Methodology for the evaluation of media literacy in children and youth. Recommendations and trends

Patrícia Fernandes; Armanda P. M. Matos; Isabel Festas

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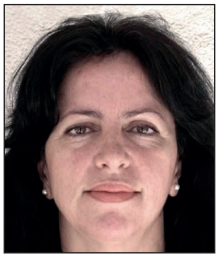
Patricia Fernandes ✉
https://orcid.org/0000-0001-6270-5186
Cooperativa para a Educação, Reabilitação, Capacitação e Inclusão de Aveiro (*Cerciav*)
Rua da Cerciav, Casal 2ª
3830-025 Gafanha da Nazaré, Portugal
patricia_ffernandes@sapo.pt



Armanda P. M. Matos
https://orcid.org/0000-0003-0802-5870
Universidade de Coimbra, Faculdade de Psicologia e de Ciências da Educação, Centre of Interdisciplinary Studies (CEIS20)
Rua do Colégio Novo
3000-115 Coimbra, Portugal
armanda@fpce.uc.pt

Isabel Festas
https://orcid.org/0000-0002-1720-1488
Universidade de Coimbra, Faculdade de Psicologia e de Ciências da Educação, Centre of Interdisciplinary Studies (CEIS20)
Rua do Colégio Novo
3000-115 Coimbra, Portugal
ifestas@fpce.uc.pt

Abstract

In the current communicational scenario, transformed by technological and digital advances, media literacy is considered a crucial competence for active and informed participation in society. In this context, the main objective of this study was to assess the media literacy competences of 416 students of the 4th, 6th, and 9th grades in Portugal, identifying training needs and presenting suggestions for intervention. A non-experimental quantitative methodology was used, and the participants completed a self-response questionnaire. The results indicate that the three grades studied have a transversal need regarding the use of media, the production of media content, and participation in society through the media, and also regarding the analysis, understanding, and assessment of media content. We confirm the importance of media education in the development of media literacy and present some intervention suggestions for the promotion of these competences in the school context, namely the reinforcement of some curricular content, the use of guiding documents, and the development of critical thinking. We emphasize the importance of training teachers and parents on the subject, and finally, we also emphasize the importance of deconstructing the belief that digital natives have natural competences in this regard and therefore do not need training in this area.

Keywords

Media literacy; Media education; Educommunication; Assessment; Evaluation; Media; Kids; Youths; Teenagers; Digital natives; Media messages; Uses of the media; Production of media content; Participation; Critical thinking; Comprehension; Media content; School environment; School context.

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1. Introduction

The technological and digital development that today's society has witnessed advances at an exponential rate and, over time, has transformed the daily lives of citizens, namely the communicational scenario. Effectively, the way we use and understand the media has changed, especially if we focus on the post-Internet era, due to the amount of information available as well as the possibilities of using the various communicational platforms that currently exist (*Conselho da União Europeia*, 2020). The development of these new digital technologies, namely mobile devices, facilitated the use and access to media, where the permanent online state is a reality. For this reason, society is characterized by a participatory culture, which offers citizens opportunities not only to consume media messages but also to participate actively through interaction, sharing, and content creation (**Jenkins**, 2007).

This whole scenario places us, on one hand, in front of an enormous framework of possibilities that can facilitate and bring advantages and opportunities both at a personal, professional, and educational level, but on the other hand, it also implies risks in the face of certain information and content such as misinformation, hate speech, and cyberbullying, among others, so media literacy becomes an essential condition to develop (**Grizzle** *et al.*, 2016; *Conselho da União Europeia*, 2020).

Considering the youngest, it is of common knowledge that they are constantly connected to the internet through digital media. In the particular case of generations that grew up in the context of the digital age, their communications and interactions are largely centered on digital media (**Matos**, 2017). In fact, in 2020, 98% of young people in the European Union and in particular 100% of Portuguese young people of these generations, indicated the use of the internet during the last 3 months (*European Commission*, 2021).

For this reason, there are several denominations attributed to these young people, but the most common label is digital natives (**García-Ruiz** *et al.*, 2020). According to **Prensky** (2001), the author of this denomination, these digital natives, once they grew up immersed in the world of new digital technologies, are considered experts in this regard. The affirmation of the existence of digital natives is based on the assumptions that this group has sophisticated skills and knowledge in the area of information technologies, has particular characteristics or different learning styles from previous generations, and has the ability to multitask (**Akçayir**; **Dündar**; **Akçayir**, 2016; **Bennett**; **Maton**; **Kervin**, 2008) and therefore have been identified as highly competent in media literacy. However, this notion of digital natives can have consequences; as **Boyd** says, it

> "obscures the uneven distribution of technological skills and media literacy across the youth population, presenting an inaccurate portrait of young people as uniformly prepared for the digital era" (**Boyd**, 2014, pp. 179-180).

