Untangling media literacy, information literacy, and digital literacy: a systematic meta-review of core concepts in media education

Géraldine Wuyckens

Normand Landry

Pierre Fastrez

Untangling media literacy, information literacy, and digital literacy: a systematic meta-review of core concepts in media education

Introduction

This article offers a systematic meta-review of the scientific literature discussing the concepts of *information literacy*, *media literacy* and *digital literacy*. Unlike most systematic reviews, which gather, analyse and synthesize evidence from published empirical research, our review undertakes a critical appraisal of the published literature reviews focused on one or more of these three concepts (hence the term "meta-review"). In so doing, it highlights a growing conceptual complexity, heterogeneous perspectives, and a certain degree of theoretical disorganization causing operationalization problems in research.

The article is structured around four key points. First, we set out the procedure that was followed to conduct a systematic meta-review of the scientific literature, by explaining in detail the method used to find texts and the process of analyzing the selected articles. Secondly, we present the major findings of our analysis by identifying the four trends in the scientific literature analyzed, and approaching these trends as problems. Thirdly, we underscore the difficulties brought to light by the analysis of the selected reviews, both with respect to conceptual development and to operationalization of the concepts, and we discuss the resulting limitations with respect to the field of media education. We conclude this article by formulating a set of recommendations intended for the scientific community of researchers whose work deals with media, information and digital literacies.

Literacies and media education

The concept of *literacy* occupies a central place in several fields of research studying media practices and uses of information and communication technologies (ICTs), and educational practices meant to support them. In this context, the term literacy refers to one or more abilities[1], which are manifested in the observable actions and practices of media and ICT users. Consequently, the concept of literacy is widely used to refer to the learning outcomes pursued by educational activities and programs centered on media and ICTs (Landry & Basque, 2015). These learning outcomes are generally presented in the form of sets of specific competencies, knowledge, or attitudes. Practices, uses, and actions are considered by educational actors or researchers as

[1] The term *abilities* is used here for purposes of neutrality. The literature is divided with respect to the nature of the learning outcomes, calling upon, as the case may be, the notions of *competencies*, *skills*, or *attitudes* in particular. The rest of the article addresses this issue in detail.

indicators or "markers" that attest to the presence of these abilities, and hence constitute the basis both for their evaluation, and for the assessment of the efficiency of these educational initiatives.

The concept of literacy is both broadened and limited by the scientific literature that deals with educational practices centered on media, information and digital technology. This literature increases the constitutive dimensions of literacy, traditionally reserved for reading and writing of texts, to include all contemporary modes of mediatized communication (ISQ, 2015; Landry & Basque, 2015; Lebrun et al., 2012a). However, the same literature limits the concept of literacy through the use of adjectives that circumscribe its scope and define its orientations. Thus, the concepts of *information literacy*, *media literacy* and *digital literacy* coexist, within a highly inflated conceptual environment, with the concepts of *critical media literacy* (Alvermann & Hagood, 2000; Kellner & Share, 2005), *ICT literacy* (Mackey & Jacobson, 2011; Markauskaite, 2006), *multiliteracy or multiliteracies* (Buschman, 2009; Goodfellow, 2011; Kulju et al., 2018; Lebrun et al., 2012b; Moje, 2009; Radsliff Rebmann, 2013; Rodriguez Illera, 2004; Street, 2003), *metaliteracy* (Mackey & Jacobson, 2011), *new media literacy* and *new media literacies*) (Lin et al., 2013; Jenkins et al. 2006), *multimodal literacy* (Koltay, 2011; Kulju et al., 2018; Lebrun et al., 2012b), *media and information literacy* (Lee & So, 2014; Stordy, 2015; Le Deuff, 2012) and *transliteracy* (Fastrez, 2012; Frau-Meigs, 2012; Hovious, 2018; Iordache et al., 2017; Thomas et al., 2007).

A number of factors have enabled such literacies to emerge and grow in number: the multimodality of contemporary texts (Julien, 2016; Lacelle et al., 2017); the ubiquitousness and complexity of technological devices, and of the messages and information that they convey (Pangrazio, 2016); a considerable increase in users' abilities to search for, produce and disseminate information (Iordache et al., 2017); and the emergence or affirmation of social, political and educational issues associated with the use of technologies (Buckingham, 2009; Hobbs, 2010; Livingstone, 2004). These emerging literacies have resulted in an array of educational programs targeting the development of specific sets of knowledge and skills.

This article presents a systematic meta-review of scientific literature reviews pertaining to the concepts of information literacy, media literacy, and digital literacy. The selection of these three concepts from a much longer list[2] is justified by the dominant position that they occupy within the scientific literature extending the concept of literacy to media and digital contexts (Koltay, 2011; Stordy, 2015). Each of

[2] We systematically excluded uses of the concept of literacy extending this concept to a field of knowledge or practices not specifically associated with "the ability to share meaning through symbol systems in order to fully participate in society," (Hobbs, 2010), such as health literacy or financial literacy.

these concepts could be the subject of a separate systematic review. However, the accelerated, large-scale distribution of digital devices and platforms within societies has expedited the process of media convergence (Jenkins, 2006; Landry, 2017). This process has fostered a conceptual convergence (Le Deuff, 2012; Martin & Grudziecki, 2006) initiated by UNESCO and by various public policies proposing to group these three literacies within integrative conceptual frameworks (UNESCO, 2013; Hobbs, 2010).

In this context, it appears necessary to simultaneously examine the concepts of information literacy, digital literacy and media literacy. While carrying out a cross analysis of the way in which the scientific literature specifically addresses these three concepts, this article identifies, and articulates a critical analysis of, the main findings from the reviewed texts regarding the conceptual landscape that they cover. This work highlights confusion between the constitutive dimensions of literacies, recurrent difficulties in establishing theoretical articulations between contributions, and operationalization problems in observing and assessing these literacies. These issues are the subject of a discussion grounded in the specific field of media education. The latter seeks to achieve a disciplinary and conceptual convergence, which has been elusive so far. In this regard, media education, as a field of research, remains particularly vulnerable to the above-mentioned pitfalls.

