and the average of entertainment content (3.50/ i47, i59, i60).

In this last dimension, besides showing high values on the average, a lack of consistency between both sectors was also showed, coinciding with the acceptance of few similar items (table 3).

5. Discussion and conclusions

Designing a taxonomy for the evaluation and assessment of informational quality of media, specifically for digital media, is not an easy task, in the sense that quality is a polysemic term under subjective evaluation (Leggatt, 1996; Rosengren & al., 1996).

However, the present work shows and validates, through expert judgement, a series of areas, dimensions and indicators as selected by journalists (45%) and academics (55%). This task, in agreement with Wallisch (1995) and Urban and Schweiger (2014), was practically impossible due to the dissimilarities coming from the variety of interpretations of informational quality of the media that these two groups could have. Likewise, the present model allows for the combining the idea of the parameters and indicators, which, as indicated by Codina and others (2014), turns into a sort of "grammar" of evaluation, allowing the development of studies of cyber-media with the help of the dimensions and indicators posited in this study.

The model presented unifies and adapts models presented by Alessandri and others (1999: 114-115), De-Pablos and Mateos (2004: 341-365), Pellegrini and Mujica (2006: 14-15), van-der-Wurff and Schönbach (2011) as well as Urban and Schweiger (2014: 823), classifying information quality into three macro-areas. Two of these are related to the pre-production and journalistic production stages (Media-Business and Social-Work Aspects), and one analyzes the content of the media as a result or final product. These macro-areas are organized into 21 areas that intrinsically include total 75 dimensions.

In the first place, the macro-area "Business characteristics of the media", which contains 17 dimensions, achieved a score of acceptance of 4.2 points over 5. The dimension related to the legal form of the media (private, public or mixed capital) received the lowest score, with a total of 3.52/5. The area "Social-work conditions of professional media workers", with a total of 26 areas, obtained an average acceptance score of 3.93 points over 5. Within it, we found the dimension with the lowest score of the model, related to the health coverage given to journalists, with a score of 3.15. In third and last place, the macro-area "Content and final product of the media", which comprises 32 areas, was scored with an average of 4.14/5, with the lowest score given to the item relating to the geographical diversity of the columnist, with a score of 3.42/5. In this way, the evaluation performed by the experts leaves the model with an average score of 3.95/5. This score allows us to deduce that the experts consulted wholly approved the model presented, as the assessment of all the dimensions and indicators shown received a score above 3/5. Likewise, the global reliability of the instrument used for the gathering of data had a Cronbach's Alpha of 0.884, clearly indicating that the reliability was excellent, as the value was close to >0.9 (George & Mallery, 2003: 231).

These results equally back ideas proposed by Schultz (2000) in the sense that information quality was dependent on the availability of adequate resources, political and legal order that protects and guaran-

Table 2. Descriptive statistical data of the social-work areas of media workers

	Work type of those polled		
	Academia	Professional	Total
Social-work areas of media workers			
18. Mean members of the Management Board	4.50	4.39	4.45
19. Mean members of the Editorial Board	4.77	4.83	4.80
20. Mean editor and directors	4.82	4.83	4.83
21. Mean staff	4.50	4.72	4.60
22. Mean photographers	4.50	4.72	4.60
23. Average pay directors	3.86	3.50	3.70
24. Average pay coordinators	3.82	3.67	3.75
25. Average pay senior journalists	3.95	3.94	3.95
26. Average pay middle journalists	4.00	3.94	3.97
27. Average pay junior journalists	4.00	3.78	3.90
28. Average pay intern journalists	3.68	3.56	3.62
29. Average pay photographer	3.82	3.89	3.85
30. Average pay layout staff	3.77	3.83	3.80
31. Average pay columnists	3.50	3.56	3.53
32. Average pay collaborators	3.64	3.33	3.50
33. Health coverage	3.18	3.11	3.15
34. Study grants	3.68	3.44	3.57
35. Prizes for productivity	3.73	4.17	3.93
36. Percentage of interns	3.55	3.56	3.55
37. Percentage of junior journalists	3.41	3.61	3.50
38. Percentage of middle journalists	3.55	4.11	3.80
39. Percentage of senior journalists	3.68	4.22	3.92
40. Average years of stability photographers	4.41	4.39	4.40
41. Average years of stability columnists	3.86	3.78	3.83
42. Average years of stability collaborators	3.91	3.72	3.82
43. Average main occupation (full-time job)	4.18	3.89	4.05

Table 3. Descriptive statistical data of the information content and final product areas

	Work type of those polled		
	Academia	Professional	Total
Information content and final product areas			
44. Procedure for the defense of the reader	4.14	4.22	4.18
45. Mean of national information from agencies	3.82	4.06	3.93
46. Mean of international information from agencies	3.64	3.94	3.78
47. Use of self-created photographs	3.91	3.50	3.73
48. Use of corporate sources	4.18	3.78	4.00
49. Use of primary sources	4.55	4.39	4.48
50. Average of sources per information unit	4.41	4.44	4.43
51. Average of evidence and information variety	4.45	4.44	4.45
52. Average of sources identified	4.14	4.17	4.15
53. Credits in photography	3.77	3.89	3.83
54. Credits on the information	4.18	4.17	4.18
55. Credits in corporate information	4.27	4.22	4.25
56. Mean of information per issue	3.86	4.11	3.98
57. Mean of journalistic journalism	4.32	4.22	4.28
58. Mean of opinion per issue	3.91	3.72	3.83
59. Mean of educational content	4.05	3.50	3.80
60. Mean of leisure content	3.77	3.50	3.65
61. Mean of hard news per issue	4.18	3.78	4.00
62. Mean of social information per issue	3.95	3.83	3.90
63. Mean of pseudo-information	3.91	3.56	3.75
64. Mean of news from geographical sub-areas	3.59	3.67	3.62
65. Geographical diversity of columnists	3.18	3.72	3.42
66. Ideological equilibrium of the columnists	4.55	4.39	4.48
67. Selection process of columnists	4.41	4.33	4.38
68. Selection process of writers	4.45	4.39	4.43
69. Selection process of letters to the director	4.09	3.94	4.02
70. Process of titling of the information	4.36	4.50	4.42
71. Selection process of information on front page	4.55	4.50	4.53
72. Quality basic elements of the information	4.41	4.67	4.53
73. Linguistic correctness and understandability	4.77	4.83	4.80
74. Statistical indicators	4.55	4.44	4.50
75. Coherence of the photographs	4.86	4.72	4.80

tees the liberty of journalism and the journalist's adhesion to professional standards. This means that information quality is not only subject to the final product of the media –the information–, but also to internal conditions and the context where the media is found. Therefore, when referring to quality and information standards of the media, far from being an unreachable subject due to its diverse subjective interpretations, all the stages of the productive process should obligatorily be taken into account, and the final product should be analyzed as an objective function of its indicators, dimensions and areas. To conclude, the research presented supports future studies and activities that back the information quality of digital media. Likewise, future research could complete the unfinished list of indicators and dimensions that could help improve the weaker aspects of the evaluation of cyber-media.