Jenkins (2007) also alerts to the possible consequences of defending the concept of digital natives. It points out the inexistence of equal access that could compromise the equal participation of these young people in society, highlight the fact that many of these children and young people still do not have the capacity to understand how the media can influence the perception of the world and still refers to the ethical issue related to a possible little conscious, informed, and safe practice since young people currently have the possibility to create and share content in a free and public way (**Jenkins**, 2007).

Therefore, it is urgent to reflect on the challenges that technological and digital developments have brought, considering that they currently require not only technical skills for their use but also critical reflection skills on the information received, with the objective of safe and responsible use (**Matos**; **Festas**; **Seixas**, 2016).

Thus, there is consensus on the recognition of the importance of media education and media literacy as a fundamental condition for developing critical reflection skills, which enable children and young people to communicate with and through the media and to participate in an active and conscious way in society (**Pereira** *et al.*, 2014; **Buckingham**, 2020; **Taddeo**; **De-Frutos-Torres**; **Alvarado**, 2022).

> "Society is characterized by a participatory culture, which offers citizens opportunities not only to consume media messages but also to participate actively through interaction, sharing, and content creation"

The growing interest in the area of media literacy is evident, and there have been several initiatives by international entities in order to assess the competences of citizens in this field. However, it is important to underline the specific need for studies focused on children and young people in order to be able to respond to their needs through reasoned interventions. This assessment, despite its clear importance, is recognized as an extremely complex task owing to the various ways of carrying it out, mainly resulting from different perspectives (**Livingstone**; **Thumim**, 2003; **Pereira**; **Pinto**; **Moura**, 2015; **Schilder**; **Lockee**; **Saxon**, 2016).

> "It is urgent to reflect on the challenges that technological and digital developments have brought, considering that they currently require not only technical skills for their use but also critical reflection skills on the information received, with the objective of safe and responsible use"

In this context, we highlight some studies, namely those promoted by the European Commission, whose theoretical foundation fits into a conceptual map developed in the light of relevant theories on media literacy (e.g., **Aufderheide**; **Firestone**, 1992; **Livingstone**; **Van-Couvering**; **Thumim**, 2005; **Martens**, 2010), in which two fundamental dimensions of analysis were identified:

- individual competences (personal competences, uses and critical understanding, social competences, communicative skills); and
- context factors (media education, media literacy policies, media industry, society civil status, and media availability).

Three studies were carried out with the objective of, firstly, the construction and validation of instruments for the assessment of media competences and, later, the effective assessment to measure the levels of media literacy in the European Union. The first, entitled *Study on assessment criteria for media literacy levels*, was carried out in 2010, followed by a follow-up to the previous study, *Testing and refining criteria to assess media literacy levels in Europe*, and the third study, still following the two previous ones, entitled *Assessing media literacy levels and the European Commission pilot initiative* (**Celot**, 2010; 2015; *EAVI*; *DTI*, 2011).

In Spain, important studies were also carried out to assess media literacy. The study *La competencia en comunicación audiovisual en un entorno digital: diagnóstico de necesidades en tres ámbitos sociales*, with the participation of the *Universidad Pompeu Fabra* (*UPF*), the *Universidad de Huelva* (*UHU*), and the *Universidad de Valladolid* (*UVA*), aimed at assessing the competences of media literacy in the contexts of communication professionals, compulsory education, and university education, through specific studies for each of them. The conceptual framework was based on studies by **Ferrés** and **Piscitelli** (2012), in which the authors developed a global view of media literacy, defining it as the domain of knowledge, skills, and attitudes related to six basic dimensions:

- language,
- technology,
- interaction processes,
- production and diffusion processes,
- ideology and values, and
- aesthetics.

For each dimension were defined indicators that correspond to one of two domains:

1) analysis, related to reception and interaction with the media, and

2) expression, associated to production skills (**Ferrés**; **Piscitelli**, 2012; **García-Ruiz**; **Ramírez-García**; **Rodríguez-Rosell**, 2014).

Within the scope of this large study, the research focused on compulsory education, entitled *La enseñanza obligatoria ante la competencia en comunicación audiovisual en un entorno digital*, stands out. The aim of this study was to evaluate the media literacy competences of children and young people attending Educación Infantil, Educación Primaria, Secundaria, and Bachillerato in Spain, considering their social context and its influence on the acquisition of these competences. The collected data were categorized into three levels: basic, medium, and advanced. The general results of this study indicate that children and young people are, for the most part, between basic and medium levels. Teachers are distributed equally across the three levels. Regarding families, although they recognize the great potential and opportunities offered by digital media, some concerns were pointed out regarding their use, namely issues related to the constant use of the mobile phone connected to the internet and the inherent dangers of this use, in particular the dissemination of images without permission (**García-Ruiz**; **Gozálvez**; **Aguaded**, 2014).

