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A look at critical information literacy from Europe's educability project

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ABSTRACT

This article approximates the concept of Critical Information Literacy based on the Educability project: Building the Capacity of Educators & Librarians in Information Literacy. Funded by the European Union and conducted between 2020 and 2023 by four European universities, this project aims to address contemporary socio-technological challenges through information literacy training. Methodology encompasses a literature review, analysis of target audience needs, and a Delphi study to assess the proposed curriculum design. This paper focuses on the current dimension of Critical Information Literacy, emphasizing its role in promoting equity, preventing misinformation, and fostering critical thinking in an evolving digital environment. Findings reveal a progression in defining Critical Information Literacy, emphasizing the promotion of critical thinking and engagement with information sources, urging individuals to question established practices. Through a Delphi study involving experts, key definitions were evaluated and categorized, informing the development of a training course. The study underscores the evolving role of academic librarians in facilitating critical engagement with information amidst societal changes. It also highlights the importance of addressing emerging digital challenges, such as misinformation and algorithmic bias, through innovative educational approaches. Overall, the research contributes to advancing Critical Information Literacy and digital skills training, fostering informed citizenship and social responsibility.

Introduction

It is widely known that the development of Information and Communication Technologies (ICT) which are constantly evolving, have had multiple effects, one very famously being the rise of the Information Society. This is a kind of post-industrial society in which ICT tools enable people to create, manage, process, innovate with, communicate, and distribute information, generating a new social, economic, and cultural model, as well as a series of radically new parameters in the psychology and behaviour of individuals. The Internet could only have emerged from a set of decentralized communication networks, and one of its most powerful services and systems is the Web. This, in turn, has completely altered communication media and modalities, and scholars and specialists are even telling us that we are going through an Information Revolution, which is succeeding the Industrial Revolution as a socio-economic model. The phenomenon is, naturally, very complex in its characterization and dynamics (a new production mode and socio-economic model). But the Web, moreover, is undergoing a pronounced and overwhelming process of evolution that is transforming everything (Web 1.0, 2.0, 3.0 and the Semantic Web), to the point of bringing forth what some scholars are calling the Knowledge Society, as a necessary derivation of a class of information that is enriched, interpreted, argued, and reasoned. The effects of this information-related behaviour on the part of users of the Web (with its socio-economic repercussions) are expanding.

The context described is particularly useful for understanding the concept of multiliteracies. The concept of multiliteracies has emerged to adapt to the vastly different reality of the present day. It aims to develop intellectual abilities that can respond to various phenomena such as Big Data and its impact, virtuality on the web and its mixed realities, the increasing trend towards transversality of knowledge generation, which has led to the emergence of metaliteracy, and the challenge posed by Artificial Intelligence, which is redefining the concept of digital competencies.

Multiliteracies become a determining factor for its two primordial actors: socio-economic agents, who are capable of driving information policies, with their own very decisive dynamics; and individuals, who acquire a behaviour that is limited and subjective in nature but which

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can be analysed and "normalized" through studies and sociological laws while also having a collective and community dimensions as an unavoidable constituent of *skills*. If the latter is specifically interesting from the perspective of documentation, there can be no doubt that it cannot be contemplated for multiliteracy analysis without interaction with the former.

This is the aim of the *Educability project: Building the Capacity of Educators and Librarians in Information Literacy*. Funded by the European Union, was carried out between late 2020 and early 2023 by four universities: Cyprus University of Technology, University of West Attica (Greece), University Carlos III of Madrid (Spain), and University of Novi Sad (Serbia), with the support of Cyprus's Center for Social Innovation. The objective of the article is to demonstrate how has the concept of Critical Information Literacy evolved within the context of the Educability project, and what are the implications of this evolution for addressing contemporary socio-technological challenges. This question delves into the evolution of Critical Information Literacy as examined within the framework of the Educability project, exploring how this concept has developed over time and its relevance in addressing current socio-technological challenges.

Digital skills as a factor for progress

Capacity-building in the population does not just refer to the dimension of acquiring skills and the ability to effectively and optimally use web tools, it also includes a much more qualitative dimension: competence in evaluating web content, to know how to "read it" and extract knowledge effectively, along with competence in generating new content, to know how to "write it" and be adept at applying the know-how. The visible and specific emergence of various generative Artificial Intelligence tools is evident today, in 2024.