Method

This section presents the procedure that was followed to conduct a systematic review (Petticrew & Roberts, 2005) of the literature reviews on information literacy, media literacy and digital literacy. More specifically, it takes into consideration the method used to identify, classify and analyze scientific articles that review scientific literature covering the concepts of media literacy, information literacy, and digital literacy. This method also makes it possible to consider the relationships that these articles have with multiple emerging concepts of literacy.

Literature search and study selection

Texts were retrieved in two stages. The first text extraction was carried out in November 2015, and a second extraction took place in March 2019. This method allowed for tracking the evolution of scientific literature over this period.

The identification of relevant texts was carried out based on concepts identified previously as being the most frequently used concepts in the scientific literature (Lee & So, 2014; Stordy, 2015). These concepts served as a starting point for research carried out in electronic databases, using the following keywords:

- "*Literacy*" OR "*literacies*" AND "*literature review*";

- "*Media literacy*" OR "*media literacies*" AND "*literature review"*;
- "*Digital literacy*" OR "*digital literacies*" AND "*literature review*";
- "*Information literacy*" OR "*information literacies*" AND "*literature review*".

These different keywords[3] were entered into the following electronic databases: *ScienceDirect, SAGE Journal Online, SpringerLink, Academic Search Complete (EBSco), ERIC* (*EBSco*), *Scopus* (*Elsevier*), and *JSTOR*. In addition to the use of specific search keywords, the database search was limited to articles that were published in peer-reviewed scientific journals and that appeared between 2000 and 2019. Non-scientific texts or texts that had not been published in peer-reviewed journals were excluded. Books, book chapters, theses, book reviews, proceedings chapters and reports were therefore not retained in this systematic meta-review. With regard to the *Scopus* database, for example, search fields were limited to the title of the article, the abstract and keywords, as well as to articles and literature reviews. Over 8,400 results were generated in this way.

Two additional exclusion criteria were used as part of an initial screening of these results. Scientific works that did not present either a systematic or a non-systematic literature review were rejected. Similarly, literature that did not address the concept of literacy in general, or that used this concept in a specific field not related to the field of media communication (e.g., health literacy, science literacy or financial literacy, etc.) was discarded. Results were also checked against the initial search criteria for publication period (2000–2019) and type of publication (peer-reviewed articles). Through the application of these criteria for exclusion, the corpus of texts was reduced to 85 scientific articles published in refereed journals.

Three criteria for inclusion were used to determine the eligibility of articles: in order to be retained, texts needed to address literacy concepts, propose definitions for these concepts, and discuss how they relate to competing or complementary terms. The summary analysis of abstracts, titles and texts allowed for identifying and eliminating texts that did not meet the criteria for inclusion (n=38), as well as for classifying texts that met the criteria of reflecting either a systematic literature review process (n=10) or a non-systematic process (n=37).

The bibliographic references of the selected texts were subsequently examined in order to expand the corpus. Seven additional articles (n=7) corresponding to the criteria were identified. Of this number, only one presented a systematic review approach. The others (n=6) did not provide details about their methodological approach.

[3] The nature of the concepts employed and the use of the English language to carry out the research ensured that our results included a preponderance of Anglo-Saxon literature, excluding in the process concepts and contributions formulated in other contexts and other languages.

Analyses

The final corpus of our systematic meta-review of the literature comprises in total 54 scientific articles, including 11 literature reviews that describe a systematic process and 43 reviews that follow a non-systematic approach. Systematic reviews were subjected to a more in-depth analysis than were the non-systematic reviews, as their methodological approach was explained clearly and in detail.

Analyses of systematic reviews were undertaken in three successive processes. First, each text was divided and tabulated so as to systematically bring out the concept(s) addressed, the specific definitions presented, the objectives of the literature review, the methods used, and the authors' findings with respect to the fields of research to which the concepts belong. Next, these elements were used as classification categories. This process facilitated the development of the comparative analyses presented in this article. Finally, these categories were cross-referenced, with a view to evaluating the convergence between the different findings from reviews focusing on each identified concept, and assessing the methods used to conduct these reviews. This work forms the foundation of our general findings about the state of the scientific literature on literacy concepts.

Non-systematic reviews were analyzed according to a similar, but abbreviated process. Their analysis was limited to identifying one or more concepts that were addressed, objectives that were pursued, and the method used. The results of these analyses were combined with those of the systematic reviews and helped to support certain points in our arguments.

Findings

Systematic reviews have three general objectives. First, these reviews seek to report on the literature, sometimes by bringing out new fields of research (Aharony, 2010; Bawden, 2001; Lee & So, 2014; Martens, 2010; Spante et al., 2018; Virkus, 2003). Secondly, they aspire to organize the conceptual landscape by reorganizing concepts and using conceptual categories considered to be more encompassing (Erstad & Amdam, 2013; Le Deuff, 2012). These "metaliteracies" are presented as conceptual categories that aim to organize, categorize and group abilities evoked by lower-level literacies. Thirdly, some reviews recommend developing an analysis framework to better situate literacy concepts according to their specificities and the disciplines to which they belong (Addison & Meyer, 2013; Palsa & Ruokamo, 2015; Stordy, 2015).

Non-systematic reviews have similar objectives and were selected based on the interest that they present for one of the following reasons: (1) they describe the

multiplicity of concepts by relying on several earlier references, but without detailing the methodological approach that they use (n=23); (2) they depict the evolution of the conceptual stakes of their respective fields of research (n=5); or (3) they introduce a conceptual model, without necessarily reporting on previous literature (n=15). These articles attest, each in turn, to an inflated conceptual environment that requires a greater degree of organization (Bawden, 2001; Buschman, 2009; Chipeta, 2010; Goodfellow, 2011; Koltay, 2011; Markauskaite, 2006; Potter, 2013; Sparks et al., 2016; Špiranec & Banek Zorica, 2010; Tewell, 2015). However, the frequent lack of methodological clarifications in these reviews suggests that their selection of texts could be tainted by some degree of arbitrariness. More generally, our work highlights how impoverished the literature is in terms of methodological details. An overwhelming majority of the texts that we retained did not present their method of review and analysis, or merely provided summary presentations enumerating the keywords used and electronic databases consulted.

Through an analysis of this corpus, four trends within scientific literature were identified as problematic: a significant increase in the number of concepts pertaining to the concept of literacy between 2000 and 2019; a lack of consensual definitions for these concepts; limited interdisciplinarity; and the development of concepts and "integrative" frameworks with the aim of connecting and organizing the various literacies. These trends are presented successively below.