This study was replicated in the context of other European and Latin American countries (including Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Ecuador, Italy, Mexico, Peru, Portugal, and Venezuela) through the *AlfaMed* network, a Euro-American interuniversity research network on media competences for citizenship (e.g., **García-Ruiz** *et al.*, 2020): *http://www.redalfamed.org*

In the Portuguese context, we highlight an exploratory study with 12th grade students, carried out by researchers from the *Centro de Estudos de Comunicação e Sociedade*, at the *University of Minho*, with the support of the *Gabinete para os Meios de Comunicação Social* and the *Rede de Bibliotecas Escolares* (**Pereira**; **Pinto**; **Moura**, 2015). This study aimed to know the media literacy levels of 12th grade students and to build and validate the respective assessment instrument. The analysis model was based on the definition presented by the European Commission, in the Commission Recommendation of 20 August 2009, as

> "the ability to access the media, to understand and critically assess the different aspects of the media and their contents and to create communications in different contexts" (*European Commission*, 2009, p. 10).

Were defined and assessed the dimensions of accesses and uses; understanding, analysis and evaluation; and participation and production (**Pereira**; **Pinto**; **Moura**, 2015).

The assessment instrument developed was an online questionnaire. A scale of 100 points was defined and as a result an average of 29.01 points was obtained. The results were grouped into three levels:

- level 1 covering students with below-average results (<29);
- level 2 constituted by the group of students who obtained a result between the average and the positive (>29.01 and <49.4); and
- level 3 constituted by the group of students who achieved positive values (≥49.5).

More than 50% of the sample was positioned at level 1, a negative result compared to the average, and only 5% of the sample obtained positive results, positioning itself at level 3 (**Pereira**; **Pinto**; **Moura**, 2015).

We also highlight the *Comedig* project (PTDC/CED-EDG/32560/2017), still ongoing, under the coordination of Armanda Matos, from the *Faculty of Psychology and Educational Sciences* of the *University of Coimbra*, whose main objective is

> "to carry out a diagnosis of the level of digital and media literacy competences of students and teachers at different levels of education and, based on the knowledge produced, to design educational resources and guidelines for intervention in the area of media education" (*Comedig*, 2020).

In order to contribute to the assessment of media literacy of children and young people, within the scope of the PhD in Education Sciences (*Faculty of Psychology and Educational Sciences* of the *University of Coimbra*), appears the research entitled *Media literacy competences: assessment, profiles and training proposals*, developed on the basis of the aforementioned *Comedig* project, which constituted the theoretical and methodological starting point of the investigation.

The work presented here intends to give an account of the main results of this research, more specifically, the study of diagnosis of media literacy competences of children and young people in the 4th, 6th and 9th grades of schooling and their training needs, and to present some suggestions for education in this field. It is thought that this study responds to what is considered a priority by different international entities (e.g., *European Commission* recommendation of 20.8.2009 on media literacy in the digital environment for a more competitive audiovisual and content industry and inclusive knowledge society, *EC*, 2009), which is the development of empirical research that help to define and consolidate criteria and standards for assessing media literacy of citizens, and thus to contribute to more informed action and to empower citizens through media education. The insufficient studies in this area, namely in Portugal, where research focused on assessing children's and young people's media literacy competences is scarce, justify the interest of this study, aiming at a better understanding and a more grounded intervention.

2. Material and methods

To achieve the objectives defined for the research, a non-experimental quantitative methodology was adopted. In this way, two studies were carried out:

- a preliminary study that consisted of the construction and analysis of the adequacy of assessment instruments – self-response questionnaires–, and
- a quantitative study with a sample of Portuguese children and young people, who completed the questionnaires previously elaborated and examined.

The analysis of data collected through the questionnaires was performed using the software *Statistical Package for the Social Sciences IBM* (*SPSS*) version 22. Descriptive statistical analysis was performed using a set of measures of central tendency (mode and mean) and measures of dispersion (frequency, standard deviation). Factor analysis procedures and calculation of Cronbach's alpha index and inferential statistics were also carried out for the analysis of correlations between variables and differences in means, namely Pearson correlation calculations, point biserial correlation and Spearman correlation, student *t* tests and Anova.

It should be noted that the data were collected before the covid 19 pandemic, between February and July 2019.

2.1. Participants

The target population consisted of children and young people in the 4th, 6th and 9th grades attending public and private schools in the central region of Portugal, in the districts of Coimbra and Aveiro. A non-probabilistic sample was defined, in a total of 400 children and young people between 8 and 17 years of age, distributed by the various stages of the study:

- Preliminary study with 89 participants. The study included
  41 4th grade students, 20 female and 21 male (M_{age} = 9.5),
  nine 6th grade students, four female and five male (M_{age} = 11.3) and
  39 9th grade students, 23 female and 16 male (M_{age}= 14.7).
- Main study with 311 participants.
  76 students from the 4th grade of schooling participated in the study, 42 females and 34 males (M_{age} = 9.3),
  112 students from the 6th grade of schooling, 57 females and 55 males (M_{age} = 11.5) and
  123 students from the 9th grade, 75 female and 48 male (M_{age} = 14.5).