References

Aguaded, I., & Romero-Rodríguez, L.M. (2015). Mediamorfosis y desinformación en la infoesfera: Alfabetización mediática, digital e informacional ante los cambios de hábitos de consumo informativo. *Education in the Knowledge Society*, 16(1), 44-57. doi: http://dx.doi.org/10.14201/eks20151614457

Alessandri, F., Edwards, C., & Porath, W. (1999). *Estudio de la calidad informativa de la crisis eléctrica. Actas del Seminario de Análisis Crítico de la Información Económica en Chile*. Santiago: Asociación Internacional de Periodistas de Economía y Finanzas (AIPEF). (http://goo.gl/UDa2nl) (2016-02-27).

American Society of Newspaper Editors (1998). *Examining our Credibility, why Newspaper Credibility has been Dropping?* Columbia: ASNE. (http://goo.gl/NXfUXX) (2016-01-14).

Arnold, K. (2009). *Qualitaetsjournalismus: Die Zeitung und ihr Publikum [Quality Journalism: The Newspaper and its Audience]*. Konstanz: UVK. (https://goo.gl/r41VF2) (2016-01-11).

Barnhurst, K.G. (2013). Newspaper´s Experiment Online: Story Content after a Decade on the Web. *Journalism*, 14(1), 3-21. doi: http://dx.doi.org/10.1177/1464884912448898

Beck, K., Reineck, D., & Schubert, C. (2010). *Journalistische Qualitaet in er Wirtschaftskrise [Journalistic Quality in the Economic Crisis]*. Konstanz: UVK. (https://goo.gl/X67pmC) (2016-02-05).

Bird, S.E. (2010). News Practices in Everyday Life: Beyond Audience Response. In S. Allan (Ed.), *The Routledge Companion to News and Journalism* (pp.417-427). London: Routledge. (http://goo.gl/VZAjcP) (2016-01-18).

Bogart, L. (2000). *Commercial Culture: The Media System and the Public Interest*. New Brunswick, NJ: Transaction.

Cabero, J., & Llorente-Cejudo, M. C. (2013). La aplicación del juicio de experto como técnica de evaluación de las tecnologías de la información (TIC). *Eduweb*, 7(2), 11-22. (https://goo.gl/SHpG44) (2016-02-05).

Craig, D. (2011). *Excellence in Online Journalism: Exploring Current Practices in an Evolving Environment*. Thousand Oaks, CA: Sage. (https://goo.gl/dEVJf4) (2016-01-14).

Codina, L., Pedraza, R., Noci, J.D., Rodríguez-Martínez, R., Pérez-Montoro, M., & Cavaller-Reyes, V. (2014). Sistema Articulado de Análisis de Cibermedios (SAAC): Una propuesta sobre el qué y el cómo para estudiar medios de comunicación digitales. *Hipertext.net*, 12. (http://goo.gl/IwXtwM) (2015-01-21).

Costera-Meijer, I. (2012). Valuable Journalism: A Search for Quality from the Vantage Point of the User. *Journalism*, 14(6), 754-760. doi: http://dx.doi.org/10.1177/1464884912455899

De-Pablos, J.M., & Mateos, C. (2004). Estrategias informativas para acceder a un periodismo de calidad en prensa y TV: Patologías y tabla de medicación para recuperar la calidad en prensa. *Ámbitos*, 11-12, 341-365. (http://goo.gl/QuLPFr) (2016-04-12).

Escobar-Pérez, J., & Cuervo-Martínez, A. (2008). Validez de contenido y juicio de expertos: una aproximación a su utilización. *Avances en Medición*, 6, 27-36. (http://goo.gl/IM2Wg2) (2015-03-14).

Fortunati, L., & al. (2009). The Influence of the

Internet on European Journalism. *Journal of Computer-mediated Communication*, 14(4), 928-963. doi: http://dx.doi.org/10.1111/j.1083-6101.2009.01476.x

George, D., & Mallery, P. (2003). SPSS for Windows Step by Step: *A Simple Guide and Reference. 11.0 Update*. Boston: Allyn & Bacon.

Gieber, W. (1964). News is what Papermen Make It. In L.A. Dexter, & D. Manning (Eds.), *White, People, Society and Mass Communications* (pp.173-178). New York: Free Press.

Gómez, J. (1990). Metodología de encuestas por muestreo (pp. 239-310). In J. Arnau, M.T. Anguera, & J. Gómez (Eds.), *Metodología de la Investigación en Ciencias del Comportamiento*. Murcia: Secretariado de Publicaciones de la Universidad de Murcia.

Gómez-Mompart, J.L., Gutiérrez-Lozano, J.F., & Palau-Sampio, D. (2013). *La calidad periodística. Teorías, investigaciones y sugerencias profesionales*. Barcelona: UPF. doi: http://dx.doi.org/10.7203/puv-alg26-9164-8

Gómez-Mompart, J.L., Gutiérrez-Lozano, J. F., & Palau-Sampio, D. (2015). Los periodistas españoles y la pérdida de la calidad de la información: el juicio profesional [Spanish Journalists and the Loss of News Quality: Professional Judgements]. *Comunicar*, 45(23), 143-150. doi: http://dx.doi.org/10.3916/C45-2015-15

Hagen, L. (1995). *Informationsqualität von Nachrichten. Meßmethoden und ihre Anwendung auf die Dienste von Nachrichtenagenturen [Information Quality of News. Measurement Methods and their Application to the News Agency Services]*. Opladen: Westdeutscher.

Hagen, L., & Beren, H. (1997). *Relevanz von Nachrichten. Messmethoden für ein zentrales Qualitätskriterium und ihre Anwendung auf Dienste von Nachrichtenagenturen [Relevance of Messages. Measurement Methods for a Central Quality Criterion and its Application to News Agency Services]*. Rundfunk und Fernsehen, 43, 158-178. (https://goo.gl/SELHzD) (2016-01-12).

Halloran, J., Elliot, P., & Murdock, G. (1970). *Demonstrations and Communication: A Case of Study*. Hammondsworth: Penguin.

Iglesias-García, M., & González-Díaz, C. (2012). Análisis de la calidad de la web del ciberdiario VilaWeb. *Hipertext.net*. Anuario Académico sobre Documentación Digital y Comunicación Interactiva. (http://goo.gl/Li6QH3) (2016-02-13).