Conceptual inflation

There is a strong consensus on the need to organize the multiplicity of literacy concepts (Addison & Meyer, 2013; Aharony, 2010; Bawden, 2001; Carneiro & Gordon, 2013; Erstad & Amdam, 2013; Eshet-Alkalai, 2004; Frau-Meigs, 2012; Le Deuff, 2012; Lee & So, 2014; Markauskaite, 2006; Martens, 2010; Palsa & Ruokamo, 2015; Spante et al., 2018; Stordy, 2015).

A conceptual inflation can be observed and has been raised as an issue in the scientific literature. Stordy (2015) notes in particular the existence of more than 35 different types of literacies: "[e]ach conception has developed within a particular historical context, by people and organisations with differing backgrounds and motivations. The myriad of different literacies that emerges is perplexing for the uninitiated" (p. 456). While certain concepts are more commonly used than others, this conceptual proliferation has resulted in the literature around these terms being equivocal for its audience and its actors (Owusu-Ansah, 2003), underscoring the importance of conceptual clarification (Palsa & Ruokamo, 2015). This finding does not, however, constitute a new fact. At the turn of the century, Bawden (2001) already maintained:

> […] In their detailed analysis of the debates about the appropriate usage of the term 'information literacy', Snavely and Cooper […] consider a number of 'literacy' phrases taken from book titles and similar sources to indicate the justification for the use of 'literacy' to mean competence, or basic knowledge of a field of study. Their thirty-four examples include: agricultural literacy; cinematic literacy; dance literacy; geographic literacy; legal literacy; workplace literacy as well as computer, library and media literacies […]. (p. 223)

The scientific literature pertaining to epistemology and the history of concepts brings to the fore several factors that may explain this conceptual inflation. Buschman (2009) points out that earlier works are frequently disregarded, and that inadequate consideration is given to overlaps and borrowings between "old" and new information literacies. For their part, Palsa and Ruokamo (2015) explain that, in the case of media literacy, certain authors mobilize concepts without defining them, with the understanding that an implicit consensus on their definition exists. In this manner, several non-systematic reviews pay little attention to preceding definitions and the discussion around them, and directly propose their own definition or model. For example, Tewell (2015) mobilizes the concept of *critical information literacy*; Sparks et al. (2016) use the expression *digital information literacy*; Neumann et al. (2017) use the concept of *emergent digital literacy*, and Hovious (2018) addresses *transliteracy*.

In sets of "new" literacies, the conceptual frontiers, characteristics specific to each term, and relationships between the concepts appear vague and difficult to situate. This situation heightens the impression of confusion when analyzing different conceptual definitions (Aharony, 2010; Bawden, 2001; Buckingham, 2007; Buschman, 2009; Carneiro & Gordon, 2013; Eshet-Alkalai, 2004; Frau-Meigs, 2012; Gutierrez & Tyner, 2012; Iordache et al., 2017; Julien, 2016; Koltay, 2011; Kulju et al., 2018; Le Deuff, 2012; Lee & So, 2014; Livingstone, 2004; Mackey & Jacobson, 2011; Markauskaite, 2006; Moje, 2009; Owusu-Ansah, 2003; Pietrass, 2007; Potter, 2010, 2013; Stordy, 2015).

Lack of shared definitions

Two problems are recurrently raised in the literature: the difficulty of identifying categories of abilities that are evoked and encompassed by the concept of *literacy*, and the polysemic nature of each of the concepts associated with it.

Interpreted in a broad sense, the concept of literacy encompasses a set of reading and writing abilities that are considered essential to social, cultural, political or economic integration. These abilities are, depending on the authors and approaches, expressed in the form of competencies, knowledge, skills or expertise. A justification is seldom provided for the choice of nomenclature used to refer to targeted abilities in works dealing with the "new literacies", and hence the theoretical foundations

justifying this choice cannot be assessed (Martens, 2010). As a result, it becomes difficult to precisely address the nature of such abilities. For instance, the concept of *digital competency/competencies* is regularly used as a synonym of digital literacy, although these terms have different origins and meanings, and the latter term is generally considered to encapsulate the first one (Spante et al., 2018; Iordache et al., 2017). More fundamental disagreements are expressed regarding the very notion of literacy (see Potter, 2013; Virkus, 2003); the dominant approaches that conceptualize the notion of literacy in the form of sets of abilities are in stark contrast with perspectives that view it as a form of shared culture (Le Deuff, 2012) or social practice (Stordy, 2015).

The scope and meaning conferred to the concepts of information literacy, digital literacy and media literacy are the subject of persistent disagreements. Addison & Meyer (2013) note the difficulty of arriving at a shared definition of information literacy, a finding shared by Erstad and Amdam (2013) with respect to media literacy; they consider that scientific works addressing the latter "[…] still struggle for a coherent understanding of the term 'media literacy'" (p. 84). Palsa and Ruokamo (2015) note the existence of a false consensus on the concept of media literacy. For these authors, "[t]he problem here is that a clear and explicit definition was not given; rather, it is assumed that there is consensus about the meaning of media literacy and that this meaning is obvious to the reader" (p. 109). The desirability of achieving a consensus on the meaning and scope to be attributed to the concepts of literacy is itself disputed in the literature. Palsa and Ruokamo (2015) dismiss "[...] attempts to establish a universal definition that can be applied in all cases, suggesting instead that media literacy should be understood as multiple media literacies" (p. 115). Knobel and Lankshear (2015) reiterate this argument, which they apply to digital literacy. In this spirit, Pawley (2003) is of the opinion that conceptual tensions should be considered as "creative and helpful" (p. 425).