2.2. Procedures and instruments

At first, questionnaires to assess media literacy competences were built, theoretically based on the concept defined in the *European Commission* recommendation (*European Commission*, 2009, p. 10) as

> "the ability to access the media, to understand and critically evaluate the different aspects of the media and its contents and to create communications in different contexts",

and also, the conceptual framework proposed by **Ferrés** and **Piscitelli** (2012), which presents a set of six dimensions that configure the concept of media literacy cited above.

The elaboration of the items was based on existing questionnaires, namely the instruments built by the *AlfaMed* network (**García-Ruiz** *et al.*, 2020), and also on the questionnaire built within the scope of the study by **Pereira**, **Pinto**, and **Moura** (2015).

Some key documents were considered, with the aim of complying with some recommendations made by authors of already published studies (e.g., **Pereira**; **Pinto**; **Moura**, 2015), related to the adequacy of the contents and formulation of the questions, considering the level of participants' education.

In this sense, the indicators defined for each of the dimensions of media literacy presented by the authors **Ferrés** and **Piscitelli** (2012) were considered, and the adequacy to the participants' school level was sought, based on the analysis of the following Portuguese curricular documents:

- *Referencial de educação para os media* (document that presents a framework for pedagogical work on the subject of media education from pre-school to secondary education) (**Pereira** *et al.*, 2014);
- *Programa e metas curriculares do ensino básico português* (**Buescu** *et al.*, 2015); and
- *Metas curriculares - Tecnologias de informação e comunicação - 7º e 8º anos* (**Horta** *et al.*, 2012).

Inspired by the analysis model that guided the study of **Pereira**, **Pinto**, and **Moura** (2015), the competences to be assessed were defined:

- Access and use: opportunities for accessing information and communication and competences in manipulating tools that imply this access and use;
- Analysis, comprehension, and assessment: ability to decode and classify content and critical understanding of the media and their messages –who produces, what, why, for what, by what means–;
- Production and participation: competence to create content for expression and communication of ideas through the media.

Two questionnaires were constructed, one for the 4th and 6th grades and another for the 9th grade. Both were made up of four sections, the first with questions related to the personal scope and sociodemographic data, and the remaining three with questions oriented towards the assessment of the above cited competences. The questions were mostly closed, in the form of multiple choice or using a Likert scale. Different types of questions were included, with the aim of overcoming some of the limitations referred in previous research (**Hobbs**, 2017), related to the preponderance of measures focusing on self-evaluation. With this aim, some questions asked participants about their media use and competences, other questions asked participants for knowledge about the media, and still other questions appealed to participants' critical understanding, through the analysis and reflection on different media texts (e.g., images and videos).

After the preliminary study, carried out to verify the adequacy of the questions and their contribution to achieve the objectives defined for the investigation, the questionnaires constructed were completed in the classroom context, online (using the *LimeSurvey* software) as well as in paper form, since some schools did not have sufficient resources for online application.

The lack of consensus in the literature around a single conceptual framework in the assessment of media literacy competences (**Potter**, 2010) was the main argu-

> "The work presented here responds to what is considered a priority by different international entities, which is the development of empirical research that help to define and consolidate criteria and standards for assessing media literacy of citizens, and thus to contribute to more informed action and to empower citizens through media education"

ment for the option of building media literacy assessment instruments for the sample of this study. Thus, it became imperative to study its psychometric properties, that is, its validity and reliability, to ensure the quality of the assessment instruments constructed (**Pilatti**; **Pedroso**; **Gutiérrez**, 2010). The study of the validity of the media literacy assessment questionnaires was carried out through factor analysis and the study of the reliability was carried out through the calculation of Cronbach's alpha index.

The 19 items of the 4th and 6th grades questionnaire and the 16 items of the 9th grade questionnaire were submitted to a factor analysis in principal components with varimax rotation. In both questionnaires more components were extracted than the dimensions that were theoretically defined, without a possible theoretical interpretation. The decision was taken to retain two components, the statistical and theoretically more adequate solution, since retention of three components (the three previously defined theoretical dimensions) also did not turn out to be interpretable. Thus, component 1 extracted corresponds to the dimension designated as "Use, production and participation", the result of the merger of the dimensions of "Access and use" and "Production and participation". This dimension includes questions related to knowledge and skills in handling technological tools, which allow users to produce and share content through the media. Component 2 kept its initial designation "Analysis, comprehension and assessment", and contains questions related to the ability to decode and classify content, to the critical understanding of the media and the media messages.

Regarding the 4th and 6th grades questionnaire, data adequacy for factor analysis calculation was performed using the Kaiser-Meyer-Olkin (KMO) measure, with a 0.8 value, above the recommended 0.60 value (**Kaiser**, 1974; **Tabachnick**; **Fidell**, 2013) and the significant Barlett sphericity test ($\chi^2(171) = 924.44$; $p < 0.01$), so factor analysis can be considered adequate for this data set (**Tabachnick**; **Fidell**, 2013).

The total variance explained by the two components extracted was 36.59%. Table 1 presents the matrix of the two components extracted from the analysis of principal components with varimax rotation.

