

***Assessing media literacy competences:
Reflections and recommendations from a quantitative study***

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ABSTRACT

The assessment of media literacy is a complex task, which might attempt to reconcile a research field traditionally developed within a critical paradigm with the task of evaluating and quantifying media literacy competences through essentially quantitative methods. Despite the lack of consensus regarding how to evaluate and measure media literacy, this goal is increasingly sought by political and regulatory stakeholders, as well as studied within the academic world. Based on one of such attempts, a study on the media literacy competences of 679 Portuguese teenagers, this paper presents a review and a reflection on the specific challenges posed by the intent to quantitatively assess media literacy, without neglecting its core critical dimension. It concludes by suggesting the need for methodological convergence and the continuous development of valid and reliable indicators, which must necessarily be context and subject-dependent, to improve this area of research.

Keywords: *competences, media literacy, assessment, quantitative methods.*



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INTRODUCTION

Media literacy and competencies can be regarded as concepts with a “variable geometry,” to borrow Miège’s (2017, p. 54) expression, which means they are often adapted to meet different contexts and research goals. Regarding the first concept, Potter (2010, p. 676) stated that “it is as if each person writing about media literacy conceptualizes it with a different construction of definitional elements.” Nonetheless, there is a recurrent key shared concern amidst many works and researchers within media studies: despite the existence of different approaches, media literacy can be seen as “a form of *critical literacy*” (Buckingham, 2003, p. 38), one that has been recurrently studied within a critical paradigm (Livingstone et al., 2008).

According to Buckingham (2003, p. 36) “defining media literacy is far from straightforward,” as it goes beyond the one-on-one relationship between a person and a given text. “It entails the acquisition of a ‘metalanguage’” (Buckingham, 2003, p. 38), because this process implies an analytical understanding of broader and interrelated contexts (from different modes of communication to intertextual relations or social, economic and institutional backgrounds, for instance). However, there are particular dimensions of media literacy that can be seen as widespread amidst different authors and institutions. An early example is the report of The National Leadership Conference on Media Literacy (Aufderheide, 1993), which noted that the participants agreed on a basic definition of media literacy as the ability “to access, analyse, and produce information for specific outcomes” (p. v). Decoding and evaluation can be later found alongside this concept (Aufderheide, 1993, pp. 6-7), as more specific ways of understanding what the analysis may comprise. Production was also rearranged into two different components: encoding or providing alternative expressions (Aufderheide, 1993, p. 7). The European Commission (EC) presents media literacy in related, but not necessarily equal, terms, as “the ability to access the media, to understand and critically evaluate different aspects of the media and media content and to create communications in a variety of contexts” (Recommendation 2009/625/EC).

This article is based on a study that sought to assess levels of media literacy competence using the EC definition (Pereira et al., 2015; Pereira & Moura, 2019).

Therefore, media literacy was assumed to have three core elements, comprising: *access* to media and the capacity to *use* them; *critical evaluation*, understanding and analysis of media and its contents; and the capacity to engage in practices of mediatized *participation* and *production*.

The consummation of this mix of meaning-making and actual practices may be understood as revealing different media literacy competences (Buckingham, 2005a; Fastrez, 2010). This theoretical positioning had methodological implications. Since we expected to assess (mostly) critical competences in reading, analyzing, understanding and producing media messages using a strictly quantitative method to generate levels, we had to define accurate and relevant indicators to empirically recognize and evaluate those competencies – despite the absence of consensus regarding this purpose¹ and the prevalence of qualitative approaches within our references on media literacy.

In this paper, we review and analyze the approach we used to measure the media literacy competences of Portuguese teens from a project developed between 2013 and 2015, discussing the implications and the constraints of the use of quantitative methods in assessing media literacy competences. Our experiences and reflections derived from the research project and the review of other studies are the foundations of this paper, which aims to contribute to the debate on the challenges and constraints of researching media literacy competences through the scope of quantitative methods. We focus on the challenges of choosing what to evaluate; the definition of what participants should know (and, therefore, what should be the content matter under study); and the difficulties of quantitatively defining levels of media literacy competence.

Context: The Portuguese study

The Portuguese study was a response to an informal call launched in 2012 by the Group of Experts on Media Literacy of the EC to carry out studies in their respective countries aimed at assessing citizens’ levels of media literacy. The call was accepted by researchers of the Communication and Society Research Centre (the authors of this paper and Manuel Pinto), who developed the study with a national sample of young people attending the 12th year of secondary education (the last level of compulsory education), mostly aged between 17

assessing media literacy competences, highlighting differences and communalities among authors.

¹ The Appendix presents a brief systematization of different – theoretical and empirical – approaches on the challenge of

and 18 years old. A total of 679 youngsters, attending 46 public schools from mainland Portugal, assembled by non-probabilistic quota sampling, completed the online survey, which was the sole research tool used². In this research, the definition of media literacy previously discussed had necessary implications on how the other main concept at stake was envisioned: competence would not be regarded as just an effective (and more easily measured) know-how, but it would be, nevertheless, assessed.

This study sought to balance the challenges and needs of measuring media literacy mentioned earlier, to which two other obstacles must be added: the precarious place of media education in school curricula at the national level,³ and the absence of a set of theoretical references on what to teach and learn in this respect (and, consequently, on what to assess), as the current national Media Education Guidance (Pereira et al., 2014) was still under construction when the research tool was designed and implemented. Therefore, the methods of the study would have to be able to accommodate this conception of media literacy and competences, but through an essentially quantitative and exploratory design, as the main goal was to evaluate (and quantify) levels of media literacy competences of a significant group of persons. As mentioned before, three main challenges emerged:

- 1) *Choosing the research tools and techniques*: to choose data collection instruments capable of substantiating the research goals;
- 2) *What to evaluate*: to select what could and should be evaluated, both in a macro (i.e., in relation to the three dimensions of media literacy) and in a micro (that is, the specific questions from the abundance of contexts and contents related to the media) sense;
- 3) *How to evaluate and quantify*: to establish how the outcomes of the assessment tool should be evaluated and quantified, in order to translate levels of media literacy competences.