Potentially problematic interdisciplinarity

This article refers to concepts of literacies grounded in disciplinary fields that structure, organize and rank their constitutive abilities according to three focal points: information (information literacy), media (media literacy) and digital technology (digital literacy). Thus, information literacy generally pertains to the acquisition of certain abilities associated with the use of information search tools (technological or otherwise), knowledge of the search process, as well as the ability to create, evaluate and share information (Addison & Meyer, 2013; Bawden, 2001; Stordy, 2015; Virkus, 2003). In contrast, the abilities considered to constitute media literacy primarily deal with the concept of media, which is associated with issues of access, comprehension, analysis and creation (Erstad & Amdam, 2013; Martens, 2010; Palsa & Ruokamo, 2015; Potter, 2013). As a concept, media literacy emerges from a different tradition than the one that gave rise to the concept of digital literacy, originally anchored in

computer science. The latter concept first focused on basic technical competencies pertaining to the use of digital technologies, and then gradually expanded to include a much more extensive set of abilities deemed essential to societal integration (Buckingham, 2009; Le Deuff, 2012). Over the last decades, technological convergence and migration towards digital technologies have gradually blurred the distinctions between the concepts of media literacy and digital literacy (Erstad & Amdam, 2013; Bawden, 2001). Trajectories of literacy concepts and their relative significance within the various disciplines reflect circumstances associated with their development, as shown by Bawden (2001):

> Computer literacy and library literacy have maintained a steady presence in the literature, the former with greater volume than the latter. Information literacy maintained a low volume throughout the 1980s, expanding considerably in the late 1990s. Media literacy's low presence has expanded considerably in the late 1990s, while the concepts of network and digital literacy have emerged only in this time. (p. 219)

This plurality of disciplinary postures and perspectives on the studied phenomena is widely recognized (Aharony, 2010; Erstad & Amdam, 2013; Koltay, 2011; Le Deuff, 2012; Lee &So, 2014; Palsa & Ruokamo, 2015; Pangrazio, 2016; Spante et al., 2018; Stordy, 2015). It is not problematic as such, and these different disciplinary approaches can, at the very least, be considered as complementary (Ilomäki et al., 2016; Lee & So, 2014), and even viewed as an opportunity for interdisciplinary enrichment. Bulger and Davison (2018) even see interdisciplinary collaboration as a necessity.

However, disciplinary postures are rarely made explicit and are assumed in the research works examined in the reviews (Lee & So, 2014), and many publications simply make no mention of falling under a particular discipline (Spante et al., 2018). This situation creates a form of conceptual confusion: when the disciplinary and theoretical background of a research contribution are not explained, it becomes pointless to conduct a critical review that may determine whether the use of identical terms conceals convergent or divergent conceptions. The juxtaposition of multiple perspectives, for which no explanation is provided, would consequently lead to multidisciplinarity, rather than to interdisciplinarity entailing an explicit and critical linkage of contributions based on their respective backgrounds.

Development of integrative concepts and frameworks

A paradoxical situation is made apparent in the literature, whereby a voluminous scientific production multiplies the development of concepts presented as integrative ("umbrella concepts"), with the goal of reducing the level of conceptual confusion and dispersion. The proliferation of these complex and sometimes redundant frameworks

makes it difficult to identify the specificities and boundaries of the different literacies (Stordy, 2015). The concepts of *transliteracy* (Frau-Meigs, 2012) and *multiliteracy* (Kulju et al., 2018; Fantin, 2010) are, in particular, commonly used to this effect and seek to bring together the various literacies that arise in the literature. Some authors consider these approaches to be counterproductive (Bawden, 2001; Erstad & Amdam, 2013), and deplore the fact that they tend to blur the disciplinary distinctions associated with the various literacies (Lee & So, 2014).

From this perspective, a body of literature is engaged in developing integrative conceptual frameworks around the predominant concepts of media literacy and digital literacy (Buckingham, 2007; Fastrez, 2010; Goodfellow, 2011; Martin & Grudziecki, 2006). For Moje (2009), this is:

> […] A call for rigor and systematicity. It is a call for new ways of theorizing and analyzing the new and for positioning it in relation to the old. Indeed, I would argue for an analysis of new and old literacies that resist the dichotomy of old and new and instead situated literate practices on more of a continuum […]. (p. 359).

These integrative frameworks aim to define literacy models that offer such resistance and can be adapted to technological evolutions, practices and uses, and thus avoid perpetually redefining which sets of abilities to target.

Operationalization of complex concepts

Some authors show an explicit willingness to organize these different concepts, and are preoccupied with exploring the issues involved in putting the concepts into practice in an educational framework (Chipeta, 2010; Eshet-Alkalai, 2004; Fedorov, 2014; Gutierrez & Tyner, 2012; Hobbs, 2011; Julien, 2016; Mackey & Jacobson, 2011; Markauskaite, 2006; Nupairoj, 2016; Potter, 2013; Webber & Johnson, 2000). However, the contributions of these authors represent a minority of the reviews studied.

Rather, most of the reviews studied attest to significant difficulties in operationalizing the key literacy concepts brought to the fore by the literature. Conceptual tools are frequently developed in an abstract manner, disconnected from the realities, difficulties and perspectives of actors responsible for developing sets of literacy-related abilities (Owusu-Ansah, 2003). Furthermore, a variety of obstacles may impede the establishment and application of indicators for observing or evaluating targeted abilities in the context of "performances" where they would be mobilized (Bulger & Davison, 2018; Martens, 2010). Some authors are particularly critical where the operationalization of concepts is concerned:

> The very large literature on media literacy displays a great variety of ideas. Although it is rich in creativity, it is poor in organization. […] But there has been little work on determining which definitions are most useful or on determining which interventions can be best most successful in increasing people's levels of media literacy. Therefore it is important that scholars make progress in three areas: conceptualizations, research, and instruction […]. (Potter, 2013, p. 429)

Julien (2016) emphasizes the need to ensure that conceptual and theoretical work is anchored by effective practices observed in the field. He therefore distances himself from a strong trend noted in the literature to conceptualize constituent elements of literacies prior to empirical investigations.

Discussion

The concepts of media literacy, digital literacy and information literacy figure prominently in media education. The following pages discuss findings that emerge from our analyses for this specific field.

Media education is a praxis that combines theoretical knowledge and educational practices (Landry, 2017). It establishes a disciplinary convergence and uses a conceptual apparatus rooted in a variety of disciplines, drawing inspiration in particular from communication studies, sociology, psychology, cognitive science, political science and educational science (Potter, 2013; Landry & Caneva, 2020). Hence, it is neither surprising, nor necessarily problematic, that media education has been rife with disciplinary and theoretical tensions. Moreover, some of the authors cited in this article note that conceptual and theoretical disagreements can be productive and desirable (Palsa & Ruokamo, 2015; Knobel & Lankshear, 2015). Reviews that are the subject of this article indicate, however, that this field of research is grappling with a number of limitations that diminish its scientific contributions and their social relevance.

