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.

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

> 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.

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).

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.

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

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

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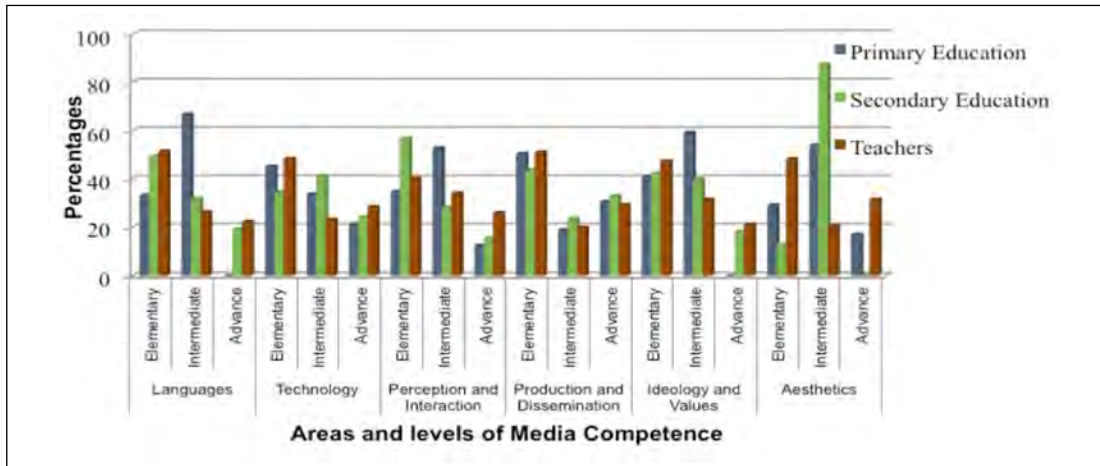
Figure 1. Distribution by area and level achieved by the teachers and students of Primary education and Secondary education.

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 socio-demographic 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.

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 educa-

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

tion 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.

Acknowledgements

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