How has the European Union responded to the challenge? The hard lessons of the successive crises have generated a very powerful dynamic of cooperation. The NextGeneration Funds were designed to establish the two basic pillars for European progress: the Make it Green and Make it Digital plans. With respect to the inescapable need for capacity-building, the most evident effects of the digitalization plan have been in education and training.

The digitalization plan highlights the need for technological upskilling of the population, and therefore the EU has providing funding for training courses for expert and effective use of the technologies. The key objective is acquisition of *digital skills* by the population, a challenge that the EU has assumed.

In 2020 it published the *Shaping Europe's Digital Future* strategy, implemented by the ten-year *2030 Digital Compass: the European way for the Digital Decade* initiative communicated on 9 March 2021 (European Commission, 2021). As one of its four essential targets, the initiative assumes *digital skills* for at least 80 % of the adult population. The digital skills, to become a reality, received funding through the *Digital Europe Programme*, supplemented by other programmes such as *Horizon Europe*, the *Connecting Europe Facility*, the *Recovery and Resilience Facility*, and European Structural Funds. The effort was made concrete in the *Digital Education Action Plan* (2021–2027).

More recently, it launched the *European Year of Skills* 2023, which is aimed at promoting upskilling, innovation, and lifelong learning on the part of workers through the acquisition of adequate skills. The *European Year of Skills* 2023 will be implemented through the European Skills Agenda - Employment, Social Affairs & Inclusion - European Commission (europa.eu) and, within it, the *Pact for Skills*, as a cooperation framework, together with the *New European Innovation Agenda*, the strategy for universities, and the Digital Skills and Jobs Platform (europa.eu), within the framework of the *Connect Europe Facility*, which provides information and resources on digital skills, such as a self-assessment tool for these skills, and training and funding opportunities.

Higher education and training in digital skills in a cooperation scenario

The next level, naturally, is to find the instruments and spaces for developing these policy-related and educational plans. The unquestionable importance of digital skills means that the three prototypical educational modalities are included: informal, through different courses offered by all sorts of public and private organizations for different types of users with specific needs (related to the user or a determined context); non-formal, by training and, especially, educational entities, within the plans of the entity they serve; formal education, as part of the academic curriculum, with accreditation and certification by an educational institution. At the same time, given their importance, it will be necessary to identify the possible educational agents. Nonetheless, given the very dynamic of the training in these skills, the speed with which they evolve, and the constant need for innovation and change, they seem to do well in more flexible environments: skill-building programmes in the non-formal education modality. That need, and its benefits, not only drive cooperation between lecturers and librarians (there have been very successful experiences) but have also given rise to shared plans and strategic lines between the professional associations. Since the emergence of the definition of the multiliteracies, the essential work done by associations such as IFLA, ALA, ACRL, SCONUL, ANZIIL, to give a few examples that underscore the worldwide impact of their publications, guidelines, or rules, is well known.

Led by REBIUN, the Red de Bibliotecas Universitarias y Científicas Españolas (Spanish Network of Spanish University and Scientific Libraries), very significant work has also been done in the case of Spain. Its Strategic Plans, linked to the development of Learning and Research Resource Centre (CRAI), integrate digital skills into educational strategies, emphasizing lifelong learning and educational innovation. Collaboration aims to develop effective training programs aligned with academic and professional excellence in digital skills.

The initiatives of librarians and their associations, on one side, are complemented by the needs imposed by the "evaluation culture" in university education, and therefore they must accredit and certify their excellence in training excellent professionals, sustain scientific progress, and transfer knowledge (García-Jiménez, 2016). A solid system of metrics has been constituted using indicators and rankings for evaluating university quality by clearly defining measurement *objects* (Solimine & Marzal, 2020), prominently teaching, aimed at empowering students in lifelong learning through skills in a transfer of knowledge about digital cooperative environments (Guijarro-Jiménez et al., 2016).

Universities, evaluated based on the research and scientific output of their academic community, are also evaluated based on their educational innovation and, ultimately, in terms of their capacity to attract new enrolment (Black & Rechter, 2013) and the professional excellence of their graduates (Knezović, 2016). Universities have strived to include the acquisition of digital skills in this effort, within the framework of a skills-based educational model suitable for the 21st century.

For greater effectiveness, this scenario calls for the cooperation of university faculties and libraries. Perhaps the ideal context for this cooperation in the area of digital skills is the design of skills training programmes by means of academic literacy as a key factor for promoting digital skills and an element for the university's strategic plans. Academic literacy would be evidenced as a set of strategies for developing the digital skills with the greatest impact in higher education (MacMillan & MacKenzie, 2012), which would tangibly be delivered by a service for supporting students in these objectives, the Academic Skills Centre (ASC).