Situating the contributions and linking the constituent elements of literacies

A first set of difficulties arises from the conjunction of three factors identified in the analysis of the reviews presented above: a proliferation of concepts associated with *literacy*, a lack of consensus concerning the definition of these concepts, and the fact that the publications reviewed are frequently sparing when it comes to presenting the disciplinary orientations and theoretical perspectives that they espouse. This situation blurs the constituent elements of literacies, the relationships that exist between these elements, and the ultimate educational goals associated with them. Media education combines educational activities, courses and practices carried out with the goal of

developing specific media-related competencies and knowledge (Landry & Letellier, 2016). It seeks to promote the deployment of media practices and uses that are considered "desirable" within communities and that are associated with broader social, political, cultural or economic goals (Erstad & Amdam, 2013). The notion of literacy is aligned with these goals; the sets of learning outcomes evoked by this concept are specifically intended to help achieve the goals of media education. Consequently, this is a programmatic notion that orients its teaching contents, its methods and pedagogies, and the objectives of its various programs and activities.

The multiplication of polysemic concepts relating to literacies and the lack of clarity on their disciplinary and theoretical backgrounds limit the possibilities for determining the ultimate goals of media education (and therefore its educational agenda) on the basis of existing research, in two regards. The first difficulty appears at the point of situating, distinguishing and assessing the different contributions based on the fields of research from which they originate. More solid disciplinary anchoring would allow for better structuring the conceptual field and evaluating the various contributions according to their disciplinary aims.

But beyond being able to situate and assess these contributions, the multiplicity of literacy concepts and their disciplinary anchoring also pose problems at a second level: that of their theoretical articulation. The various literacies have relationships of complementarity, distinctiveness or redundancy; they also include literacies of different scopes, with some being considered to encompass—or to combine with—lower-level literacies (Fantin 2010, Koltay 2011, Le Deuff 2012). Disagreements persist regarding the boundaries specific to each concept, their distinctive criteria, the relationships that exist between them, and their hierarchical classification (Stordy, 2015). These divergences highlight one of the difficulties with which the field of media education contends in ranking, categorizing and structuring the abilities sought in media education based on clearly defined theoretical foundations.

The current state of relative disciplinary opacity favours a conceptual development that gives short shrift to rigorous debates on the organization, hierarchical classification and categorization of the abilities that media education seeks to develop. In this regard, the reviews analyzed do not attest to the existence of structured frameworks endeavouring to situate, differentiate between, and systematically classify the concepts of literacy, based on abilities that they share or that they appropriate exclusively for themselves. There is a growing need to develop typologies of literacies that make it possible to organize a conceptual landscape characterized by the presence of multiple complex concepts, defined with variable degrees of precision, and intended to bring together the abilities sought in media education.

Operationalizing concepts: relationship to fieldwork and educational practices

The considerable efforts of conceptualization, as evidenced in the literature, are seldom accompanied by research fostering their operationalization. The identification and classification of abilities considered to constitute literacies comprise an essential step in the conceptual development of fields of research, but one that is insufficient. This process carries forward in two additional directions. On the one hand, it requires the establishment of measures for observing—and frequently assessing—such abilities, which requires putting in place indicators for validating the presence of learning outcomes at different levels of abstraction (e.g., use of critical thinking, ability to use a technical device, etc.). On the other hand, the process calls for designing educational actions likely to develop such abilities, to be operationalized in the form of educational practices, which can be assessed themselves, linking learning content and instructional methods.

Operationalizing literacy concepts thus calls for conceptual clarity: it is hard for vague, poorly defined notions to stand up to investigation in the field. This also requires the development of research methods that consider the social and institutional contexts within which activities meant to develop literacy-related abilities are carried out.

An examination of a host of epistemological and methodological concerns necessarily follows, focused on the following seven steps:

1) Identifying and selecting the constituent abilities of the various literacies;
2) Determining the educational objectives assigned to media education, corresponding to the development of these constituent abilities;
3) Connecting the constituent elements to each of these literacies with actions, practices or uses considered to be evidence of mastery achieved by learners, and that can be considered as learning outcomes for educational actions;
4) Designing these educational actions in terms of content, activities, and educational methods that are suitable for achieving these learning outcomes;
5) Selecting methods of observation and, where applicable, methods of assessment of these actions, practices or uses, treated as indicators of the abilities sought;
6) Considering the context in which the observation or assessment of actions, practices or uses that are observed or evaluated is carried out;
7) Evaluating the effectiveness of educational processes in terms of developing such practices, actions or uses.

The reviews analyzed overwhelmingly show that there is a lack of interest in studying the contexts within which activities are carried out to develop the abilities addressed by the various literacy concepts. Consequently, the literature lacks sufficient transparency on each of these seven steps and seems to commonly avoid detailed descriptions of the relationships between the various elements.

Conclusion: five recommendations for going forward

This article highlights a number of difficulties faced by fields of research relating to media, information and digital literacies, and discusses their impacts on media education research and practice. These difficulties arise in relation to the conceptual development of literacy concepts, as well as to their operationalization.

These fields of research are characterized by the proliferation of concepts that rely upon the notion of literacy. Media literacy, information literacy and digital literacy appear to be the most widely mobilized literacies, on a list that is constantly growing. Much work remains to be done to map the specificities of these concepts, their boundaries and the ways in which they overlap. Disregard of earlier work has limited the ability to build upon existing knowledge in order to provide more consensual conceptual synthesis. In this regard, there is no consensus on the nature itself of the abilities covered by literacies, and none of the three concepts framing our analysis has a shared definition. This state of affairs can be explained in part by the diversity of disciplinary and theoretical backgrounds of the researchers who studied these concepts. However, the lack of a systematic presentation of these backgrounds in the literature is a source of confusion, as identical terms can conceal divergent conceptions. The proliferation of concepts pertaining to literacies includes numerous "umbrella" concepts intended to combine multiple literacies, but without helping to clarify their specificities, their boundaries and the ways in which they overlap. A portion of the reviews examined in this article specifically propose all-encompassing conceptual categories or analysis frameworks in order to situate contributions. The fact remains that the conceptual inflation described above generates ongoing difficulties with respect to situating, differentiating and assessing the various theoretical contributions and, hence, linking them in a systematic manner. Implementation of a rigorous scientific debate regarding the hierarchical classification and categorization of the abilities covered by these concepts is also hindered.