The researchers established that the evaluation would comprise an overall 100-point scale, a familiar measure within the Portuguese educational system and that would hopefully make the outcomes more intelligible to lay audiences. A media literacy

competences scale was then defined: it had three levels, which were determined by considering the average scores and the 100 points distributed. Therefore, the students placed in level 1 (n= 352) had scores below the total mean (29.01 points); students in level 2 (n= 295) had results between the average and the lowest positive score (49.50 points were considered as threshold); level 3 students (n= 32) were the ones with positive scores – i.e., 50 points or more (Pereira et al., 2015; Pereira & Moura, 2019). This division allowed, on the one hand, to fulfil the objective of mirroring the Portuguese education assessment system (namely by defining the positive threshold at 50 points out of 100), possibly making the scale data more relevant and understandable in the national context; on the other hand, it allowed to take into consideration the assessment results themselves, assuming the average as a relevant outcome to delimit two groups with similar dimensions. Until reaching these final stages, however, different and important decisions had to be made. In the next sections, following respectively the three challenges outlined above, we reflect on some of these decisions and their methodological implications, whilst considering the methodological choices of other studies.

METHODOLOGICAL CONSIDERATIONS

The concept of competence

Competence is often equated with expressions such as capacities or skills: sometimes as just another word pointing towards the ability to do something, but other times as an overall idea whose dimensions are concrete capacities and skills, but also knowledge, attitudes and values (Guzmán Marin, 2012). More than just the ability to achieve a given goal, to behave in a specific way or to know how to do something, a competence would imply a context-dependent “problem-solving strategy relying on reasoning, inferences, foresights, assessing the probability of different events, reaching a diagnosis based on a set of indicators” (Perrenoud, 1995, p. 21). It goes beyond what someone knows and is able to perform; it is more than the properness of outcomes reached; it stresses the importance of reasoning, values and critical thinking; it acknowledges the structural

² The study was developed in partnership with the Media Office (extinct in 2015) and the School Libraries Network (SLN), which funded it. The SLN managed the filling out of the surveys within school premises. No researcher was present when the questionnaires were being completed.

³ In a broad mapping of national media education initiatives in the first decade of the 21st century, Pinto et al. (2011, p. 149) concluded that the Portuguese situation could be characterized as “fragmentary, without direction, [full] of advances and retreats and without a great horizon”, despite the existence of – atomized – diverse and interesting efforts.

importance of contexts – not only the ones surrounding the problems to be faced by someone, but also those that form the capital of the individuals at stake (Perrenoud, 1995, 1999). This way, it would share, in what is essential, the same paradigmatic ground of a mostly critical media literacy concept – in fact, this specific conception of media literacy can be regarded as media competence if the latter goes beyond the simple capacity to do something (Trültzsch-Wijnen, 2020).

In short, media literacy competences were not considered as something straightforwardly related to the accomplishment of a result – as if it were the single, right tool for a given purpose. Instead, we conceptualize media literacy competences as a critical practice, one where factually correct answers are obviously important, but also where interpretation, reasonings and meanings assume a central place. This evokes a distinction presented by Buckingham (2005b) or Trültzsch-Wijnen (2020): specific performances, especially when done in artificial contexts (such as an evaluation outside everyday practices) and in reference to someone else’s standards (the evaluators, which may not translate the plethora of things those being assessed know and do), cannot be mistaken for the overall competences of a person. As the latter author puts it, “the danger inherent here is that quantitative studies on competence measurement lead to statements that are less about an individual’s actual abilities and skills than about his or her adaptation to socially desirable standards imposed by society” (Trültzsch-Wijnen, 2020, p. 116). This echoes a well-established principle in audience research, which is closely related to media literacy and media education in general (Buckingham, 2003): when grouped strictly in quantitative terms – for example, for marketing purposes – audiences rarely have a voice of their own and their rationalized collective identity is more a tribute to the choices and concerns of researchers than to *a priori* social entities whose existence would be objectively revealed by numbers and measurements (Dayan, 2005).

While the oversimplification of media literacy measurements might be “significantly less than reliable”

(Buckingham, 2005b, p. 32), even nonsensical if the goal is to reduce it, for example, to skills validated by the demands of the labor market, one should also consider the consequences of the lack of broader quantitative studies. For instance, their absence might hamper the awareness of existing gaps or the comprehension of the accomplishments and shortcomings of diverse media education initiatives (Ferrés Prats et al., 2012; Livingstone et al., 2012), at a time when other, more or less related competences (namely strictly digital ones⁴) are also being evaluated. Missing this call while quantitative measurements are a political priority might push media literacy to a secondary role within our collective lives. However, neglecting decades of research within the critical paradigm for the sake of measurement can make media literacy little more than an empty signifier.

How are media literacy competences to be quantitatively assessed?

The research design of the evaluation would have to ensure the theoretical coherence between our specific concepts of media literacy and competences and the measures to be used within the survey. Hence, despite the undeniable importance of knowledge and/or attitudes, as well as their use in earlier studies (e.g., João & Menezes, 2008; Primack et al., 2006; DTI & EAVI, 2011; Ashley et al., 2013) and the greater familiarity in validating results from closed measures such as scales or multiple choice/dichotomous questions, the Portuguese study took, for the most part, a different path.

Building upon previous research (e.g., Benavente et al., 1996; Hobbs & Frost, 2003; Lopes, 2013), we envisioned open-ended, task-solving questions as being at the heart of the evaluation of media literacy competences. This option provides opportunities to examine the expectedly diverse answers, but also offers the chance to consider other traces of competences present in the written argumentation, which would be unavailable in close-ended questions. Recalling the concept of competence at stake, it goes beyond the

⁴ In this paper, we do not consider frameworks for assessing digital competence, such as the “European Framework for the Digital Competence of Educators: DigCompEdu”. Although they are very relevant in terms of developing digital literacy skills, they follow distinct theoretical and conceptual approaches and objectives. As highlighted throughout the paper, in this work we follow a media literacy orientation, rooted in critical thinking and reading, analysis and production of media, with the ultimate goal of active and participatory

citizenship. The media are considered much more than technologies, devices, or instruments used to drive innovation in education; media literacy competences are broader than utilitarian skills. Centered on a paradigm of communication and citizenship, our approach distances itself from an instrumental view of digital skills (which is not taking away the importance of digital competencies in the development of fundamental life skills).

accomplishment of a given outcome; it also considers interpretation, reasonings and meanings in relation to specific problems. If, as Buckingham (2019, p. 55) mentioned, “critical thinking is a reflexive process,” any study willing to encompass it must give participants some leeway to express it, even if this represents not so controlled and predictable data. Therefore, it was considered that a test mostly comprising task-solving, open-ended questions would be the most suitable option to achieve a higher degree of theoretical validity. Table 1 summarizes the dimensions and general competences assessed and presents examples of questions posed by the online survey.

Although open-ended questions were the most employed measures, multiple-choice questions (e.g., item Q1.f.) were also used to assess factual knowledge and identify attitudes towards copyright (item Q1.k.) as well as media production and participation behaviors (items Q2.a. to Q2.d.).