The effectiveness of this model is evident in medium-sized universities following the Anglo-Saxon education model. This advising is based on high-level mastery of digital skills. Its educational space is the Academic Skills Centre, which has been demonstrating its usefulness over time (Gunn et al., 2011). In this path of convergence, librarians have been developing their skills, as demonstrated by a series of case studies

(Moselen & Wang, 2014; Raji et al., 2023), with palpable success in the use of an updated scientific method (Adams et al., 2016; Barbuti et al., 2019; Breen et al., 2023).

The arguments presented thus far show, however, that the determining factor in the introduction of training programmes in digital skills is the teaching excellence of the trainers in these programmes.

Building the capacity of educators: the Educability proposal

It has become increasingly clear that there is a need in skills training programmes for a preliminary phase of instructional design for training the teachers and librarians who will be responsible for developing the digital skills of a variety of students. Interesting initiatives exist, among them the *Educability: Building the Capacity of Educators and Librarians in Information Literacy* project, within the *Lifelong Learning Erasmus +* programme and call for proposals, Strategic Partnerships. Key Action 2 (Programme Decision 2013/C 362/04). Sector: KA202. Reference: 2020-CY01-KA202–066032, which proposed the following four objectives: design of an open-access Information Literacy Training Package (ILTP); within the package, division of the subject matter in six literacies and the development of six modules corresponding to these literacies to be used as training units, with the Spanish research and technical team responsible for the units on Data Literacy and Critical Information; training of educators and librarians as a target group; convergence in terms of strategy, expertise, and infrastructure through a Transnational Memorandum of Cooperation, Sustainability and Transferability between the Educability project's partners.

The selection of six specific literacies occurred in the framework of the vision of digital skills as a study object of the *multiliteracies*, with these understood to be the academic and scientific framework for basic and applied research, as well as the space of convergence between the literacies called for by the progress of the Web and now of artificial intelligence (Solimine & Marzal, 2020). The ILTP, materialized in the structure of a Virtual Learning Environment (VLE), presents six from the universe of these literacies, following a criterion of greater initial demand by the guidelines of the European Union: digitalization (Data Literacy, Digital Literacy, Mobile Literacy, Media and Information Literacy) and sustainability (Sustainable Development Literacy, Critical Information Literacy).

Digital Literacy encompasses the cultivation of skills necessary for navigating, accessing, organizing, integrating, evaluating, analyzing, and synthesizing information disseminated in digital formats. Mobile Literacy focuses on utilizing and generating tailored educational content for mobile devices, ensuring affordability and accessibility, particularly for individuals with learning disabilities. Media and Information Literacy nurtures the capacity to comprehend how media, the Internet, and information institutions such as libraries, archives, and museums function as purveyors of information. Data Literacy pertains to the skills required for locating, managing, and comprehending diverse datasets. It also encompasses the ability to interpret and create representations of such datasets. Sustainable Development Literacy is concerned with fostering the capability to make sustainable decisions across various facets of life. Finally, Critical Information Literacy focuses on the identification and appropriate handling of any biases—be they social, racial, religious, or otherwise—expressed by authors or creators across texts, images, and audiovisual materials (Zervas et al., 2022).

Of these, we consider it interesting to address Critical Information Literacy for the purposes of this analysis. The nature of the digital skills that it calls for have a more social vocation and relevance, as they are designed to avert any type of digital gap, guarantee equity in a broad sense (gender, race, religion, etc.), and serve as an instrument of personal, mental, and attitudinal defence against fake news. It is a literacy that, while making perfect sense as a part of the mission of universities, is close to the corporate responsibility of the university, to the "extension of the university" to the community that sustains it, a perfect space for trying out the training cooperation between university teachers/researchers and librarians.

Methodology

One of the Educability project objectives was to design an Information Literacy Training Package. The first task was to conduct a review of the literature on each of the six literacies. The action was carried out based on a protocol established beforehand by the participating universities, in which relevance and pertinence to the Educability project objectives were defined as the main selection criteria. The text analysis method was applied for this purpose, identifying and recording all the necessary information that might be interesting for developing the curriculum design for the different literacies according to the following structure:

1. New and/or supplementary definitions of each literacy
2. Key concepts and content of each literacy
3. Learning objectives and outcomes integrated in distinct thematic units of each curriculum
4. Teaching approaches and evaluation methods common for the six curricula

With respect to Critical Information Literacy, one of the two literacies for which the Carlos III University of Madrid research team was responsible, the point of departure was that "which focuses on decoding the multiple forms of content in print and electronic documents, as well as in digital media. In particular, it focuses on the detection and correct treatment of any prejudices, social, racial, religious and others, that may be expressed by the author/creator of various texts, images and audiovisual material, such as videos" (Zervas et al., 2022).