In addition, operationalizing the concepts with respect to their observation and educational intervention fields appears to be of marginal concern in the literature consulted. The latter shows recurrent difficulties in translating concepts into indicators, as well as limitations in developing observation and assessment methods tailored to contexts in which observations are made. This, in turn, impedes the identification of well-defined educational objectives and adequate pedagogical methods.

A set of guidelines can be mobilized to overcome the difficulties encountered by fields of research that feed into media education and are referred to in this article. The decompartmentalization of approaches, clarification of the added value of disciplinary contributions, and strengthening of methods can be fostered by implementing the five recommendations presented below. The latter are oriented around two general requirements: research contributions should be explicitly

positioned in their theoretical and disciplinary approaches, and they should explore in greater depth the issue of operationalization of conceptual tools.

First, it would be appropriate to provide a systematic explanation of the disciplinary anchoring and scientific communities of reference within which definitions are being proposed, whether they are stated by the authors themselves or borrowed from other authors through citations. Concepts related to literacies can be situated at the interface of several disciplinary communities, which endows them with a valuable epistemological depth. It is not a matter of eliminating this depth by calling for these concepts to be anchored in a single disciplinary background, but rather of supporting, by explaining the perspectives adopted, the explicit linkage of definitions arising from different backgrounds. This requires a more sustained methodological rigor, in two respects: transparency in the selection processes of consulted documentary sources, and explicit acknowledgement of disciplinary biases and "personal" choices made in the definition processes.

Secondly, and directly connected to the preceding item, a clarification of the nature of the literacy (or literacies) defined appears to be necessary. The concept of literacy has been the subject of writings that define it, in turn, in terms of culture, social practices, competencies, skills or knowledge. Each of these meanings refers to separate traditions of research, mobilizing these different concepts, which are themselves nomadic and polysemic. Beyond the concept specifying the nature of the literacy defined, the authors need to specify the theoretical and epistemological frameworks with which this concept is associated.

Thirdly, as each literacy is framed by an adjective, an object or a prefix, no theoretical proposals should cut corners in defining this conceptual addition. The concepts of media literacy, information literacy and digital literacy refer not only to particular conceptions of literacy, but also to conceptions of what constitutes media, information, and digital technology, their roles or social functions, and the relationships that human beings have with them. Scientific contributions on literacies that involve these conceptions of media, information and digital technology must endeavour to explain them in greater detail, along with the theoretical and disciplinary approaches that underpin them.

Fourthly, it would be appropriate to specify the status of any definition of literacies with respect to four distinct possibilities. Potter (2004) contends that a definition of media literacy must provide the following three characteristics: a synthetic, general "umbrella" definition, a definition of the media literacy development process, and a definition of its ultimate purpose (i.e., what media literacy can contribute to). Added to this list is a fourth characteristic: a specification of the internal structure of the concept, including its components, categories or dimensions, and the

relationships between these elements. Theoretical proposals would be strengthened by explaining which of these four aspects they cover.

Fifthly, and lastly, and in connection with Potter's argument (2013), it is important to move away from discussions that are strictly conceptual and to examine the articulation between concepts, uses, needs and educational objectives. Consequently, it is incumbent on authors to examine the possible operationalization of concepts, in anticipation of empirical research to be carried out in the field. In addition to investigating ways to translate abstract notions into research tools that are used empirically, reflecting on operationalization leads to questions about the societal purpose of the theoretical proposal. Its relevance can be assessed, albeit not exhaustively, in the role that it plays in developing assessment tools and indicators, in producing educational content and resources, in proposing innovative teaching methods, in formulating political measures to support education, or in preparing curricula or reference frameworks. Scientific contributions would be enhanced by examining how they can be appropriated by different categories of actors in varied contexts and environments, in order to contribute to developing, observing and, where applicable, assessing media, information or digital abilities.

These five recommendations define a general framework that will hopefully make it possible not only to rein in the conceptual proliferation affecting literacies, but also to support the structuring of an interdisciplinary field within which every position statement can be situated and evaluated in the light of common reference points, promoting scientific debate, and leveraging the diversity of such statements.

Bibliography

(*references comprising the reviews that were analyzed)

*Addison, C. and Meyers, E. (2013). Perspectives on information literacy: A framework for conceptual understanding. *Information Research*, *18*(3), unnumbered. Retrieved at http://InformationR.net/ir/18-3/colis/paperC27.html.

*Aharony, N. (2010). Information literacy in the professional literature: an exploratory analysis, *Aslib Proceedings: New information perspectives*, *62*(3), 261–282.

*Alvermann, D. E., & M. C. Hagood (2000). Critical Media Literacy: Research, Theory and Practice in "New Times." *The Journal of Educational Research*, *93*(3), p. 193–205.

*Bawden, D. (2001). Information and Digital Literacies: a review of concepts. *Journal of Documentation*, *57*(2), 218–259.

*Buckingham, D. (2007). Digital Media Literacies: rethinking media education in the age of the Internet. *Research in Comparative and International Education*, *2*(1), 43–55.

Buckingham, D. (2009). The future of media literacy in the digital age : Some challenges for policy and practice. *Proceedings of Euromeduc: Media literacy in Europe: controversies, challenges and perspectives*, 13–24.

*Bulger, M., & Davison, P. (2018). The Promises, Challenges, and Futures of Media Literacy. *Journal of Media Literacy Education*, *10*(1), 1–21. https://doi.org/10.23860/JMLE-2018-10-1-1

*Buschman, J. (2009). Information literacy, "new" literacies, and literacy. *The Library Quarterly: Information, Community, Policy*, *79*(1), 95–118.

*Carneiro, R., & J. Gordon (2013). Warranting our Future: literacy and literacies. *European Journal of Education*, *48*(4), 476–497.

*Chipeta, G. T. (2010). Information Literacy (IL) teaching and learning: a literature review. *Inkanyiso. Journal of Humanities and Social Sciences*, *2*(1), p. 21–31.