Jaime, J.H., Galán, Y.I., & Pacheco, J.D. (2016). *Diseño y validación de un cuestionario para explorar el perfil del nuevo estudiante del siglo XXI*. México: Congreso Virtual sobre Investigación Educativa, CIED. (http://goo.gl/gVuZnT) (2016-02-11).

Lang, K., & Lang, G. (1953). The Unique Perspective of Television and its Effect: A Pilot Study. *American Sociological Review*, 18, 2-12. (http://goo.gl/uyUAHi) (2016-01-16).

Leggatt, T. (1996). Identifying the Indefinable. An Essay on Approaches to Assesing Quality in the UK. In S. Ishikawa (Ed.), *Quality Assesment of Television*. Bedfordshire: John Libbey Media.

Madianou, M. (2010). Living with News: Ethnographies of News Consumption. In S. Allan (Ed.), *The Routledge Companion to News and Journalism* (pp. 428-438). London: Routledge. (https://goo.gl/eQfzeo) (2016-03-12).

Martin, V.B. (2008). Attending the News: A Grounded Theory about a Daily Regimen. *Journalism*, 9(1): 76-94. doi: http://dx.doi.org/10.1177/1464884907084341

McQuail, D. (1992). *Media Performance: Mass Communication and the Public Interest*. London: Sage.

Meyer, P. (1987). *Ethical Journalism*. New York: Longman.

Pellegrini, S. & Mujica, M.C. (2006). Valor agregado periodístico (VAP): La calidad periodística como un factor productivo en un entorno medial complejo. *Palabra Clave*, 01, 11-28. (http://goo.gl/jB24MR) (2015-01-11).

Picard, R.G. (2004). Commercialism and Newspaper Quality. *Newspaper Research Journal*, 25(1), 54-66. (https://goo.gl/niq2rQ) (2016-01-16).

Pottker, H. (2000). *Kompensation von Komplexitaet: Journalismustheorie als Begruendung journalistischer Qualitaetsmaßstaebe [Standards Journalism Theory as Justification on Journalistic Quality: Compensation of Complexity]*. In M. Loeffelholz (Ed.), Theorien des Journalismus. (pp. 375-390). doi: http://dx.doi.org/10.1007/978-3-322-97091-6_19

Ramírez-de-la-Piscina, T., Zabalondo, B., Agirre, A., & Aiestaran, A. (2015). La calidad de la prensa europea de referencia analizada por académicos, profesionales y usuarios. *Estudios sobre el Mensaje Periodístico*, 21, 31-46. doi: http://dx.doi.org/10.5209/rev_ESMP.2015.v21.50649

Robles, P., & Rojas, M. (2015). La validación por juicio de expertos: dos investigaciones cualitativas en Lingüística aplicada. *Revista Nebrija de Lingüística Aplicada*, 9(12). (http://goo.gl/Sn53qW) (2015-02-18).

Romero-Rodríguez, L.M., De-Casas-Moreno, P., & Torres-Toukoumidis, A. (2015). Estereotipos, tópicos y lenguaje de la programación sensancionalista en la televisión: Programa «Corazón» de TVE. *Alteridad*, 10(1), 31-43. doi: http://dx.doi.org/10.17163/alt.v10n1.2015.03

Rosengren, K.E. (1979). Bias in News: Methods and Concepts. *Studies of Broadcasting*, 15, 31-45.

Rosengren, K.E., Tagerud, Y., & Carlsson, M. (1996). Quality in Programing: Views from North. In Ishikawa, S. (Ed.), *Quality Assesment of Television*. Bedfordshire: John Libbey Media.

Salaverría, R. (2005). An Immature Medium: Strength and Weaknesses of Online Newspapers on September 11. *Gazette*, 67(1), 69-86. doi: http://dx.doi.org/10.1177/0016549205049179

Searle, J.R. (1997). *The Construction of Social Reality*. New York: The Free Press.

Schatz, H., & Schulz, W. (1992). Qualitaet von Fernsehprogrammen: Kriterien und Methoden zur Beurteilung von Programmqualitaet im dualen Fernsehsystem [Quality of Television Programs: Criteria and Methods for Assessing Program Quality in the Dual Broadcasting System]. *Media Perspektiven*, 11, 690-712.

Shoemaker, P.J. (2006). News and Newsworthiness: A Commentary. *Communications*, 31, 105-111. doi: http://dx.doi.org/10.1515/COMMUN.2006.007

Shoemaker, P.J., & Cohen, A.A. (2006). *News around the World: Practitioners, Content and the Public*. Oxford: Routledge.

Schultz, W. (2000). Preconditions of Journalistic Quality in an Open Society. *Proceedings of International Conference News Media and Politics: Independent Journalism*. Budapest. (http://goo.gl/5b33wM) (2015-01-11).

Singer, J.B. (2005). The Political J-Blogger: 'Normalizing' a New Media Form to fit old Norms and Practices. *Journalism*, 6(2), 173-198. doi: http://dx.doi.org/10.1177/1464884905051009

Urban, J., & Schweiger, W. (2014). News Quality from the Recipients' Perspective. *Journalism Studies*, 15(6), 821-840. doi: http://dx.doi.org/10.1080/1461670X.2013.856670

Van-der-Wurff, R. (2008). The Impact of Internet on Media Content. In Küng, L., & al. (Eds.), *The Internet and the Mass Media*. London: Sage Publications.

van-der-Wurff, R., & Schönbach, K. (2011). Between Profesionals and Audience. Codes of Conducts and Transparency as Quality Instruments for off - and Online Journalism. *Journalism Studies*, 12(4), 407-422. doi: http://dx.doi.org/10.1080/1461670X.2010.506055

Wallisch, G. (1995). *Journalistische Qualitaet: Definitionen (Mo-*

delle) Kritik [Journalistic Quality: Definitions (Models) Review]. Konstanz: UVK.

Watzlawick, P. (1976). *How Real is Real*. New York: Random House.

Welch, S., & Comer, J. (1988). *Quantitative Methods for Public Administration: Techniques and Applications*. California: Books/Cole Publishing.

Wyss, V. (2000). Online-Journalismus in Europa: das Beispiel Schweiz [Online Journalism in Europe: The Case of Switzerland]. In Klaus-Dieter & al. (Eds.), *Online-Journalismus: Perspektiven fu¨r Wissenschaft und Praxi* (pp. 335-346). Wiesbaden: Westdeutscher Verla.