Despite the fact that task-based assessments can encourage the expression of diverse competences, this measurement tool does not fully represent the entirety of media literacy competences. To begin with, the use of an online survey had its own affordances and created its own specific context. Therefore, it also narrowed down how deeply context-dependent concepts can be studied and their outcomes considered. Another striking feature of this assessment is the fact that this kind of performance-based testing relied on written answers. Although one question (Q1.m.) implies the possibility of using other ways of expression besides writing, all the answers are contingent on the reading comprehension and writing skills of the youngster, as well as their willingness to express ideas in written form. This context does not necessarily equate to the experience of everyday life, where young people can express a plethora of competences in other media formats and languages, and within collective, rather than individual, settings. This has a necessary impact on what can be properly evaluated by the research tool used.

The challenges of choosing what to evaluate

All media literacy dimensions necessarily mobilize a set of competences which can be studied, but not through the same methods. That is, the research design of the evaluation sets conditions for what competences can be validly assessed. As Table 1 shows, the critical dimension had a prominent position within the evaluation.

Two reasons justify this fact: the prevalence of critical analysis in media literacy scholarship and the definition of competence we adopted. These reasons also explain the fewer cases of production and participation competences under evaluation and the total absence of the ones related to access and uses. In other words, the kinds of tasks presented above are more easily related to the adopted definition of critical evaluation, understanding and analysis, as they are focused on knowledge, meaning making and abstract thinking, particularly when we challenged the youngster to think about hypothetical creative scenarios.

The case of media access and uses. Access and uses (understood as media practices) were collected through self-report scaled measures, such as “How often do you use the following media?” These items were not deemed suitable to be part of the evaluation. Therefore, the study made a distinction between media use practices and media literacy competences, considering that access to and uses of the media may be a prerequisite for media literacy, but the recognition of one’s practices is not, *per se*, an indication of competence.

At best, the mere existence of practices would be a trace of implicit rudimentary skills, which the researchers would have to assume existed based on (not totally reliable) self-report measures (Prior, 2009; Bulger, 2012). A different thing is the ability to engage in reasoning about one’s own media use practices – and even to reflect on what others do with the media or what is possible/available to whom, in a broader societal context. These reflections could be assessed within the component of critical thinking, considering the affordances of the research tool.

This does not mean that the data collected on self-reported access and uses practices were not used. The Portuguese study presented data gathered from sociodemographic and on self-reported access and use items. Besides the intrinsic value of these measures, the findings were crucial to better understand the focus of the research: the different levels of media literacy competence, calculated mostly by the assessment of knowledge and the resolution of tasks, in a written format. In other words, media access and use data provided a context to analyze other findings– providing a first clue to realize who the youngsters behind the results were.

An example of a different approach can be found in the study developed by the Danish Technological Institute and the European Association for Viewers Interests (DTI & EAVI, 2011).

Table 1. *Dimensions and general competences assessed (Pereira et al., 2015)*

Dimension	General competences	Goals	Measures	Examples of questions
1. Critical evaluation, understanding and analysis	1.1. To interpret and classify media contents, institutions and players	1.1.1. To identify and interpret the relevance of specific parts in a given media content	Four open-ended questions	Q1.a. [Considering a news piece on advertorials and how these can violate the legal and ethical boundaries between journalism and advertisers] Which incompatibility is mentioned within the text? Q1.b. [After watching an excerpt of the TV series Crossing Lines, which featured product placement] How do you evaluate the way this scene was shot? Did you notice any particular concern about how the images were framed?
		1.1.2. To identify, compare, distinguish and/or characterize media genres and contents	Two open-ended questions and one multiple-choice question	Q1.c. [Considering a news piece on advertorials and how these can violate the legal and ethical boundaries between journalism and advertisers] The text mentions something called “advertorials”. What does this word mean to you? Q1.d. [Regarding an opinion column properly identified as such] The following text was written by the journalist X. How do you label it? [Choose one of the following options] News piece Feature Opinion article
		1.1.3. To identify, compare, distinguish and/or characterize media institutions and players	Four open-ended questions and one multiple-choice question	Q1.e. [Respecting the Portuguese Public Service Media] Can you identify the names of its different media? Q1.f. [Considering a simulated Google search] How do you label this site? [Choose one of the following options] Social network Search engine Content aggregator Online store
	1.2. To understand the contexts of media contents, institutions and players	1.2.1. To identify the ownership of media institutions	Two open-ended questions	Q1.g. [Respecting the Portuguese Public Service Media] Who owns these media?
		1.2.2. To acknowledge the existence of different/alternative media and platforms	One open-ended question	Q1.h. [Considering a simulated Google search] Mention an alternative to this site.
		1.2.3. To identify media funding modes	Two open-ended questions	Q1.i. [Respecting the Portuguese Public Service Media] Mention one example of how this media is funded.
		1.2.4. To identify media regulatory instances	One open-ended question	Q1.j. Consider that you are listening to a radio show, and you feel that it violated one or more of your rights. Do you know any institution of person to which/whom you can lodge a complaint? [If so] Mention that institution or person.

Dimension	General competences	Goals	Measures	Examples of questions
		1.2.5. To acknowledge the existence of copyrights and the need to identify the sources used - <i>Attitudes</i>	One scale question and one open-ended question	Q1.k. When you do a school assignment, do you reference the sources that you used? [Choose one of the following options] No, because I don't know how to do it No, because I didn't know we should do it No, because I don't think it is important Sometimes, when I remember Always, it is important to do it Q1.l. How do you present the references?
	1.3. To evaluate media contents, institutions and players	1.3.1. To acknowledge the different media available as possible tools	Three open-ended questions	Q1.m. Imagine that you are running for president of your student union. Which media could you use to communicate with your schoolmates? How could you use them? Q1.n. [Regarding data on TV audiences] Imagine that someone from your family develops something that could be advertised to elderly people. Considering the data presented, which TV channel/time slot would you recommend for investing in an ad?
		1.3.2. To evaluate the origins and contexts of given media contents, institutions and players	Two open-ended questions	Q1.o. [Considering a simulated Google search] Suppose that you must do a school project on tree felling in Portugal and that by doing an Internet search the following sources of information appear in the top five places. 1. Indicate the two sources of information that you would choose for your schoolwork. 2. Explain your choice.
		1.3.3. To evaluate specific goals of diverse media contents, institutions and players	One open-ended question	Q1.p. [Respecting the Portuguese Public Service Media] What is it and what are its purposes?
		1.3.4. To suggest alternative media contents, institutions and players	One open-ended question	Q1.q. [Considering a news piece on advertorials and how these can violate the legal and ethical boundaries between journalism and advertisers] What other kind of sources could be present?
2. Production and participation	2.1. To participate using the media	2.1.1. To use different media to participate and interact with others – <i>Practices</i>	One dichotomous question	Q2.a. Within the last year, did you do any of the following [13] activities? [Examples] To comment on a journalistic site/social network To sign an online petition To comment on a brand site/social network
	2.2. To produce	2.2.1. To create contents – <i>Practices</i>	Three dichotomous questions	Q2.b. Within the last year, did you do any of the following [13] activities? [Examples] To record a video To produce a podcast To create a blog Q2.c. Do you collaborate with any of your school media?
		2.2.2. To be able to explain different production stages of their own creations	Three open-ended questions	Q2.d. If you have recorded a video, explain the steps you take between conception and possible upload