To execute the mapping of the bibliography, we used version 7.0 of Publish or Perish, a free application developed by Australian professor Anne-Wil Harzing (2007) at Middlesex University (London). This is a tool recognized by researchers for its great utility (Andrade-Pereira & Mugnaini, 2023) which enables the extraction of data and productivity indicators and citation from different sources, such as the Web of Science, Scopus, and Google Scholar. The latter functionality makes it possible to obtain citations without processing to order to analyse them later, export them, or present them in a wide range of metrics and in an easy-to-use format (Baneyx, 2008).

At an early stage, to limit the search in Google Scholar with Publish or Perish, the expression "critical literacy" was used. But the first bibliographic references did not meet the project objectives, as they pertained to simple school literacy and strategies for generating critical-thinking students, which is quite far afield from information literacy and from a training action in libraries. Searches made through this syntagm, implemented using the terms "curriculum" or "education" did not improve the results significantly, and so the research team opted to use the more precise the formulation of "critical information literacy" in the title field. Thus, the references returned in the search results directed their object of study to critical information literacy in the context of information literacy and multiliteracies, making explicit mention of the skills programmes.

In keeping with the Educability project guidelines, a total of 100 works published between 2006 and 2021 were analysed. The selection criterion was the relevance of these works, which is why the most recent 100 were chosen. It was agreed upon that all project team members would choose this number to constitute a relevant literature review in order to capture and map the state of research for these literacies. Moreover, works in English were selected due to being the official language requirement stipulated by the funding agency and to accommodate the linguistic diversity of the participating countries in the project.

This process was started in December 2020 and concluded in July 2021. To process the records, we used a standard Microsoft Excel spreadsheet with the following elements:

1. Metrics: derived from the data exported from the *Publish or Perish* application.
2. Bibliographic information.
3. Description of the type of each item.
4. Determination of the potential relevance of the work to the project.
5. Qualitative evaluation of the resource.
6. Definitions incorporated. This table included a free-text field for determining any key concepts that might be of interest for developing the training proposal.
7. Curriculum suggestions, oriented towards detecting the educational perspective of the content, the learning objectives, the teaching perspectives, the results achieved, and the evaluation methods.

To represent the content of the definition section, we applied the strategy of projecting it in two fields using a different function. In the Keywords column, we maintained the terms assigned by the document's author for obvious reasons (specialized terminology, specialist technical vocabulary, up-to-date terms). The "Key concepts and content" column was reserved for members of the research team for the purpose of representing the content that best reflects the arguments for the reader and specialized audience. The latter presented the most innovative aspects of the document through syntagms and not just words.

The second task established was to create a group with a total of sixty experts to analyse the needs of the target audience of the training proposal, who are already active in these fields (e.g., information scientists, professors, journalists, librarians, ICT educators and other stakeholders). This diversity ensured a broad range of perspectives and a comprehensive evaluation of the training proposal. To guarantee the appropriateness of the six proposed literacies, each mapping was designed and implemented in accordance with the criteria of each research team in the project. In the case of Critical Information Literacy, the participants in the process were a group of fifteen experts from different countries (Spain, Mexico, Brazil, Uruguay, and the United States) with profiles like these:

- Lecturers and researchers in documentation science
- Lecturers and researchers in educational technology
- Librarian-lecturers
- Librarians with long experience in teaching and research applied to information literacy

The experts analysed the needs of the target audience, ensuring that the training proposals were aligned with the real-world requirements and expectations of professionals already active in the field. Regarding methodological details, the evaluation focused on formal and design aspects, content aspects, and accessibility aspects. This comprehensive approach ensured that all relevant factors were considered. Additionally, detailed instructions were provided to the experts on how to evaluate the modules, ensuring consistency and clarity in the feedback received.