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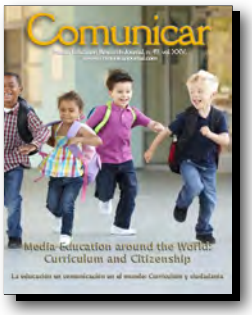

Adults and Elders and their use of ICTs. Media Competence of Digital Immigrants

Adultos y mayores frente a las TIC. La competencia mediática de los inmigrantes digitales

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ABSTRACT

The undisputed presence of Information and Communication Technologies (ICTs) in our lives has led to the development of new forms of social, interactive and critical relationships. This study aims to compare the level of media competencies, in relation to six established categories, of two population groups: adults (aged 18-55) and elders (aged over 55). The sample was composed of 714 people from the eight provinces making up the Spanish region of Andalusia. The study conducted was based on the selection and comparison of results of specific items drawn from two separate questionnaires, directed to both population groups. The data were statistically processed in accordance with the distribution of the sample proportions. The objective was to identify and contrast the degree of digital literacy of these two groups, in terms of their use, productivity and interaction with technological tools. The results highlight the needs and demands of both groups in terms of technology, critical reading and audio-visual production. It is notable that adults aged 18 to 30 have a higher level of expertise in the interaction and language dimensions, while those aged 30 and above perform better in critical and participative dimensions offered by such media, such as reflection, analysis and creation. In the over-55 group, there is a direct correlation between income bracket and level of media skills, the latter significantly diminishing with age.

RESUMEN

La presencia indiscutible de las tecnologías de la información y la comunicación en nuestras vidas supone el desarrollo de nuevas formas de relaciones sociales, participativas y críticas. Este estudio tiene como objetivo comparar el nivel de competencia mediática, respecto a seis dimensiones establecidas, para dos grupos poblacionales, adultos (18-55 años) y mayores (+55 años). La muestra total asciende a 714 individuos de las ocho provincias de la Comunidad Autónoma de Andalucía (España). Se basa en la selección y comparación de resultados de determinados ítems de dos cuestionarios independientes, dirigidos a ambas poblaciones. Los datos han sido sometidos a tratamiento estadístico, según la distribución de proporciones muestrales, para identificar y contrastar el uso, producción e interacción de las herramientas tecnológicas en ambos colectivos. Los resultados destacan las necesidades y demandas de ambos grupos en tecnología, lectura crítica y producción audiovisual. Se advierte además que los adultos con rango de edad entre 18-30 años presentan mejor nivel de competencia mediática en habilidades técnicas relacionadas con el uso instrumental, interacción y lenguaje, mientras que a partir de los 30 aumentan las destrezas en dimensiones críticas y participativas, como reflexión, análisis y creación. En los mayores de 55, existe una relación directa entre el nivel de ingresos y de competencia mediática; esta última disminuye significativamente con la edad.

KEYWORDS | PALABRAS CLAVE

Media skills, digital/media literacy, ICT, adults, elders, active ageing, social inclusion.
Competencia mediática, alfabetización digital, TIC, adultos, mayores, envejecimiento activo, inclusión social.

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1. Introduction and state of the art

Information and communication technologies (ICTs) are part of society and of our everyday life. It is difficult to find anyone today without a presence on social media or who does not have a mobile device, read the news, access television series through a computer, or who does not notify a possible late arrival at a meeting through instant messaging programs or applications. There is no doubt that technology is present in everyday life: "its implementation has had repercussions in society in general, and in communication in particular" (Almansa & Castillo, 2014: 24).

Thanks to ICTs unalterable, solid and traditional information has given way to constantly-changing information. In the words of Area and Pessoa (2012: 14), to "a flux of production of unstable information and knowledge, in permanent change, in constant transformation, as a counterweight to the cultural production developed – mainly in the 19th and 20th centuries- where stability and inalterability of the physical, material and solid was a priority".

This permanent change in the flow of information is precisely one of the main difficulties encountered by digital literacy. "Not even interactivity or the technological possibilities provided to the current audiences are enough for the development of a society of knowledge" (Orozco, Navarro, & García, 2012: 74). Media literacy is essential to enable the population to acquire digital competencies.

According to the report "The Information Society in Spain", "more than half of the Spanish population use the Internet on a daily basis" (Fundación Telefónica, 2014: 36); if we relate the data on Spain with the rest of the European Union (EU), "70% of the Spanish households have access to the Internet, and of these, almost all connect through broadband, which implies a quality of connection that is medium-high compared to the rest of the EU" (Fundación España Digital, 2014). In the case of Andalusia, where the present study took place, "more than 1.8 million Andalusian households have access to the Internet, resulting in an Internet connection rate of 66.5%" (Fundación Telefónica, 2014: 78). However, the concern is irrefutable: "previous data have allowed us to conclude that the degree of competency in audio-visual communication is extremely low in Andalusia, with important shortcomings in the ability to interpret audio-visual messages in a critical and rational way" (Aguaded & Cruz, 2014: 71).

Being immersed in a digitalized society does not mean that the population, especially adults and elders, possesses this competency (Cruz & Acosta, 2010; Rosique, 2009; Aguaded, Tirado & Hernando, 2014; Ramírez, 2010; Gómez & Durá, 2011; Renés, 2010). The question of how ICTs are being used requires investigation give that the "mere consumption of media does not guarantee critical ability" (Contreras, Marfil, & Ortega, 2014: 138).

"Age continues to determine differences in access, which are greater when the segment studied is younger" (Fundación Telefónica, 2014: 36). Hence one can speak of a digital divide in the case of non-digital natives or digital immigrants (Prensky, 2001). Although these concepts have been questioned, given that there are young people who have not acquired digital competency skills, whereas supposed immigrants do have them, a differentiation can be drawn at present between a passive consumer and an active "producer and prosumer" user (Jenkins, 2014; Belshaw, 2014).

According to Santibáñez, Renés and Ramírez (2012), adults –particularly elders– are more vulnerable to the media. They are not digital natives but digital immigrants who do not know the inner-workings of audio-visual media, thus becoming passive consumers: "in the digital era that we are crossing, they become functional illiterates who lack technological and communicative competencies" (Rodríguez & Barrera, 2014: 58). According to Area (2002: 57), this is the case of adults, for whom "this phenomenon is generating a new type of illiteracy that consists in the inability to access culture that is driven by the new technologies".

However, ICTs also have a positive side, since "media competencies can become tools for improving social life" (Contreras & al., 2014: 130). The fact that "an elder citizen enjoys a good state of health means that besides being physically healthy, he or she has to be in a good emotional and psychological state as well". In this regard, Pavón and Casanova (2008) and Vilaplana (2013) note that activity using such media can contribute, in general, to driving creativity, practising composition and writing, as well as improving social aspects, memory and mind. Bru and López (2014) and Macías-González and Manresa (2013) add also that, for elders, the Internet is a source of opportunities in four broad categories: information, communication, transaction and administrative, leisure and entertainment. Thus, in a connected world, media literacy will necessarily be digital and multimodal, while literacy has to be understood in its full extent, not limited to the simple use of computers.