While testing a previous framework (EAVI, 2009) using a survey completed in six European countries (N=7303), this research tried to evaluate what was labelled as use skills: computer and internet-related ones, the existence of balanced media use, and advanced internet uses. Due to technical problems, only the second was deemed evaluable. Hence, a balanced media use was assessed “based on the frequency of use” of different media in the previous three months (DTI & EAVI, 2011, p. 44). Scores were then given to each medium and its (perceived) recurrence. The people with a better performance on this criterion were the ones that used the media the most and more often. Besides the risk of “overinterpreting findings related to numbers of users or frequency of use,” especially when considered apart from the other dimensions of media literacy (Bulger, 2012, p. 84), there is a pressing theoretical question. The underlying assumption of this measure, from the point of view of evaluation, is that more use of media is better, which is a challenging idea, especially considering the history of media studies and media literacy research. Many of the foundational concerns of media studies scholarship related to the expected dangers of excessive exposure or uses (Buckingham, 2003). And if several of these initial approaches underestimated the people’s skills and wills in relation to media and their messages, to fully reverse this premise could mean that, in the end, the practices of selectivity (even the critical ones) might be downplayed in favor of just consuming more (even if not much thought was devoted to it).

In this regard, it is important to mention the pioneering study by Quin and McMahon (1993), which found lower scores on two media analysis measures amidst male youngsters who watched more hours of television – even when television was the subject under evaluation. According to the authors “simplistic equations such as ‘the more they watch, the less they know,’” echoing overly protectionist or pessimistic stances, “may be tempting, but could be misleading” (Quin & McMahon, 1993, p. 21). A more solid interpretation would be one we already pointed out: “it would however be legitimate to conclude that simply watching television does not lead to better media analysis skills. They have to be learned” (p. 21). Besides, the authors also speculate about unmeasured variables that might be associated with the development of media analysis skills (p. 21), which serves as a reminder of something mentioned before: the importance of considering the limitations of the research methods before reviewing outcomes of media literacy

assessments that might neglect to consider the capital of the people under evaluation.

The difficulties presented by the last paragraphs derive from a specific conception of access and uses. However, this is not a univocal understanding. For instance, under the umbrella of “access,” Ofcom (2008) considers elements such as (1) “use, volume of use and breadth of use of the platforms,” (2) “competence in using the features available on each platform” and (3) “interest in, and awareness of, the various media platforms” (p. 11). While the first pair of components is consonant with the Portuguese study conception and was deemed non-evaluable regarding the affordances of the research tool used, the third indicator presents a different case. Much like EAVI’s (2009) proposal, the Portuguese study considered it as part of the critical dimension of media literacy. That is, two questions of the test can be seen as being on the boundary between the dimensions of access and uses and critical understanding, although considered to be in the latter. One item (Q1.h.) focused on factual knowledge (the ability to name an alternative search engine to Google, hence evaluating the awareness of different platforms, in accordance with Ofcom’s definition), the other item (Q1.m.) on the capacities to use and mix different media when challenged to briefly describe how to organize a students’ union campaign. This one, in particular, crosses dimensions: on the one hand, the open-ended question valued the awareness of different media available for the task; on the other hand, only the answers that contextualized the media to be used, showing some degree of critical awareness, could earn all points available in this exercise. The false stability of the media literacy concept and its dimensions becomes clear in this case, as researchers and institutions still add, mix or subtract elements according to their specific goals or theoretical foundations (Buckingham, 2003; Potter, 2010).

The case of production and participation competences. The simple assertion of production and participation practices were deemed important for the assessment of competences for two reasons: first, the belief that the simple existence of the activities presented to the youngsters (such as the collaboration with school media) would be something of inherent value, particularly if they had a minor weight on the levels; second, the shortage of established measures to assess production and participation practices, in comparison to the other dimensions of media literacy (Livingstone et al., 2008). An exception might be found in Lopes (2013), whose approach to measuring

competences stimulated the actual creation of media content. Despite recognizing the relevance of this challenge with the intent to evaluate media literacy competences, the Portuguese study did not embrace it to the fullest.

According to Lopes (2013), the creative tasks would be “the most demanding of the overall media literacy test” (p. 174), as the participants would go beyond the technical capacity to create and participate; they would also be assessed on the critical understanding competences mobilized while creating, emphasizing not only the importance of outcomes, but also the capacity to argue (and present the arguments) about what is being created. This was assessed by the Portuguese study, although it was grouped under the critical dimension: the challenge to create was laid down, but the creation itself was not evaluated, as exemplified by the aforementioned case of a hypothetical media campaign for the student union (item Q1.m.). Here, the focus was on the critical competences mobilized within an evaluate-and-reflect task about the different media available to create content. Once again, the affordances of the research tool were a strong reason behind this option: the eventual creation would necessarily be in a written format, one that might not say much about the youngsters’ actual and possible diverse creative competences, but that could make the researchers overanalyze, for better or worse, production and participation skills deemed important in their eyes, but not necessarily relevant for the sample.

What should young people know?

If media literacy can be understood as an outcome of the process of media education (Buckingham, 2003; Fastrez, 2010), then the absence of a formal and widespread media education curriculum implemented within the school institution hinders a general and external definition of what should have been achieved by the subjects during its course. As mentioned before, that was the case of Portugal, which means that the sample under evaluation did not have a common ground,

already in force or, at least, theoretically developed regarding media education. At the same time, the researchers did not have an established national framework to serve as a general guide either, such as the now published Media Education Guidance (Pereira et al., 2014). An official media education program does not totally guarantee, of course, the construction of a model instrument that would answer these questions and allow us to define exactly what should be evaluated, since there should still be room to recognize informally developed media literacy skills.