The reliability study revealed Cronbach's alpha coefficient values of 0.65 for component 1 and component 2 presents a Cronbach's alpha coefficient of 0.67.

Regarding the 9th grade questionnaire, the adequacy of the data for calculating the factor analysis was performed using the KMO measure, with the 0.59 value, a value at the acceptable limit (0.6) according to **Tabachnick** and **Fidell** (2013) and the sphericity test of Barlett significant ($\chi^2(120) = 434.27$; $p < 0.01$), so factor analysis can be considered adequate for this data set (**Tabachnick**; **Fidell**, 2013).

The total variance explained by the two components extracted was 37.90%. Table 2 presents the matrix of the two components extracted from the analysis of principal components with varimax rotation.

Table 1. Matrix of two components extracted from the analysis of principal components with varimax rotation – 4th and 6th grades questionnaire (*n* = 177)

Items	Component 1	Component 2
Q18	**.80**	.21
Q19	**.77**	.11
Q20	**.46**	.55
Q34	**.33**	.25
Q35	**.41**	.18
Q40	**.66**	.08
Q41	**.78**	-.03
Q42	**.67**	-.01
Q21	.03	**.53**
Q22+23	.00	**.49**
Q24	.14	**.49**
Q25	.07	**.43**
Q 28	.30	**.58**
Q29	.33	**.52**
Q30	.04	**.27**
Q31	-.12	**.37**
Q32	.11	**.47**
Q33	.27	**.71**
Q39	.13	**.67**
% total variance	25.84	10.75

Table 2. Matrix of two components extracted from the analysis of principal components with varimax rotation – 9th grade questionnaire (*n* = 86)

Items	Component 1	Component 2
Q18	**.49**	.20
Q19	**.47**	.14
Q35	**.57**	.34
Q40	**.65**	-.41
Q41	**.70**	-.16
Q42	**.76**	-.37
Q21	-.01	**.36**
Q22	-.03	**.44**
Q25	.30	**.53**
Q28	.25	**.52**
Q29	.22	**.70**
Q30	-.06	**.82**
Q33	.38	**.39**
Q38	-.01	**.31**
Q39	-.22	**.58**
Q43	.01	**.51**
% total variance	16.65	21.25

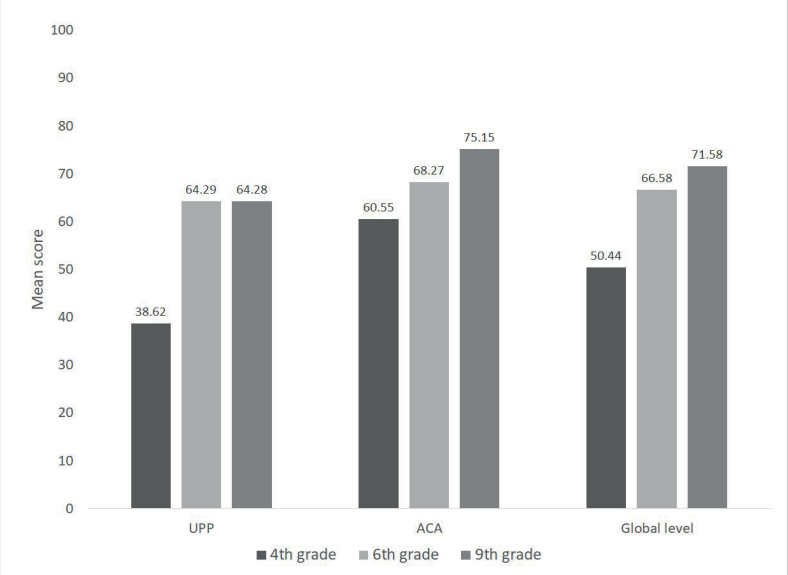
The reliability study revealed Cronbach's alpha coefficient values of 0.59 for component 1 and component 2 presents a Cronbach's alpha coefficient of 0.62.

It should be noted that all steps were taken to obtain the necessary authorizations to carry out the study in its various stages, namely with the *Direção-Geral da Educação*, from public and private schools and parents (authorization request and informed consent). All ethical requirements were followed, voluntary and anonymous participation was ensured, as well confidentiality of the data of all participants.

3. Analysis and results

The main results, presented on a scale from 0 to 100 points, point to an average score of the 4th grade participants, in the "Analysis, comprehension and assessment (ACA)" and "Use, production and participation (UPP)" dimensions of 60.55 and 38.62 points, respectively; the participants of the 6th grade presented a mean score in the ACA and UPP dimensions of 68.27 and 64.29 points respectively; 9th grade participants had a mean score in the ACA and UPP dimensions of 75.15 and 64.24 points respectively. Considering the global media literacy competences, the participants obtained a Global level (GL) of 50.44 points in the 4th grade, 66.58 points in the 6th grade and 71.58 points in the 9th grade.

These values are presented in the Graph 1.