The present study, funded by the Andalusian government, has as its main objective the comparison of the level of media competency of two population groups: adults (18-55 years of age) and elders (+55

years old). The adults were distributed in different age segments, as follows: "ages 18-30, 31-45 and 46-55" (Aguaded & al., 2014: 7). The total sample comprised 714 individuals from the eight provinces making up the region of Andalusia. The study focused mainly on comparing the frequency of media consumption, production of content on the web, and the interactivity of the two above-mentioned groups. It was based on the six basic dimensions of media competency established by Ferrés and Piscitelli (2012: 75-82): "languages, technology, production and dissemination, reception and interaction, ideology and values and aesthetics, all of which are considered in terms of both content analysis and expression".

1.2. Objectives

The present study seeks to compare the level of development of media competency of the population groups studied, according to the following specific objectives:

- Determine and compare the level of media competency of adults (18-55) and elders (+55) in Andalusia.
- Identify, analyse and compare the scope of the socio-demographic variables' restrictions on the levels of media competency attained by the two groups.
- Verify, if appropriate, the existence of a digital divide among the population with the aim of defining possible courses of actions for the media integration of the aforementioned groups in society.

2. Materials and methods

2.1. Sample

The sample presented was drawn from more extensive heterogeneous research and the sampling plan established took into account basic collectives and social groups comprising the structure of the information society: gender, age, social status and economic status. In order to take into account the population structure, the indicators were stratified so that each Andalusian province had: a) an equal number of questionnaires; b) proportionality with regard to gender; c) for the adult group, proportionality and diversity with respect to level of education, employment status and profession; d) for the elder group, proportionality with respect to participation or non-participation in a University Program for Adults (UPA).

2.1.1. Restrictions according to age group

a) Adult group: composed of 714 individuals, of whom 62.3% were women and 37.7% men. This sample was stratified into the following age groups:

- Group 1a: composed of 313 subjects aged 18 to 30
- Group 1b: composed of 252 subjects aged 31 to 45.
- Group 1c: composed of 149 subjects aged 46-55.

b) Elder group: a sample of 478 individuals older than 55, of whom 60.5% were women and 39.5% men. The most numerous age range of this group corresponded to individuals aged between 55 and 60, who comprised 31.7% of the selected sample (152 subjects). The lowest populated age group was the +80 years-old group, with 10 subjects (2.1% of the total sample).

> This permanent change in the flow of information is precisely one of the main difficulties encountered by digital literacy. "Not even interactivity or the technological possibilities provided to the current audiences are enough for the development of a society of knowledge". Media literacy is essential to enable the population to acquire digital competencies.

2.1.2. Geographical area: study limited to the eight provinces of Andalusia

The sampling was based on Simple Random Sampling (SRS). In this scheme it is possible to guarantee a sampling error as a function of the sample size, the sample error being understood as the error associated with the difference between the proportions obtained in the sample and the real, existing population proportions.

The following formula allows us to obtain the sample size "n", assuming an infinite population as a function of the pre-set error, "e" and the proportions "p" and "q". By setting the confidence value to 99% (Z=2.58), "p" and "q" in their most unfavourable values "p=q=0.5", and the sample size "n=714" subjects, the error of the measurements is below 5%.

2.2. Tools

The study is based on the selection and compari-

son of the results of specific items from two independent questionnaires, addressed to the adult and elder populations of Andalusia. The questionnaires were validated within the context of their respective research (Aguaded & al., 2014; Tirado, Hernando, García-Ruiz, Santibáñez, & Marín-Gutiérrez, 2012).

Table 1.Contrasts and correlation means of dependencies between age groups and dimensions

Comparison Populations with	Chi-square	Significance	Contingency Coefficient	Significance
Participation in Internet forums (Fig.1)	279.7	.000	.436	.000
Participation in chats or Skype (Fig.2)	314.4	.000	.457	.000
Shopping on the Internet (Fig.3)	215.5	.000	.392	.000
Use of electronic banking (Fig.4)	70.8	.000	.237	.000
Degree of confidence on the Web (Fig.5)	193.3	.000	.374	.000

The first 11 items in both questionnaires were of a socio-demographic nature (age, gender, level of education, etc.), while the remainder were related to the different dimensions of media competency. The questionnaire directed to the elders was composed of a total of 28 items and that used for the adults consisted of 36 items. The heterogeneity of both questionnaires was due to their design, which took into account their suitability for the groups which they were intended for. In any case, the reliability of the study and the comparisons between the two population groups were not affected as they focused on a sample of 6 items that coincided in both questionnaires and which were significant with respect to the dimensions of media competency and their influence on the studied groups.

The stability of the scale comprised by the selected items was established through the Cronbach's Alpha reliability co-efficient, which gave acceptable values of .773 and .788 for the sample of adults and elders, respectively. Due to the Likert and categorical nature of the items, the inferential analysis was based on the study of the proportions and their comparisons among strata using the Chi-square test together with the Contingency Coefficient, which were used to establish the degree of dependency among the variables deemed of interest.

3. Analysis and results

The analysis aimed to detect the degree to which the results of both studies were significantly different. To that end, the items that more clearly showed a digital discrimination in the use of the media were chosen.

The 6 items chosen for the study were sufficiently discriminatory to distinguish the maximum number of dimensions in the questions used.

It should be recalled that the aim of the study was not to detect differences among the specific age segments, but to dichotomize the different details related to the media competency dimensions with respect to a cut-off point that is naturally established by the two questionnaires. Although different, the questionnaires have sufficient common features for comparison. It is also important to bear in mind that there is no research on this subject with previously-defined levels. Therefore, the adult group was defined according to the criteria established by Aguaded & al., (2014), with the experiments by Bru and López (2014), while Pavón and Casanova (2008) were used as the reference for the elders.

3.1. The use of technologies by adults and elders. Multimedia language

According to Ferrés and Piscitelli (2012), the analysis of the language dimension seeks to study the ability of a person to interact with the media in a significant manner, in order to improve his/her competency in multimedia communication.

The item chosen for comparison and contrasting in both questionnaires was "Indicate if you have performed any of these activities: participate in Wikipedia, create a blog, upload files to YouTube, participate in an Internet forum, in a chat (Skype…) or on Facebook" with the options (1=Frequently), (2=At some point) and (3=Never).