*Erstad, E., & Amdam, S. (2013). From protection to public participation. A review of research literature on media literacy. *Javnost – The Public*, *20*(2), 83–98.

*Eshet-Alkalai, Y. (2004). Digital Literacy: A Conceptual Framework for Survival Skills in the Digital Era. *Journal of Educational Multimedia and Hypermedia*, *13*(1), 93–106.

*Fantin, M. (2010). Perspectives on Media Literacy, Digital Literacy and Information Literacy. *International Journal of Digital Literacy and Digital Competence (IJDLDC)*, *1*(4), 10–15. https://doi.org/10.4018/jdldc.2010100102

Fastrez, P. (2010). Quelles compétences le concept de littératie médiatique englobe-t-il? Une proposition de définition matricielle. *Recherches En Communication*, *33*, 35–52. https://doi.org/10.14428/rec.v33i33.51793

Fastrez, P. (2012). Translittératie et compétences médiatiques. 5ème Séminaire du GRCDI. La translittératie en débat : regards croisés des cultures de l'information (infodoc, médias, informatique) et des disciplines, Rennes.

*Fedorov, A. (2014). Media Education Literacy in the World: Trends. *European Researcher*, *67*(1-2), p. 176–187.

*Frau-Meigs, D. (2012). Transliteracy as the new research horizon for media and information literacy. *Medijske Studije. Media Studies*, *3*(6), 14–27.

*Goodfellow, R. (2011). Literacy, literacies and the digital in higher education. *Teaching in Higher Education*, *16*(1), p. 131–144.

*Gutierrez, A., & K. Tyner (2012). Media Education, Media Literacy and Digital Competence. *Comunicar*, *38*, p. 31–39.

Hobbs, R. (2010). *Digital and Media Literacy: A Plan of Action* (Communications and Society Program). The Aspen Institute. http://www.knightcomm.org/digital-and-media-literacy-a-plan-of-action/

*Hobbs, R. (2011). The State of Media Literacy: A Response to Potter. *Journal of Broadcasting & Electronic Media*, 55(3), 419–430.

*Hovious, A. (2018). Toward a socio-contextual understanding of transliteracy. *Reference Services Review*, *46*(2), 178–188. https://doi.org/10.1108/RSR-02-2018-0016

*Ilomäki, L., Paavola, S., Lakkala, M., & Kantosalo, A. (2016). Digital Competence—An Emergent Boundary Concept for Policy and Educational Research. *Education and Information Technologies*, *21*(3), 655–679.

Institut de la statistique du Québec (ISQ) (2015). *Les compétences en littératie, en numératie et en résolution de problèmes dans des environnements technologiques : des clefs pour relever les défis du XXIe siècle*. Québec : Government of Québec.

*Iordache, C., Mariën, I., & Baelden, D., (2017). Developing Digital Skills and Competences: A Quick-Scan Analysis of 13 Digital Literacy Models. *Italian Journal of Sociology of Education*, *9*(02/2017), 6–30. https://doi.org/10.14658/pupj-ijse-2017-1-2

Jenkins, Henry, Ravi Purushotma, Katherine Clinton, Margaret Weigel, & Alice J. Robison. "Confronting the Challenges of Participatory Culture: Media Education for the 21st Century." White paper. The John D. and Catherine T. MacArthur Foundation Reports on Digital Media and Learning, 2006. http://digitallearning.macfound.org/atf/cf/%7B7E45C7E0-A3E0-4B89-AC9C-E807E1B0AE4E%7D/JENKINS_WHITE_PAPER.PDF.

Jenkins, Henry. *Convergence Culture: Where Old and New Media Collide*. New York, NY: New York University Press, 2006.

*Julien. (2016). Beyond the Hyperbole: Information Literacy Reconsidered. *Communications in Information Literacy*, *10*(2), 124. https://doi.org/10.15760/comminfolit.2016.10.2.28

*Kellner, D., & J. Share (2005). Toward Critical Media Literacy: Core concepts, debates, organizations, and policy. *Discourse: studies in the cultural politics of education*, *26*(3), 369–386.

*Knobel, M., & Lankshear, C. (2015). Digital Literacy and Digital Literacies : Policy, Pedagogy and Research Considerations for Education. *Nordic Journal of Digital Literacy*, *1*(01), 12–24.

*Koltay, T. (2011). The media and the literacies: media literacy, information literacy, digital literacy. *Media, Culture & Society*, *33*(2), 211–221.

*Kulju, P., Kupiainen, R., Wiseman, A. M., Jyrkiäinen, A., Koskinen-Sinisalo, K.-L., & Mäkinen, M. (2018). A Review of Multiliteracies Pedagogy in Primary Classrooms. *Language and Literacy*, *20*(2), 80–101. https://doi.org/10.20360/langandlit29333

Lacelle, N., Boutin, J.-F., & Lebrun, M. (2017). *La Littératie Médiatique Multimodale Appliquée en Contexte Numérique. Outils conceptuels et didactiques*. Presses de l'Université du Québec.

Landry, N. (2017). Articuler les dimensions constitutives de l'éducation aux médias. *tic&société*, *11*(1), 7–45.

Landry, N., & Basque, J. (2015). L'éducation aux médias : contributions, pratiques et perspectives de recherche en sciences de la communication. *Communiquer, revue de communication sociale et publique*, *15*, 47-63.

Landry, N., & Caneva, C. (2020). Defining Media Education Policies. In *The Handbook of Media Education Research* (pp. 289–308). John Wiley & Sons, Ltd. https://doi.org/10.1002/9781119166900.ch28

Landry, N., & Letellier, A.-S. (2016). *L'éducation aux médias à l'ère numérique: Entre fondations et renouvellement*. Les Presses de l'Université de Montréal.

Lebrun, M., Lacelle, N., & Boutin, J.-F. (Eds.). (2012a). *La littératie médiatique multimodale : de nouvelles approches en lecture-écriture à l'école et hors de l'école*. Québec, Québec: Presses de l'Université du Québec.