Graph 1. Mean values by dimension and grade of schooling

Other results to be highlighted were those obtained by the study of the relation between the fact that the participants had addressed the media theme at some point in their schooling and their media literacy competences. It was found that, in the case of participants in the 4th and 9th grades, there is a statistically significant correlation concerning some dimensions of the media literacy competences considered.

Thus, with regard to the 4th grade participants, there seems to be a significant correlation between having already addressed the topic of media education at school and the Global level (GL) of media literacy (r= .257, p < .01) and also the variable ACA (r = .376, p < .05). To understand whether there were in fact differences between the averages of those who had or had not addressed this topic, a t test was conducted for independent samples. There were significant differences between the averages of those who have already addressed the topic in relation to GL and the ACA dimension. The average score on GL of students who at some point in their schooling addressed the topic (M = 52.11; SD = 10.25, n = 52) is significantly higher compared to students who did not address the topic (M = 46.80; SD = 7.18, n = 24), t(74) = -2.29, p = .025. The results regarding the ACA dimension were similar as it was found that students who had already addressed the topic (M = 62.75; SD = 8.07, n = 52) had a significantly higher average compared to students who had not addressed it (M = 55.80; SD = 9.25, n = 24), t(74) = -3.33, p = .001. The UPP dimension did not show significant differences in relation to students who have already addressed the topic (M = 39.69; SD = 18.04, n = 52) and those who have not addressed it (M = 36.29; SD = 12.68, n = 24), t(61.74) = .943, p = .349.

For the 9th grade, the correlation is statistically significant with GL (r = .284, p < .01). To understand whether there were in fact differences between the averages of those who had or had not addressed this topic, a t test was conducted for independent samples. The average of the GL variable of students who at some point in their schooling addressed the topic (M = 72.93; SD = 7.09, n = 57) is significantly higher in relation to students who did not address the topic (M = 68.74; SD = 5.68, n = 27), t(82) = 2.69, p = .009. There were no significant differences regarding the ACA variable between those who addressed (M = 75.94; SD = 7.89, n = 57) or not the topic (M = 73.01; SD = 7.07, n = 27), t(82) = 1.64, p = .104, as well as in relation to the UPP variable. The average of those who addressed the topic (M = 65.59; SD = 12.52, n = 81) is not significantly different from that of those who did not approach it (M = 62.00; SD = 8.07, n = 36), t(99.91) = 1.85, p = .067.

The relation between media literacy and the frequency of media used was also analysed. The results show no significant correlation with ACA dimension. However, there was a statistically significant correlation between the variables UPP and GL and the frequency of media used for the three years studied:

UPP: 4th grade r = .513, p < .01; 6th grade r = .468, p < .01; 9th grade r = .269, p < .01

GL: 4th grade r = .402, p < .01; 6th grade r = .327, p < .01; 9th grade r = .277, p < .01)

4. Discussion and conclusion

Analysing the results from a global perspective of the studies carried out, the "Analysis, comprehension and assessment" (ACA) dimension was the one in which the students participating in the study apparently obtained better results. About half of the participants of all the years of the present investigation obtained scores above the respective average. This result is supported by previous studies, such as the studies by **Zhang** and **Zhu** (2016) and **Costa**, **Sousa**, and **Tyner** (2019). However, analysing the results regarding some themes included in this dimension, it is important to emphasize that there were some difficulties related to the analysis and interpretation of languages (text, sound, and image) present in a media content (4th, 6th and 9th grades), with the understanding of the purpose of a media message (4th grade) and the lack of knowledge about the reliability of information (4th, 6th and 9th grades).

Regarding the "Use, production and participation" (UPP) dimension, it was the participant students of the 4th grade who obtained the lowest results. The 6th and 9th grade students were those who reported having more knowledge about the use of technological tools, an area where 4th grade students have more difficulties and less knowledge. These results agree with the study *La enseñanza obligatoria ante la competencia en comunicación audiovisual en un entorno digital*, with regard to the technology dimension included in the conceptual framework considered, which assesses knowledge about the functioning of technological tools for audiovisual communication and digital (**García-Ruiz**; **Gozálvez**; **Aguaded**, 2014).

The production and participation competences of the surveyed students proved to be very low and not very complex. There is a tendency for simple participation by pressing *like* or content sharing, as well as productions not very elaborate, where the highest percentages points were for the creation of a page in a social network, contrasting with low percentages of productions with a higher degree of complexity, such as creating podcasts or videos. These results are similar to those of the *EU Kids Online Portugal* study, where creative activities or civic participation showed almost residual values (it is worth noting the fact that this study only considers online activities) (**Ponte**; **Batista**, 2019) as well as to those of the study by **Zhang** and **Zhu** (2016) where the dimensions creation and communication, and civic participation were the ones that obtained the lowest results.

Thus, the results of the present investigation point to a need for training, generalized to the three grades studied, concerning the UPP dimension, with regard to the participation and production of media content. Training needs were also identified considering the ACA dimension, particularly in relation to the analysis and interpretation of languages present in media content and knowledge about information reliability.