Nevertheless, it would give important guidelines by establishing a common basis for the learning of media education that students should undertake during their compulsory schooling. Therefore, considering that “no one is born media literate” (Potter, 2010, p. 681), to choose what to evaluate (and the extent of the conclusions drawn from it) becomes a particularly sensitive topic. If the methods are structured around what researchers think young people should know, especially if it is probable that nobody fostered them, one cannot stop asking if we are indeed evaluating their actual media literacy competences or, instead, just the ones triggered by the research tools used and that are believed they should possess, regardless of other possible competences.

In the absence of a national curriculum or, at least, a sanctioned guidance, the subjects to be assessed were inspired by theoretical contributions⁵ – from the overall field of media literacy research, but also specific to media literacy competences, as stated earlier – and by the insights of the experts from the Portuguese Informal Group on Media Literacy⁶, which brought not only their knowledge to the discussion and creation of the research tool, but also their specific concerns. For instance, the presence of the School Libraries Network in the group influenced the inclusion of three questions on the boundary between media and information literacy – although this option also had a theoretical support in media literacy competences literature (Fastrez, 2010; Roosen, 2013).

⁵ The existence of different works – mostly academic-driven – that tried to set the diverse dimensions of media literacy competences is worth mentioning. The ones by EAVI (2009), Fastrez (2010), Ferrés and Piscitelli (2012) and Roosen (2013) were particularly useful to the Portuguese study. Besides, its

pre-test within two schools was also important to get a first impression of the properness of the survey, adjusting it while considering the qualitative and quantitative inputs from its application.

⁶ GILM in the original acronym.

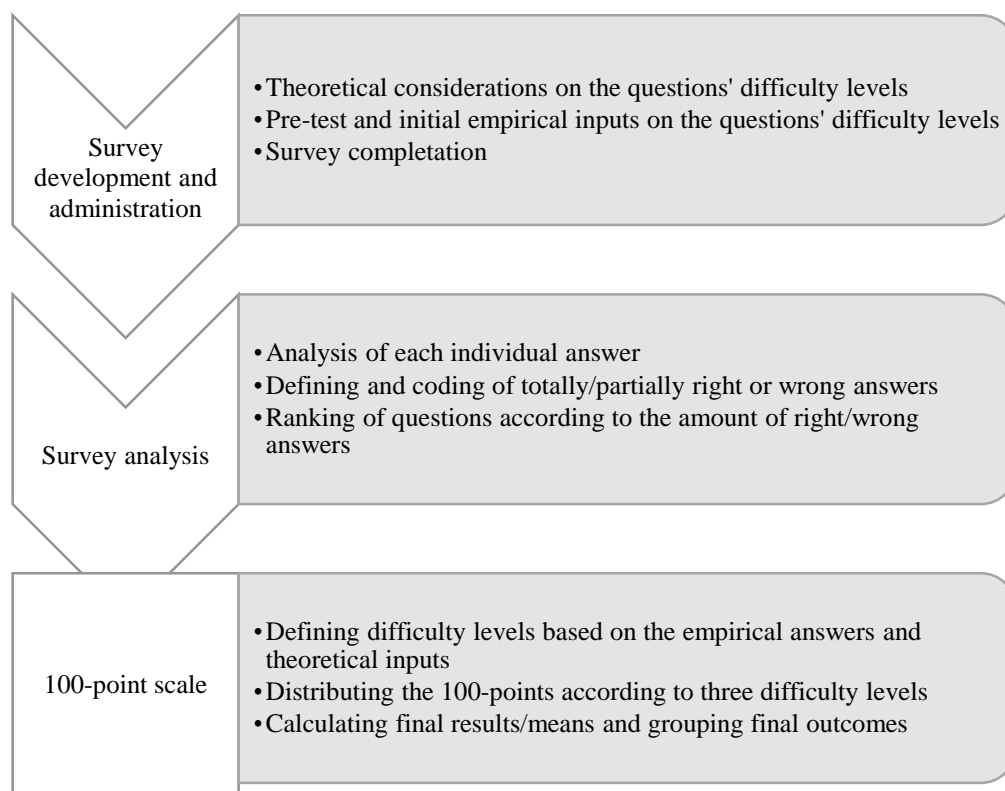


Figure 1: *Steps towards defining media literacy competences levels*

**Towards levels of media literacy competences:
Creating a scale**

As mentioned before, the final goal of the evaluation was to measure media literacy competence levels with reference to a 100-point scale. Three main stages can be identified, as shown in Figure 1. The development of the research tool has been thoroughly reviewed up to this point, hence, the last pair of goals will be at the center of the discussion from now on, as we examine the gathering and coding of the data and the scoring decisions.

After the completion of the survey, each of the 679 full questionnaires were reviewed and classified into two or three categories: totally right, partially right (if applicable) and wrong answer. While the questions regarding factual knowledge, practices and attitudes could be automatically coded, according to predefined categories, the open-ended tasks followed a different coding inspired by Benavente et al. (1996).

The assessment of the tasks started by reviewing every available contribution by the participants, which would help to set the standard, alongside theoretical inputs by the researcher, for what should be considered as a totally/partially right or wrong answer. To be placed

within each of these categories, they would have to attain consensual coding by the authors of the study in order to increase the procedure's reliability. After defining what was a right (either totally or partially) or wrong answer, the questions could be ranked by the number of wrong answers: a higher quantity of incorrect answers could indicate a possible difficulty level. This level of empirical difficulty was then refined by qualitative and theoretical considerations. That is, the analysis of all the responses to the open-ended tasks by the researchers allowed confirmation or rejection of the theoretical expected difficulty of the questions, as well as understanding unexpected and practical challenges (such as by pondering possible signs of respondents' fatigue in later tasks or other signs of misinterpretation of the questions). This procedure led to another categorization: the overall difficulty levels were grouped into three categories comprising the attribution of a maximum of 10 (to more complex and longer tasks), 6 and 3 (to simpler tasks) points until reaching the 100 to be awarded. The definition of these categories of points was crucial to prevent over or undervaluation of the various dimensions being evaluation, ensuring some balance within the diversity of aspects that were evaluated. At the end, as aforementioned, the overall

results were split into three: the ones above 50 points (level 3), the ones above the mean, but with less than 49.5 points (level 2) and the ones below the 29.01 average score (level 1).

CONCLUSION

The quantitative assessment of media literacy competences is hampered by the absence of a unified framework which would provide the external standards of evaluation (Buckingham, 2003). Media literacy goes beyond the prescriptive knowledge about media, as it recognizes the importance of the diversity of senses that can be developed in relation to contents without fixed and univocal meanings. Its theoretical focus is on people's interpretations and reflexivity. Therefore, the critical dimension had a key place in the Portuguese study, influencing how the other elements were considered. This also means that its scope had to be expanded: the critical evaluation, understanding and analysis was not only tied to the media and its contents, but also to participants' own media practices.