As shown in Figure 1 and its associated table, for the option "Participate in an Internet forum", response 3 (Never) predominated in the elder group, while response 2 (At some point) predominated among adults. These results show a reluctance to voice opinions in forums or leave comments on blogs, which could indicate the prevalence of Web 1.0, which is essentially based on information-gathering. In addition, Table 1 shows that the Chi-square hypothesis contrast is significant to 95% confidence, indicating dependency among the variables defining the sub-groups adults and elders and participation in Internet forums. The correlation score obtained through the Contingency Coefficient was .436 (significant).

As for participation in a chat or on Skype, option 1 (Frequently) increased in both groups, with the adults standing out clearly. The Skype tool appears to enjoy great popularity and its use has been increasing in the

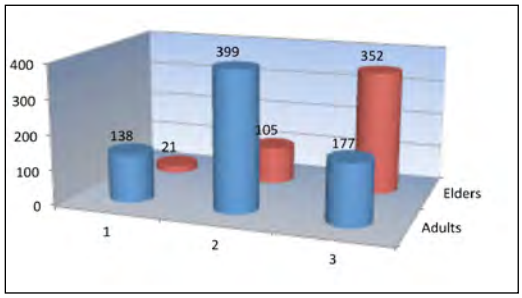

Figure 1. Participation in Internet forums.

professional sector. Elders are also keen users, an indication of their progressive inclusion in the technological world.

Additionally, table 1 shows that the Chi-square hypothesis contrast is significant to 95% confidence, indicating dependency among the variables that define the sub-groups adults and elders and participation in a chat or on Skype. The correlation score obtained through the Contingency Coefficient was 0.457 (significant).

3.2. Technology dimension

The technology dimension entails the development of three abilities: "Ability to correctly use communication tools in a multimedia and multimodal environment. Ability to adapt technological tools to the communication objectives sought. Ability to create and manipulate images and sounds being conscious to how representations of reality are constructed" (Ferrés & Piscitelli, 2012: 79).

The item chosen for its comparison was "In the case that the Internet is used, what do you use it for?: Reading a digital newspaper, shopping, electronic banking, downloading of films, e-books and downloading of music", using a Likert scale comprising five options (1=Daily); (2=Sometime during the week); (3=Sometime during the month); (4=Once in a while); (5=Never).

The distribution of the responses shows clearly that Internet shopping is beginning to become an activity that needs to be taken into account in these populations. Figure 3 shows that option 4 (Once in a while) stands out in the adult group. This is also true for the over-55 group, although to a lesser degree. The Chi-square test was also significant at 95%, as shown in Table 1. The degree of dependency between both items was measured through the Contingency Coefficient, which - although low - was found to be significant (C=0.392).

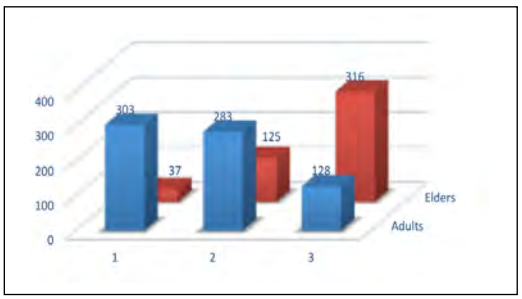

Figure 2. Participation in chats or Skype.

Regarding electronic banking, although the banking sector is pushing clients at present to carry out their transactions on Internet and using automated teller machines, the distribution of the answers shows that some reluctance persists (Figure 4) since option 5 (Never) stands out as the distribution mode in both the adult and elder groups.

Table 1 shows that the Chi-square test was significant to 95%. The degree of dependency between the items was measured using the Contingency Coefficient and proved significant (C=0.237).

The results relating to download content merit special attention as they are particularly relevant when a stratification by age is performed. This stratification

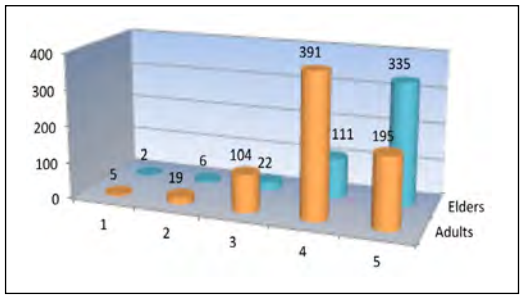

Figure 3. Shopping on the Internet.

was more precise than the simple adult-elder dichotomization and was especially true for the age-group sub-populations [18-30], [31-45] and [46-55].

As expected, the 18-30 year old segment was clearly distinguished from the others, with a higher frequency of movie downloads, music material and electronic books.

More specifically, 65.4% of downloads by this segment were related to the aforementioned content, compared to 23.8% and 14.7% of said content in segments [31-45] and [46-55], respectively.

3.3. Indicators of the Production and Programing dimension

This dimension is characterized by the human ability to select significant messages, internalize them and

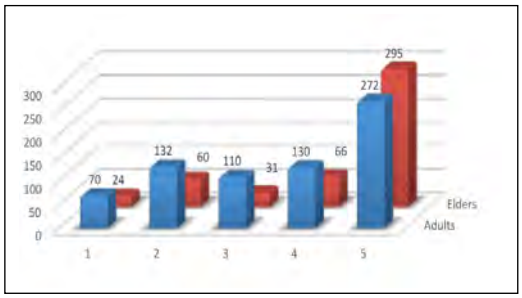

Figure 4. Use of electronic banking.

transform them in order to produce new meanings, share and disseminate information. The item selected as being representative of this dimension, together with the response options, was "Before entering personal data (credit card, e-mail, phones, etc.) on the Internet, when shopping, downloading a program, or registering for an electronic service, for online banking: 1. I let myself be carried away by the professional aspect of the site; 2. I trust my personal instinct; 3. I seek comments and opinions from friends or acquaintances; 4. I would not trust any sites; 5. No opinion".

The percentage analysis of said question showed that distrust prevailed in adults and elders when entering their personal data, with percentages of 29.9% for adults and 45% for elders (Figure 5).

The Chi-square test was found to be significant to 95%, as shown in Table 1, and the degree of dependency between both items was measured through the Contingency Coefficient, which was found to be significant (C=0.374).

This same item, analysed as a function of the adult age segments, showed that the 31-45 age group was the sub-population that was most convinced by the professional look of the site visited (7.9%), while 18.9% of the adults from the first age segment [18-30] preferred to seek out comments from friends or acquaintances. Surprisingly, 15.7% stated they did not trust any site, a response that was not expected for this age segment.

As for the results concerning electronic commerce, elders showed - proportionally by age - greater distrust when entering personal data (credit card number, phone numbers, etc.) on the Internet while shopping, etc.

3.4. Indicators of the Reception and Interaction Dimension

This media competency dimension refers to the active stance on interaction with screens, and is thought of as an opportunity to construct a more fulfilling citizenship, as well as the knowledge of the legal possibilities of registering complaints.