It was identified, in the 4th grade participants, the need for training regarding the UPP dimension, in particular the use of digital tools, and in the ACA dimension in terms of understanding the objectives of media messages. Regarding the 9th grade students, the training needs on practices related to online security stand out.

In order to overcome the identified needs, we present some suggestions for intervention, such as the use of educative resources already available, as well as taking advantage of the framework and work possibilities already contemplated in curricular guiding documents, namely the Essential Learnings of the Portuguese subject (Portuguese curriculum guidance documents for planning, carrying out and evaluating teaching and learning) and some contents of the ICT subject. We also consider that it is extremely important to invest in developing critical thinking competences, as these competences are an imperative condition and strongly related to media literacy competences, as **Arke** (2005) shows in his studies. Thus, since the promotion of critical thinking must be, according to **Tenreiro-Vieira** and **Vieira** (2000), an act of conscious, explicit, and systematic teaching, the authors argue that it is necessary to apply a pedagogical strategy that guides teachers in planning activities, in particular those related to the construction or reformulation of activities that explicitly require the use of critical thinking competences. The **Ennis** Framework (1985) is pointed out as a possible teaching-learning strategy for this purpose. We underline the great importance of teachers' use of the aforementioned *Referencial de educação para os media*, as a central and guiding document to approach the theme of the media, within the scope of the Citizenship and Development component of the Portuguese curriculum.

With this study, we present here another contribution towards deconstructing the belief that digital natives have specific characteristics that give them more media literacy competences just because they were born surrounded by new technologies. The present investigation confirms that, effectively, the use of media by itself does not increase the critical dimension of media literacy competences. It should be noted that, in the 4th, 6th and 9th grades, it was found that there is no significant correlation between the frequency of use of the media and the ACA dimension, which corroborates what has already been exposed in the literature that shows that greater access and use does not itself imply greater competence, namely with regard to the critical understanding of media messages (**Buckingham**, 2009; **Buckingham** *et al.*, 2005; **García-Ruiz**; **Ramírez-García**; **Rodríguez-Rosell**, 2014; **Matos**; **Festas**; **Seixas**, 2016).

> "The results point to a need for training, generalized to the three grades studied, concerning content production and participation. Training needs were also identified in relation to the analysis and interpretation of languages present in media content and knowledge about information reliability"

We highlight another important result that confirms the importance of media education in the development of media literacy. We found that students who, at some point in their schooling, addressed media themes tend to have better levels of media literacy. It is therefore essential to reflect on the role of schools and teachers in media education.

Therefore, is essential to invest in a policy focused in the training of teachers in the media area, a topic that has not had the due importance in Portugal, neither in the initial training of teachers, nor in continuing education, although there are some slow advances (**Pinto**; **Pereira**, 2018). There are several relevant guiding documents in this area, namely *Think critically, click wisely! Media and information literate citizens* (**Grizzle** *et al.*, 2021) and the *Currículo Alfamed de formação de professores em educação midiática AMI (alfabetização midiática e informacional) na era pós-COVID-19* (**Aguaded** *et al.*, 2021).

In parallel with the school context, we also emphasize the importance of the role of parents and family in the development of media literacy in children and young people. Not only for the sharing of experiences that must occur, but also through parental mediation for a critical use of the media.

Thus, is extremely important to emphasize that digital natives should not be considered a population with good proficiency in using the media, in order to avoid the risk of undervaluing the training of young people in this area, and it is equally pertinent to emphasize the importance of teachers and parents/guardians.

Considering the context of the Covid-19 pandemic, and the fact that this work was largely carried out in the pre-pandemic period, we consider that its findings may assume particular relevance for the contribution they make to understanding the difficulties and challenges that were felt in educational contexts by students and teachers during the lockdown due to pandemic, as a result of the sudden virtualization of educational activities, and thus, to help envisage lines of action that contribute to overcoming those difficulties, and to prepare educational systems to respond to potential future crisis contexts, making use of what digital media can offer.

The research focused on remote teaching experiences during the pandemic revealed obstacles and difficulties associated with the abrupt migration to the digital environment, as well as opportunities to explore the new educational situations created. Some studies that aimed to know the perceptions of teachers at different levels of education about the challenges posed by online teaching, namely related to students' media and digital literacy skills, point to results that are in line with the main conclusions of our investigation, in what concerns to the weaknesses we found in the skills of critical analysis and interpretation of information, assessment of the reliability of information and media messages. In a comparative study carried out in Latin America (**Mateus** *et al.*, 2022), which aimed to understand the perspectives of basic education teachers on the opportunities and challenges resulting from the pandemic in terms of media education, the participating teachers point out as a priority, precisely, the promotion of students' skills to critically analyze the media, to understand media social role in informing about the world, skills that they consider essential to benefit from the opportunities they offer.