As the third and final task, six surveys were conducted (one for each of the literacies in the project) using the Delphi method in order to evaluate the curriculum design proposal for the virtual learning environment (VLE) and achieve the maximum possible consensus among the experts in the group. This Delphi analysis was carried out online in December 2021 on four specific categories: Definition and concept of literacy, Key elements and content, Learning objectives and results, and Teaching and evaluation elements. The process took place via a special software (Welphi[1]), which can support the Delphi method requirements. The overall aim of conducting the Delphi Studies within the framework of EDUCABILITY Program, was to engage educators and librarians in the creation of the curriculum design in a more active way (Zervas et al., 2022). The Delphi method, which is internationally recognized for the development of educational programs, aims to achieve the maximum possible consensus among a group of experts on the order of importance and appropriateness of the curriculum of a scientific subject. Although it is not a common method for studying information literacy, the choice of this method is based on its successful use in educational contexts, including digital and health (information) literacy (Sobota, 2023) and its application by renowned researchers in the discipline (Saunders, 2009; Ponjuán et al., 2015; Townsend et al., 2016).

Based on the methodology used in Educability, the purpose of this article is to analyse the first of the elements considered in the Delphi study, the current dimension of the concept of critical information literacy.

Findings

Below are some of the findings of this project based on the content analysis applied to the sample of 100 documents selected using Publish or Perish.

In the first place, fundamentally, this involves journal articles that mainly referenced studies and case studies, as shown in Fig. 1.

The chronological evolution of the publications (Fig. 2) shows growing interest in the subject, with 61 % of the articles having been published in the period between 2016 and 2020.

The vast majority of the sample presented examples and experiences related to training on critical information literacy, and nearly half (42 %) of the works were rated as having medium relevance. The determination of relevance was conducted by the study authors through a content analysis of the 100 articles (see Fig. 3). Relevance was assessed based on the potential contribution of each work to the project's objectives. The evaluation criteria included factors such as the thematic alignment with critical information literacy, the quality of the research methodology, and the impact of the findings on the field.

As for the data relative to the categories "Key concepts and content" and "Keywords", obtained from the "Curriculum suggestions" and "Definitions incorporated items", 58 % of the works reflected at least one definition of critical information literacy, and the resulting word cloud shows that the most frequent terms, in the following order, were: "information literacy", "critical information literacy", "critical thinking", "higher education", and "critical pedagogy" (Fig. 4).

Among the definitions of critical information literacy, a broad consensus is observed in citing the contributions of James Elmborg, the first to use the term (Branch, 2019) as an approach that involves development of a critical consciousness on the part of students regarding information in order to learn to formulate questions on the role of the library (and of the university) in the structuring and presentation of a recognizable unique reality (Elmborg, 2006).

After Elmborg (See Fig. 5), the second-most cited work in terms of defining the concept of critical information literacy is the book *Critical Library Instruction Theories and Methods*, edited by Accardi et al. (2010). It presents the term as a library praxis that promotes a critical commitment to the information sources, considers students to be collaborators in the practices of knowledge production, recognizes the affective dimensions of research, and, in some cases, has liberatory ends (Schachter, 2019). This view of literacy encourages the individual to avoid passivity and raise questions, to reflect on the information, and to review established practices and beliefs (Hicks & Sinkinson, 2015).

Later, authors like Eamon Tewell, Troy A. Swanson, Michelle H. Simmons, Lua Gregory and Shana Higgins, Paulo Freire, and Annie Downey come on the scene. The last of these considers critical information literacy to be a call for change (Downey, 2016) and aligns herself with the proposals of Elmborg (2006) and Accardi et al. (2010) in urging students to reflect on their role as information consumers and producers and to question any information from a critical perspective, regardless of the type or source (Schachter, 2019).

For Higgins and Gregory (2013), critical information literacy is based on the standard definition of information literacy, as it includes an