In the more critical and participative dimensions of communication media, education level was found to be particularly relevant when consideration was given to the stratification by age range of the adults [18-30], [31-45] and [46-55]. The contrasting of the item "Have you used the Internet to communicate with government authorities? (1=Yes, in the past year); (2=Yes, in the last three months); (3=No, never)" showed that the level of education positively influenced communication with and complaining to governmental institutions (20.2% of adults with a university degree had used the Internet in the past year). The Chi-square contrast was found to be positive with a Contingency Coefficient of C=0.275).

As for employment status, the results indicated that the unemployed made most use of Internet to communicate with public authorities. The results from the elder group are especially interesting: in this group, those who had recently used the Internet to communicate with the authorities held a university degree.

The Chi-square contrast (34.3%) defined the relationship between using Internet to register a complaint/communicate with the authorities and the level of education as being significant. Staying "in touch", keeping feeling young and alert etc reflect a struggle against a general fear: social death, "social apartheid".

3.5. Indicators of the Ideology and Values Dimension

This dimension is related to the ability to harness the new communication tools to transmit values and to

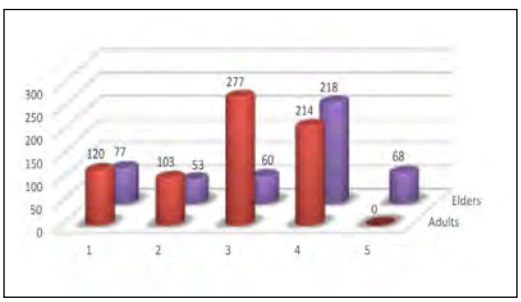

Figure 5. Degree of confidence in the Web.

contribute to the improvement of one's surroundings, through social and cultural engagement.

The results of the contrast of the item: "Do you use any type of media (email, blog, etc.) to send messages or to validate actions that could contribute to the improvement of the social environment where you live? (1=Yes, often); (2=Yes, sometimes); (3=No)" showed that option 1 (Yes, often) was prominent for

adults from the first two age segments with the following percentages: [18-30] (12.6%), [31-45] (11.6%). For its part, option 2 (Yes, sometimes) obtained the following percentages: [18-30] (18.4%), [31-45] (13.1%). These options decreased significantly among adults from the third age segment [46-55], reaching percentages of 4% and 6.9%, respectively, with option 3 (No) standing out.

This result could indicate that digital citizenship does not come solely from knowing how to use the media, but also knowing the latter's value for contributing to the improvement of one's social surroundings. In this regard, adults below 46 seemed most aware of the need to use this technology to transmit values and to actively collaborate in the improvement of society.

In the elder group, responses 1 (Yes, often) and 2 (Yes, sometimes) increased with level of education: 9.4% of those with a university degree chose the first option, and 11% of those with a university degree chose the second.

3.6. Indicators of the Aesthetic Dimension

The aesthetic dimension relating to media competencies, with indicators such as awareness in recognizing a media production, appeared not to differentiate between the sub-populations analysed.

More specifically, the analysis of item "When deciding on a media type, do you take into account what it communicates, or when choosing, do you give value to formal and aesthetic aspects?" did not produce sufficiently clear differences to be considered statistically significant.

4. Discussion and conclusions

The general aim of this research was to compare the level of media competency between the adult population of Andalusia (aged 18-55) and the over-55 population, taking into account the six dimensions established by Ferrés and Priscitelli (2012). The results show that the adult population aged 18-30 evidenced superior knowledge regarding the use of social networks and the array of resources and applications available on the web and mobile devices. This subset of the population had the highest levels of competency in the "interaction" and "language" dimensions therefore.

However, it should also be noted that this group was not competent when defining media literacy as a skill or concept that transcends strictly technical and interactive dimensions to be defined under critical and ethical dimensions. Adults above 30 were more able and developed more possibilities in terms of the production and programming dimension of media competency that communication media offer (reflection, analysis, creation), even though broadly-speaking this population sub-group had lower levels of media competency.

As for those aged 55 or more, in agreement with Agudo, Fombona and Pascual (2013), the results of the study showed that fewer tended to use ICTs compared to the rest of the population.

Likewise, Nimrod (2016) –who conducted a study based on a European poll of 1,039 Internet users above 60– also found that elders were more keen to use traditional communication media than new social communication media and also preferred synchronous communication over asynchronous communication.

Concerning the relationship between socio-demographic variables and the levels of media competency of the population groups studied, the analysis showed the influence of schooling and education on the levels of media competency acquired. A direct relationship between elders' level of education and their community engagement is seen. Similarly, the ability to harness ICTs to transmit values and for social and cultural engagement was also directly related to the level of education in the elders' group. We agree with Cruz, Román and Pavón (2015) that UPAs which are dependent on Universities should, with prior agreement, develop the media competencies of elder students and thus help palliate the socio-economic differences in access to ICTs and multimedia communication that have come to light in the present study.

Among those older than 55, media competency in its more critical and participative dimensions significantly decreased with age. There was a direct relationship between income bracket and level of media competency. The most popular activity was searching for information on the web and communication with other individuals. Respondents were less secure with respect to operations related to shopping or electronic services, although a keen interest in and level of use of computer applications such as email or Facebook was shown by this group. Along the same lines, recent studies (Vošner, Bobek, Kokol, & Krečič, 2016) have shown that age, gender and education are significant and have a direct or indirect effect on the use of social networks online by older active users of the Internet.

The present research also addressed the so-called digital divide, with the aim of defining possible lines of action to guide the different population groups according to their needs. The study has found that the presence of a digital divide was significant among the people of Andalusia. Considerable differences were found when employment, salary and the education

status of Andalusian citizens were related with the level of literacy required to perform activities using communication media. In agreement with these results, the study by Öngün and Güder (2016) reveals that older adults from two different social strata showed different degrees of loneliness with a significant relationship between the ways of using technological media.

Lastly, a systematic and detailed review of the subject at international level, with regard to the use of communication technology by adults and elders (in the most technological dimension, which was significant among both population groups, as well as the dimensions of language, ideology and values, production and reception processes), has helped highlight the need for the population of Andalusia to harness information technologies as a medium that could propitiate both the instrumental use (technical abilities) and social use (critical reflection and social responsibility abilities) of such media. This would allow adults and elders to take advantage of communication technology for social integration and for opportunities to develop their skills.