Consequently, the concept of media literacy adopted within the Portuguese study relegates access and uses *per se* to a secondary position: to be able to access and use media was not more valued than to be able to reflect upon their media practices, or even to critically argue about the reasons for the absence of a given practice. Doing more with the media cannot be a sign of higher levels of media literacy competences – if we follow a definition of media literacy that stresses its legacy in relation to the central position of critical thinking, of course. To go beyond the wonders of always-on media practices in so-called information societies, which foster utopian expectations towards “digital natives” and a renewed public sphere, some enthusiasm must be curbed. For instance, we can assume that answers such as “I don't know” or “I prefer not to do it” can be a stronger sign of media literacy competence than being always on. Reaffirming this importance of selectivity means that researchers should find ways of assessing competences beyond the bundling of different tasks. Considering the broader picture of media use research, qualitative methods may be preferable (Jensen, 2012; Livingstone et al., 2008).

However, there is a push – including by policymakers (e.g., Recommendation 2009/625/EC; Directive 2018/1808/EU) – for more evaluative and quantitative works, to set standards for future interventions and to more systematically map the

broader picture of media literacy and how it translates into measurable competences.

The assessment of media literacy competences can be regarded as advantageous for increasing visibility in the public sphere, as it may help to improve instructional practices and inform national and transnational policies. In the context of the European Union, this is, moreover, an obligation for all Member States. According to the European Audiovisual Media Services Directive (Directive 2018/1808/EU, article 33a), “Member States shall promote and take measures for the development of media literacy skills” and shall report to the Commission (in 2022 and every three years thereafter) the implementation of this obligation. This is an additional reason for European countries to define reliable and valid instruments for assessing media literacy as a complex and dynamic process.

Based on the theoretical and methodological discussion carried out so far, we are in a position to present some recommendations for assessing media literacy competences, taking into account the merits and the limitations of a quantitative approach and assuming that “each approach to measuring media literacy competencies embodies core values in relation to a particular set of goals, contexts and situations” (Hobbs, 2017, p. 1). To complement this discussion, we include in Appendix 1 a table that systematizes a set of theoretical approaches and empirical studies that addresses media literacy competences, showing the diversity of approaches and methods used from different authors and geographies.

Quantitative methods can provide important and relevant indications of overall trends in media literacy competences and can give an extensive picture of the population's media literacy levels. But they should not be regarded as the gold standard for assessing media literacy competences. Despite the impression of accuracy that figures and statistics might give, their limits have the potential to undermine the relevance of any research that seeks through them what they cannot give, sacrificing the complexity of the concepts (and, of course, the people) in question for the sake of measurement. Methodological complementarity might be helpful: other approaches and methods (namely qualitative) need to be considered to complement the quantitative results, bringing to light competences that are difficult to assess through declarative surveys, scales, checklist items or even task-based assessment. As media literacy is a process of communicative interaction, methods based on observation, performance *in situ* or task-based interviews could provide more

detailed information about media literacy competences. If, as stated by Hobbs (2017, p. 14), “the measurement of media literacy competencies is a fast-moving target,” the use of a diverse range of approaches might be crucial to make sense of this elusive research subject.

Complementary methodologies can also be a way of overcoming the separation of cognitive and affective processes and the neglect of the “fundamental significance of students’ emotional involvement in the media” (Martens, 2010, p. 2). The same author also points out that “both cognitive and affective mechanisms are theorized to determine the cognitive, attitudinal and behavioural outcomes of media literacy practices” (p. 15). Studies on media literacy competences assessment have been somewhat unsuccessful in considering socio-emotional competences and this undoubtedly “raises many additional methodological challenges” (Martens, 2010, p. 15).

Considering the importance of examining affective dimensions of media literacy and aiming to connect the cognitive and affective domains, Hobbs (2017) outlined two approaches for measuring the digital and media literacy competences of children and teens – one based on self-report measures and another on performance-based measures. A study by Porat et al. (2018, p. 26) which aimed to explore “the perceived digital literacies of junior high-school students, their actual competencies revealed in performance tasks and the association between the two” included tasks to evaluate socio-emotional literacy. Still, Hobbs (2017, p. 13) recognizes that “researchers are just beginning to explore how media literacy may support development in the affective domain, particularly the development of empathy and socioemotional development. Future research is needed to conceptualize and measure the intersectionality of these important concepts.”

In some studies that supposedly aim to assess media literacy competences, questions that assess self-reported media use behaviors and social practices are sometimes taken as questions that are assessing media literacy competences. This is a very common misunderstanding that needs more attention from researchers. It is one thing is to appeal to respondents’ memories and

perceptions regarding their habits with questions such as: “When you are on the internet, how often do you do this kind of activities?” It is another thing entirely to simulate a somewhat familiar practice that may open the possibility of exploring competences raised by the survey, but with some degree of similarity to everyday practices. Likewise, it is necessary to distinguish between social practices and media literacy competences. Therefore, the use of surveys, behavioral self-reports, attitudinal scales and checklist items may have many limitations in assessing competences; in this case, the use of performance-based activities and task-based exercises can be more useful to evaluate competences of a layered process such as media experience. Data analysis using these techniques requires a very accurate definition of the coding protocol, the assessment of its execution reliability and the choice of indicators suited for measurement (especially if it is intended to achieve statistical representation and significance). The use of qualitative pre-testing – for instance, where items under consideration are discussed within focus groups (Primack et al., 2006) – might be particularly important.

Of extreme relevance is the definition of valid and reliable indicators, designed according to the population whose competences will be assessed. Not all indicators are equally relevant across populations and age groups.⁷ This poses challenges in assessing media literacy competences at a national but also at an international level, where the possibility of creating a single instrument for all member states is raised. UNESCO, although recognizing that an independent survey would have the advantage of being tailored to the area of interest, also acknowledges that it would be costly to create and administer (in this case by UNESCO) and, in this sense, proposes alternative strategies that may be interesting for those who intend to carry out work in this area (Moeller et al., 2011). Some alternative strategies include using the experiences of MIL surveys already developed; joining forces with other international surveys – such as PISA – or national education assessments; or combining an index of secondary international statistics and international surveys. An even more simplistic solution would entail creating an

⁷ For example, the items (Q1.e, g, i, p) regarding Public Service Media (PSM) were much discussed among the researchers to understand whether they would make sense within this particular study. It was discussed whether students aged 17 and 18 should have knowledge of what PSM is. The decision was to include them as these young people would be old enough to follow the regular national mentions and

disputes about PSM. However, this indicator would not have been used with lower age groups. As we mentioned earlier in this article, it is important to define beforehand which indicators to use and these should be in line with the levels of knowledge about the media that the subjects should have, according to their age and developmental stages.