*Lebrun, M., Lacelle, N., & Boutin, J.-F. (2012b). Genèse et essor du concept de littératie médiatique multimodale. *Mémoires du livre / Studies in Book Culture*, *3*(2). Retrieved at https://www.erudit.org/revue/memoires/2012/v3/n2/1009351ar.html

*Le Deuff, O. (2012). Littératies informationnelles, médiatiques et numériques : de la concurrence à la convergence? *Études de communication*, *38*. Retrieved at http://edc.revues. org/3411.

*Lee, A. Y. L., & So, C. Y. K. (2014). Media Literacy and Information Literacy: Similarities and Differences. *Comunicar*, *42*, 137–145.

*Lin, T.-B., Li, J.-Y., Deng, F., & Lee, L. (2013). Understanding new media literacy: An explorative theoretical framework. *Educational Technology & Society*, *16*(4), 160–170.

*Livingstone, S. (2004). Media literacy and the challenge of new information and communication technologies. *The Communication review*, *1*(7), 3–14.

*Mackey, T. P., & Jacobson, T. E. (2011). Reframing Information Literacy as a Metaliteracy. *College & Research Libraries*, *72*(1), 62–78.

*Markauskaite, L. (2006). Towards an integrated analytical framework of information and communications technology literacy: from intended to implemented and achieved dimensions. *Information Resarch*, *11*(3). Online at http://www.informationr.net/ir/11-3/paper252.html

*Martens, Hans. (2010). "Evaluating media literacy education: concepts, theories and future directions." *Journal of Media Literacy Education*, 2(1), 1–22.

*Martin, A., & Grudziecki, J. (2006). DigEuLit : Concepts and Tools for Digital Literacy Development. *Innovation in Teaching and Learning in Information and Computer Sciences*, *5*(4), 249–267. https://doi.org/10.11120/ital.2006.05040249

*Moje, E. B. (2009). Standpoints: A Call for New Research on New and Multi-Literacies. *Research in the Teaching of English*, *43*(4), 348–362.

*Neumann, M. M., Finger, G., & Neumann, D. L. (2017). A Conceptual Framework for Emergent Digital Literacy. *Early Childhood Education Journal*, *45*(4), 471–479. https://doi.org/10.1007/s10643-016-0792-z

*Nupairoj, N. (2016). The Ecosystem of Media Literacy: A Holistic Approach to Media Education. *Comunicar*, *24*(49), 29–37. https://doi.org/10.3916/C49-2016-03

*Owusu-Ansah, E. K. (2003). Information literacy and the academic library: A critical look at a concept and the controversies surrounding it. *The Journal of Academic Librarianship*, *29*(4), 219–230. https://doi.org/10.1016/S0099-1333(03)00040-5

*Palsa, L., & Ruokamo, H. (2015). Behind the concepts of multiliteracies and media literacy in the renewed Finnish core curriculum : A systematic literature review of peer-reviewed research. *Seminar.Net*, *11*(2). Retrieved at https://journals.hioa.no/index.php/seminar/article/view/2354

*Pangrazio, L. (2016). Reconceptualising critical digital literacy. *Discourse: Studies in the Cultural Politics of Education*, *37*(2), 163–174. https://doi.org/10.1080/01596306.2014.942836

*Pawley, C. (2003). Information Literacy: A Contradictory Coupling. *The Library Quarterly: Information, Community, Policy*, *73*(4), 422–452.

Petticrew, M., & Roberts, H. (2005). *Systematic reviews in the social sciences: A practical guide*. John Wiley & Sons.

*Pietrass, M. (2007). Digital Literacy Research from an International and Comparative Point of View. *Research in Comparative and International Education*, *2*(1), 1–12.

Potter, W. J. (2004). *Theory of Media Literacy: A Cognitive Approach*. Sage Publications, Inc.

*Potter, J. (2010). "The state of media literacy." *Journal of Broadcasting and Electronic Media* 54(4), 675–696.

*Potter, W. J. (2013). Review of Literature on Media Literacy. *Sociology Compass*, *7*(6), 417–435.

*Radsliff Rebmann, K. (2013). A review of literacy frameworks for learning environments design. *Learning Environments Research*, *16*, 239–257.

*Rodriguez Illera, J. L. (2004). Digital Literacies. *Interactive Educational Multimedia*, *9*, 48–62.

*Spante, M., Sofkova Hashemi, S., Lundin, M., & Algers, A. (2018). Digital competence and digital literacy in higher education research : Systematic review of concept use. *Cogent Education*. https://doi.org/10.1080/2331186X.2018.1519143

*Sparks, J. R., Katz, I. R., & Beile, P. M. (2016). Assessing Digital Information Literacy in Higher Education: A Review of Existing Frameworks and Assessments With Recommendations for Next-Generation Assessment: Assessing Digital Information Literacy in Higher Education. *ETS Research Report Series*, *2016*(2), 1-33. https://doi.org/10.1002/ets2.12118

*Špiranec, S. and Banek Zorica, M. (2010). Information Literacy 2.0: hype or discourse refinement?. *Journal of Documentation*, *66*(1), 140–153.

*Stordy, P. (2015). Taxonomy of literacies. *Journal of Documentation*, *71*(3), 456–476.

*Street, B. (2003). What's "new" in New Literacy Studies? Critical approaches to literacy in theory and practice. *Current Issues in Comparative Education*, *5*(2), p. 77–91.

*Tewell, E. (2015). A Decade of Critical Information Literacy : A Review of the Literature. *Comminfolit*, *9*(1), 24. https://doi.org/10.15760/comminfolit.2015.9.1.174

*Thomas, S., Joseph, C., Laccetti, J., Mason, B., Mills, S., Perril, S., & Pullinger, K. (2007). Transliteracy: crossing divides. *First Monday*, *12*(12). Retrieved at http://journals.uic.edu/ojs/index.php/fm/article/view/2060/1908

United Nations Educational, Scientific and Cultural Organization (UNESCO) (2013). *Conceptual Relationship of Information Literacy and Media Literacy in Knowledge Societies. Series of Research Papers*. Paris: UNESCO.

*Virkus, S. (2003). Information literacy in Europe: a literature review. *Information Research*, *8*(4). Retrieved at http://informationr.net/ir/8-4/paper159.html

*Webber, S., & B. Johnson (2000). Conception of information literacy: new perspectives and implications. *Journal of Information Science*, *26*(6), 381–397.