Another study carried out to characterize the digital and information skills of university students, before and during the pandemic (**Sales**; **Cuevas-Cerveró**; **Gómez-Hernández**, 2020), revealed that from the teachers' perspective, students do present a predisposition to use technology, although they reveal a lack of critical reflection skills, difficulties in searching, analysing and evaluating the veracity and adequacy of the information they find, results that are consistent with the difficulties that the students in our study revealed, namely in terms of assessing the reliability of the information. Moreover, teachers did not find improvements in terms of information and digital literacy, as a result of the experience of remote teaching during the pandemic, and they express their concern given the relevance of those skills, which in addition to being reflected in the academic training of students, are essential for their integral formation and the exercise of citizenship.

A more recent study to assess media literacy skills carried out with Portuguese primary and secondary school students (aged between 14-18), whose data already reflect the teaching experiences during the pandemic period, reveals results consistent with those obtained in our study, with students demonstrating difficulties in terms of production and sharing/dissemination of content, as well as in terms of understanding the language of the media (*ERC - Entidade Reguladora para a Comunicação Social*, 2021).

Also, in line with the results of our study and with the conclusion that the training needs of digital natives should not be disregarded, a study on the adaptation to online teaching of early career teachers during the pandemic period extends the reflection to teacher training. The study authors concluded that the fact that younger teachers belong to the generation of digital natives does not guarantee that they have developed sophisticated digital skills (**König**; **Jäger-Biela**; **Glutsch**, 2020).

> "With this study, we present here another contribution towards deconstructing the belief that digital natives have specific characteristics that give them more media literacy competences just because they were born surrounded by new technologies"

In fact, the explosion of digital content and the vast amount of (des)information and fake news produced and put into circulation during the pandemic, giving rise to the concept of "infodemic" (**König**; **Jäger-Biela**;

Glutsch, 2020), have made it even more evident the importance of developing citizens' media literacy. Thus, the training needs of students and teachers that are inferred from our results as well as from the referred studies, focused on the pandemic period, converge on the importance of reinforcing a critical and reflective dimension in education for media literacy.

> "It is extremely important to emphasize that digital natives should not be considered a population with good proficiency in using the media. It is equally pertinent to emphasize the importance of teachers' and parents/guardians"

It is worth noting that we found that students who, at some point in their schooling, addressed media themes tended to have better levels of media literacy, which constitutes a factor of optimism regarding the possibilities of educational intervention in this domain, in line with studies that point to the same direction, developed during the pandemic, as is the case of a study carried out with students of English as a foreign language, in a virtual classroom, in the covid-10 lockdown period (**Bilotserkovets** *et al.*, 2021). The authors of this study demonstrated that it is possible to develop students' critical media literacy skills by carrying out creative activities of analysis and discussion of social media texts and using social media resources. No less relevant is the fact that this study demonstrates the importance and benefits of integrating intentionality into educational actions with regard to the promotion of media literacy, that is, of consciously, explicitly, and systematically (**Tenreiro-Vieira**; **Vieira**, 2000) incorporating media education objectives when teaching other subjects, and when using digital educational resources.

We would also like to draw attention to the interest of the present study in the area of research that focuses on the assessment of media literacy skills. Considering the scarcity of studies evaluating the media literacy of citizens, to which European entities have been drawing attention, this study offers a characterization of the media literacy skills of basic education students, which could serve as a reference for monitoring the evolution of post-pandemic media literacy skills, in addition to constituting a contribution to the development of media literacy assessment tools, necessary for future research.

Limitations

The rigor and reasoning based on solid assumptions that we intend to comply with in the development of this research did not eliminate the presence of some limitations and constraints, so the results must be interpreted considering these limitations.

In methodological terms, we refer to the sampling technique. The sample was collected by a non-probabilistic method, so there must be some care in terms of extrapolating the conclusions to the universe in question (**Hill**; **Hill**, 2009).

It is important to mention the difficulty in constructing the assessment instruments used, related to the existence in the literature of numerous definitions of the concept of media literacy and, therefore, a huge variety of assessment instruments. For this reason, we believe that there is, in fact, a need to reach a consensus around the conceptual framework of media literacy, in order to be able to carry out systematic assessments of these competences (**Potter**, 2010), and to compare results from a reliable and valid way (**Livingstone**; **Thumim**, 2003).

Future research

Although we have presented some answers to the questions that guided the research here described, many questions arise that we suggest for future investigations. It is essential to investigate teachers' media literacy competences; at the school and family/parental level, it would be important to know better how the issue of the media is approached. Yet another line of research that seems relevant to us would be to extend the assessment of media literacy competences to younger children of preschool age, as well as the development of specific programs to be applied in kindergartens.

Considering the context of the Covid-19 pandemic, and the challenges that it has posed to education, by intensifying and accelerating the integration of digital in educational practices, it is equally pertinent to develop new studies, with greater temporal distance from the Covid-19 pandemic, that allow monitoring the evolution of the media literacy skills of students and teachers at different levels of education, and how educational policies and initiatives seek to meet the needs and difficulties that this particular public health context has contributed to revealing.

In view of all this, we believe that this work will contribute to the evolution of knowledge and development on the subject of the media and influence researchers to study more about it..

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