index from country-level data to compare nations. This suggestion might be tempting, as it presents practical advantages. But it also pushes towards standardization and, eventually, the abridgement of competences to little more than something established despite the specificities of people and their practices. This would be a top-down definition of what counts as relevant competences – something this paper has sought to argue against

Another aspect that deserves reflection concerns the importance of extending this work to other age groups besides children and young people. There are already some studies that have explored other age and professional groups that can serve as inspiration (see Carvalho, 2015; Hallaq, 2016; Perez Tornero et al., 2017; Simons et al., 2017). As advocated by UNESCO “indicators should track the acquisition of MIL in the formal education system as well as in informal learning environments” (Moeller et al., 2011, p. 20). Only in this way will it be possible to capture the diversity and richness of media experiences, converging formal and informal learning (Pereira et al., 2019). This could involve the creation of a multidimensional instrument that uses different stimuli, that includes not only written texts, but also audio-visual resources (images, videos, podcasts, examples of media products and content), much like Hobbs and Frost (2003) did in their pioneering research. But developing concise research instruments using multimedia texts might be a challenge, considering that fatigue in filling out any survey can lead to bias in the results. However, the use of diverse media texts may help to make the research more appealing to respondents, especially if it is relevant to their own media use practices. In the case of children and young people, the instrument must mobilize competences of the everyday life of these audiences, assuring that an adult-centered view does not prevail in its design (in the European Research project Transmedia Literacy, adolescents showed, for example, that they produce audio-visual contents in a very different way from that stipulated by adults, which does not mean that it should be less valued – see Pereira & Moura, 2018).

Although it is undoubtedly important to assess media literacy competences to empower active citizenship and to know more precisely the impact of initiatives in this field and their benefits, it is equally important not to devalue the process in favor of the result. If the main concern is placed on media literacy assessment and on the measurement of its results, as occurs in the learning process of many schools, there is a risk that for students the competences assessment framework will resemble a

traditional school assignment, making media literacy lose its citizenship value.

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REFERENCES

- Arke, E. T., & Primack, B. A. (2009). Quantifying media literacy: development, reliability, and validity of a new measure. *Educational Media International*, 46(1), 53-65. <https://doi.org/10.1080/09523980902780958>
- Ashley, S., Maksl, A., & Craft, S. (2013). Developing a news media literacy scale. *Journalism & Mass Communication Educator*, 68(1), 7-21. <https://doi.org/10.1177/1077695812469802>
- Aufderheide, P. (1993). *Media literacy. A report of the national leadership conference on media literacy*. The Aspen Institute.
- Benavente, A., Rosa, A., Costa, A. F., & Ávila, P. (1996) *A literacia em Portugal: resultados de uma pesquisa extensiva e monográfica* [Literacy in Portugal: results of an extensive monographic research]. Fundação Calouste Gulbenkian.
- Buckingham, D. (2003). *Media education: literacy, learning and contemporary education*. Polity Press.
- Buckingham, D. (2005a). Constructing the “media competent” child: media literacy and regulatory policy in the UK. *MedienPädagogik*, 11, 1-14. <https://doi.org/10.21240/mpaed/11/2005.09.27.X>
- Buckingham, D. (2005b). *The media literacy of children and young people*. Ofcom.
- Buckingham, D. (2019). *Media education manifesto*. Polity Press.
- Bulger, M. E. (2012). Measuring media literacy in a national context: challenges of definition, method and implementation. *Medijske Studije/Media Studies*, 3(6), 83-103. <https://hrcak.srce.hr/96376>
- Carvalho, A. (2015). *Avaliação dos níveis de literacia mediática: estudo exploratório com adultos no mercado de trabalho* [Assessing media literacy levels: an exploratory study with adults in the labour market] [Master’s thesis, University of Minho]. RepositoriUM. <http://hdl.handle.net/1822/34309>

- Dayan, D. (2005). Mothers, midwives and abortionists: genealogy, obstetrics, audiences & publics. In S. Livingstone (Ed.), *Audiences and publics: when cultural engagement matters for the public sphere* (pp. 43-76). Intellect Books.
- Directive 2018/1808/EU, of 14 November 2018, European Parliament and Council of the European Union.
- DTI, & EAVI. (2011). *Testing and refining criteria to assess media literacy levels in Europe*. European Commission.
- EAVI. (Coord.). (2009). *Study on assessment criteria for media literacy levels: final report*.
- Fastrez, P. (2010). Quelles compétences le concept de littératie médiatique englobe-t-il ? Une proposition de définition matricielle [What skills does the concept of media literacy encompass? A proposed matrix definition]. *Recherches en Communication*, 33, 35-52.
<https://doi.org/10.14428/rec.v33i33.51793>
- Ferrés, J. (2007). Competence in media studies: its dimensions and indicators. *Comunicar*, 29, 100-107.
<https://doi.org/10.3916/C29-2007-14>
- Ferrés, J., & Piscitelli, A. (2012). Media competence. Articulated proposal of dimensions and indicators. *Comunicar*, 38, 75-82. <https://doi.org/10.3916/C38-2012-02-08>
- Ferrés Prats, J., García Matilla, A., Aguaded Gómez, J.I., Fernández Cavia, J., Figueras, M., & Blanes, M. (2011). *Competencia mediática: investigación sobre el grado de competencia de la ciudadanía en España* [Media competence: research on the degree of competence of citizens in Spain]. Instituto de Tecnologías Educativas.
- Guzmán Marín, F. (2012). El concepto de competencias [The concept of competences]. *Revista Iberoamericana de Educación*, 60(4), 1-13.
<https://doi.org/10.35362/rie6041289>
- Hallaq, T. (2016). Evaluating online media literacy in higher education: validity and reliability of the Digital Online Media Literacy Assessment (DOMLA). *Journal of Media Literacy Education*, 8(1), 62-84.
<https://digitalcommons.uri.edu/jmle/vol8/iss1/5/>
- Hobbs, R. (2017). *Measuring the digital and media literacy competencies of children and teens*. Manuscript submitted for publication.
- Hobbs, R., & Frost, R. (2003). Measuring the acquisition of media-literacy skills. *Reading Research Quarterly*, 38(3), 330-355.
<https://www.jstor.org/stable/4151822>
- Jensen, K. B. (2012). Media reception: qualitative traditions. In K. B. Jensen (Ed.), *A handbook of media and communication research: qualitative and quantitative methodologies* (pp. 171-185). Routledge.
- João, S. G., & Menezes, I. (2008). Construção e validação de indicadores de literacia mediática [Construction and validation of media literacy indicators]. *Comunicação e Sociedade*, 13, 55-68.
[https://doi.org/10.17231/comsoc.13\(2008\).1144](https://doi.org/10.17231/comsoc.13(2008).1144)
- Livingstone, S., Papaioannou, T., Grandío Pérez, M. M., & Wijnen, C. W. (2012). Critical insights in European media literacy research and policy. *Medijske Studije/Media Studies*, 3(6), 2-12.
<https://hrcak.srce.hr/96343>
- Livingstone, S., Van Couvering, E., & Thumim, N. (2008). Converging traditions of research on media and information literacies: disciplinary, critical, and methodological issues. In J. Coiro, M. Knobel, C. Lankshear, & D. J. Leu (Eds.), *Handbook of research on new literacies* (pp. 103-132). Routledge.
- Lopes, P. (2013). *Literacia mediática e cidadania: práticas e competências de adultos em formação na Grande Lisboa* [Media literacy and citizenship: practices and skills of adults in training in Greater Lisbon] [Doctoral thesis, ISCTE-University Institute of Lisbon]. Repositório do ISCTE-IUL.
<http://hdl.handle.net/10071/8666>
- Martens, H. (2010). Evaluating media literacy education: concepts, theories and future directions. *Journal of Media Literacy Education*, 2, 1-22.
<https://digitalcommons.uri.edu/jmle/vol2/iss1/1>
- Miège, B. (2017). Sur quelques apports récents de la recherche à la connaissance de l'information [On some recent research contributions to information knowledge]. *Les Enjeux de l'Information et de la Communication*, 18(1), 51-59.
<https://lesenjeux.univ-grenoble-alpes.fr/2017/varia/04-sur-quelques-apports-recents-de-la-recherche-a-la-connaissance-de-linformation/>
- Moeller, S., Joseph, A., Lau, J., & Carbo, T. (2011). *Towards media and information literacy indicators, background document of the expert meeting at 4-6 November, Bangkok, Thailand*. UNESCO.
- Ofcom. (2008). *Media literacy audit: report on UK children's media literacy*.
- Pereira, S., Fillol, J., & Moura, P. (2019). Young people learning from digital media outside of school: the