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References

Aguaded, I., & Cruz, R. (2014). O grau de competencia em comunicação audiovisual entre os cidadãos da Andaluzia (Espanha). *Comunicação & Educação*, 19(1), 67-72. doi: http://dx.doi.org/10.11606/issn.2316-9125.v19i1p67-72

Aguaded, I., Tirado, R., & Hernando, A. (2014). Media Competence in Adult Citizens in Andalusia, Spain, Information, *Communication & Society*, 18(6), 659-679. doi: http://dx.doi.org/10.1080/1369118X.2014.985244

Agudo, S., Fombona, J., & Pascual, M.A. (2013). Ventajas de la incorporación de las TIC en el envejecimiento. *Relatec*, 12(2), 131-142. (http://goo.gl/EH2u4v) (2016-06-03).

Almansa, A., & Castillo, A. (2014). Comunicación institucional en España. *Chasqui*, 126, 22-30. doi: http://dx.doi.org/10.16921/chasqui.v0i126.250

Area, M. (2002). Igualdad de oportunidades y nuevas tecnologías. Un modelo educativo para la alfabetización tecnológica. *Educar*, 29, 55-65. (http://goo.gl/J4r95E) (2016-06-03).

Area, M., & Pessoa, T. (2012). De lo sólido a lo líquido: las nuevas alfabetizaciones ante los cambios culturales de la web 2.0. [From Solid to Liquid: New Literacies to the Cultural Changes of Web 2.0]. *Comunicar*, 38, 13-20. doi: http://dx.doi.org/10.3916/C382012-02-01

Belshaw, D. (2014). *The Essential Elements of Digital Literacies*. (http://goo.gl/QWBCwH) (2016-06-02).

Bru, C., & López, A. (2014). *Uso de las TIC en los programas universitarios para personas mayores*. Alicante: Universidad de Alicante. (http://goo.gl/SxSsHL) (2016-06-03).

Contreras, P., Marfil, R., & Ortega, J. (2014). La competencia mediática de las personas mayores andaluzas: retos para una inclusión social plena. *Historia y Comunicación Social*, 19, 129-142. doi: http://dx.doi.org/10.5209/rev_HICS.2014.v19.44946

Cruz, M.R., & Acosta, S. (2010). Vocabulario intergeneracional. Un intercambio entre mayores y alumnos en las aulas. *Cuestiones Pedagógicas*, 20, 247-268. (http://goo.gl/nk0Tdu) (2016-06-03).

Cruz, M.R., Román, S., & Pavón, F. (2015). Del uso de las tecnologías de la comunicación a las destrezas en competencia mediática en las personas mayores. *Redes.com*, 12, 87-111. doi: http://dx.doi.org/10.15213/redes.n12.p86

Ferrés, J., & Piscitelli, A. (2012). La competencia mediática: propuesta articulada de dimensiones e indicadores. [Media Competence. Articulated Proposal of Dimensions and Indicators]. *Comunicar*, 38, 75-82. doi: http://dx.doi.org/10.3916/C38-2012-02-08

Fundación España Digital (2014). *Informe e-España 2014*. (http://goo.gl/ztpYng) (2016-06-03).

Fundación Telefónica (2014). *La sociedad de la información en España, 2013*. (http://goo.gl/x5mnnr) (2016-06-03).

Gómez, M.T., & Durá, M.C. (2011). Experiencia universitaria interdisciplinar apoyada por las TIC. *Revista Iberoamericana de Educación*, 55(3), 1-11. (http://goo.gl/YxtJ84) (2016-02-28).

Jenkins, H. (2014). Rethinking Convergence/Culture. *Cultural Studies*, 28(2), 267-297. doi: http://dx.doi.org/10.1080/09502386.2013.801579

Macías-González, L., & Manresa, C. (2013). Mayores y nuevas tecnologías: Motivaciones y dificultades. *Ariadna*, 1(1), 7-11. doi: http://dx.doi.org/10.6035/Ariadna.2013.1.2

Nimrod, G. (2016). Older audiences in the digital media environment. *Information, Communication & Society*, 1-17. doi: http://dx.doi.org/10.1080/1369118X.2016.1164740

Öngün, E., & Güder, F. Z. (2016). Elderly People's Choice of Media and their Perceived State of Loneliness. *Online Journal of Communication and Media Technologies*, 6(1), 35. (http://goo.gl/SrtSXz) (2016-06-03).

Orozco, G., Navarro, E., & García, A. (2012). Desafíos educativos en tiempos de auto-comunicación masiva: la interlocución de las audiencias. [Educational Challenges in Times of Mass Self-communication: A Dialogue among Audience]. *Comunicar*, 38, 67-74. doi: http://dx.doi.org/10.3916/C38-2012-02-07

Pavón, F. & Casanova, J. (2008). Personas mayores, medios de comunicación y nuevas tecnologías. *Comunicación & Pedagogía*, 231-232, 53-57. (https://goo.gl/HYL4zQ) (2016-06-03).

Prensky, M. (2001). Digital Natives, Digital Inmigrants. On the Horizon. *MCB University Press*, 9(5), 1-6. doi: http://dx.doi.org/10.1108/10748120110424816

Ramírez, A. (2010). Los medios de comunicación y la operativización de las competencias básicas en Educación Primaria. *ED.UCO*, 4, 111-128.

Renés, P. (2010). Investigación sobre competencia audiovisual. ¿Somos personas alfabetizadas y competentes en medios? *Pedrueca*, 6(12), 12-15.

Rodríguez, M.C. & de-la-Barrera, J.J. (2014). Alfabetización tecnológica para mayores. Experiencia en la UNED Senior, Argentina. *Virtualidad, Educación y Ciencia*, 9(5), 56-69.

Rosique, G. (2009). El papel del telespectador en los medios audiovisuales. *Icono, 14*, 147-163. (http://goo.gl/CPzt1f) (2016-06-03).

Santibáñez, J., Renés, P., & Ramírez, A. (2012). Ciudadanía y competencia audiovisual en La Rioja: Panorama actual en la tercera edad. *Icono, 14*, 10(3), 6-28. doi: http://dx.doi.org/10.7195/ri14.v10i3.195

Tirado, R., Hernando, A., García-Ruiz, R., Santibáñez, J., & Marín-Gutiérrez, I. (2012). La competencia mediática en personas mayores. Propuesta de un instrumento de evaluación. *Icono, 14*, 10(3),

134-158. doi: http://dx.doi.org/10.7195/ri14.v10i3.211
Vilaplana, C. (2013). ¿Es la jubilación un buen momento para aprender informática? *Ariadna*, 1(1), 77-82. doi: http://dx.doi.org/10.6035/Ariadna.2013.1.13
Vošner, H. B., Bobek, S., Kokol, P., & Krečič, M.J. (2016). Attitudes of Active Older Internet Users towards Online Social Networking. *Computers in Human Behavior*, 55, 230-241. (http://goo.gl/jiOmI6) (2016-06-03).

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