- informal meets the formal. *Comunicar*, 58, 41-50. <https://doi.org/10.3916/C58-2019-04>
- Pereira, S., & Moura, P. (2018). Production skills. In C. A. Scolari (Ed.), *Teens, media and collaborative cultures: exploiting teens' transmedia skills in the classroom* (pp. 22-32). Universitat Pompeu Fabra.
- Pereira, S., & Moura, P. (2019). Assessing media literacy competences: a study with Portuguese young people. *European Journal of Communication*, 34(1), 20-37. <https://doi.org/10.1177/0267323118784821>
- Pereira, S., Pinto, M., & Madureira, E. J. (2014). *Media Education Guidance for Preschool Education, Basic Education and Secondary Education*. Ministry of Education and Science.
- Pereira, S., Pinto, M., & Moura, P. (2015). *Níveis de literacia mediática: estudo exploratório com jovens do 12.º ano* [Levels of media literacy: an exploratory study with young people in the 12th grade]. CECS.
- Pérez Tornero, J. M., Giraldo-Luque, S., Tejedor-Calvo, S., & Portalés-Oliva, M. (2018). Proposal of indicators for the evaluation of media literacy competences in public administrations. *El Profesional de la Información*, 27(3), 521-536. <https://doi.org/10.3145/epi.2018.may.06>
- Perrenoud, P. (1995). Des savoirs aux compétences – de quoi parle-t-on en parlant de compétences ? [From knowledge to skills – what do we mean by skills?]. *Pédagogie Collégiale*, 9(1), 20-24. <http://educ.info/xmlui/handle/11515/21087>
- Perrenoud, P. (1999). Construire des compétences, est-ce tourner le dos aux savoirs ? [Does building skills mean turning your back on knowledge?]. *Pédagogie Collégiale*, 12(3), 14-17. <http://educ.info/xmlui/handle/11515/20996>
- Pinto, M., Pereira, S., Pereira, L., & Ferreira, T. D. (2011). *Educação para os media em Portugal: experiências, actores e contextos* [Media education in Portugal: experiences, actors and contexts]. ERC.
- Porat, E., Blau, I., & Barak, A. (2018). Measuring digital literacies: junior high-school students' perceived competencies versus actual performance. *Computers & Education*, 126, 23-36. <https://doi.org/10.1016/j.compedu.2018.06.030>
- Potter, W. J. (2010). The state of media literacy. *Journal of Broadcasting & Electronic Media*, 54(4), 675-696. <https://doi.org/10.1080/08838151.2011.521462>
- Primack, B. A., Gold, M. A., Switzer, G. E., Hobbs, R., Land, S. R., & Fine, M. J. (2006). Development and validation of a smoking media literacy scale for adolescents. *Arch Pediatr Adolesc Med*, 160(4), 369-374. <https://doi.org/10.1001/archpedi.160.4.369>
- Prior, M. (2009). The immensely inflated news audience: assessing bias in self-reported news exposure. *Public Opinion Quarterly*, 73, 130-143. <https://doi.org/10.1093/poq/nfp002>
- Quin, R., & McMahon, B. (1993). Evaluating standards in media education. *Canadian Journal of Educational Communication*, 22(1), 15-25.
- Recommendation 2009/625/EC, of 20 August 2009, European Commission.
- Roosen, T. (Ed.). (2013). *Les compétences en éducation aux médias* [Competences in media education]. Conseil Supérieur de l'Éducation aux Médias.
- Schilder, E. A., Lockee, B. B., & Saxon, D. P. (2016). The issues and challenges of assessing media literacy education. *Journal of Media Literacy Education*, 8(1), 32-48. <https://digitalcommons.uri.edu/jmle/vol8/iss1/3>
- Schilder, E., & Redmond, T. (2019). Measuring media literacy inquiry in higher education: innovation in assessment. *Journal of Media Literacy Education*, 11(2), 95-121. <https://doi.org/10.23860/JMLE-2019-11-2-6>
- Simons, M., Meeus, W., & T'Sas, J. (2017). Measuring media literacy for media education: development of a questionnaire for teachers' competencies. *Journal of Media Literacy Education*, 9(1), 99-115. <https://doi.org/10.23860/JMLE-2017-9-1-7>
- Trültzsch-Wijnen, C. W. (2020). *Media literacy and the effect of socialization*. Springer.