[1] https://www.welphi.com

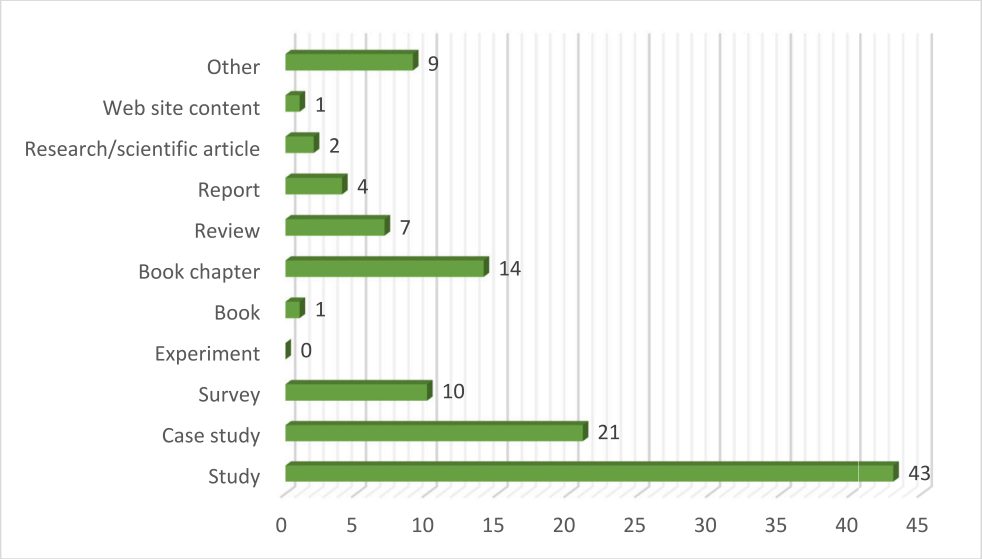

Fig. 1. Distribution of the chosen literature by document type.

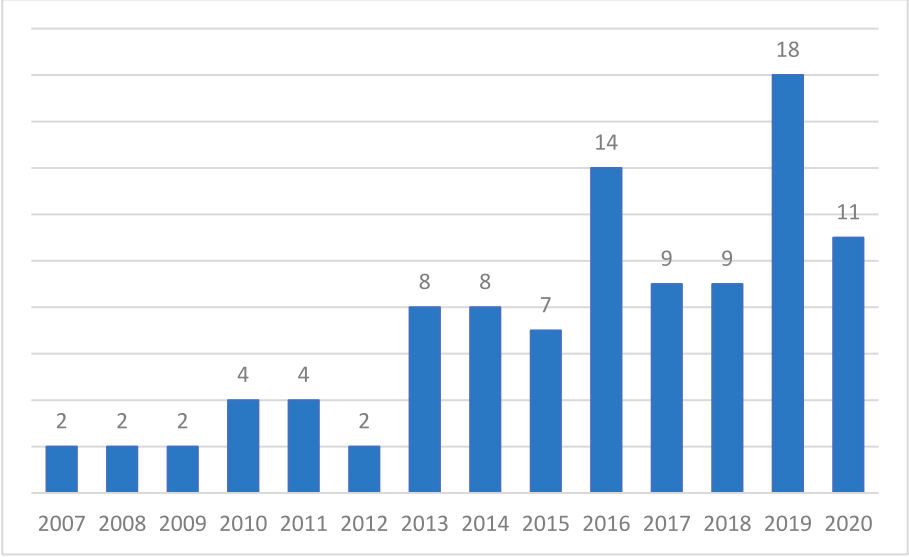

Fig. 2. Temporal distribution of the resources.

analysis of the political, economic, social, and corporate systems that exercise power and influence over information production, dissemination, access, and consumption. Simmons, on the other hand, expands the concept of information literacy and positions libraries as mediators in the task of helping students to examine and question the social, political, and economic context of information consumption and production, not just to make it easier to understand or collect but also as a task of constructing meaning.

Freire (2018) supplies the more pedagogic facet of information when he relates the traditional functions of the library and his "banking concept of education", in which knowledge is an economic and cultural asset that is deposited in students. Along these lines, Swanson (2004) defines critical information literacy as the application of critical pedagogic theories and encourages teachers to recognize their position of authority and the inherent biases introduced in the classroom.

Lastly, with respect to Tewell, he is not just one of the main references when it comes to delimiting the concept of critical information literacy but, according to data extracted from the Publish or Perish tool, he is also noteworthy for being the second-most cited author in the study (223) after Elmborg (719). In his best-known work, Tewell, 2015 questions widely accepted aspects of information literacy and asserts that this incipient literacy is an attempt to make visible the complex functioning of information to enable us to identify and act on the power structures that shape our lives. Not long after, Tewell (2018) delved deeper into the oppressive nature of power and the potential of education for social change, defining critical information literacy as "a way of thinking and teaching that examines the social construction and political dimensions of libraries and information, problematizing information's production and use so that library users may think critically about such forces".

From this whole process of review and collection of the definitions found in the 100 selected works, a list of five definitions was drawn up and evaluated by the Delphi experts group. These were analysed semantically and classified in four conceptual categories (Table 1). As the categories were not treated as sealed compartments, it was possible for the definitions presented to occur in more than one category. This provided an approximate idea of the different tendencies present in the scientific literature on critical information literacy.

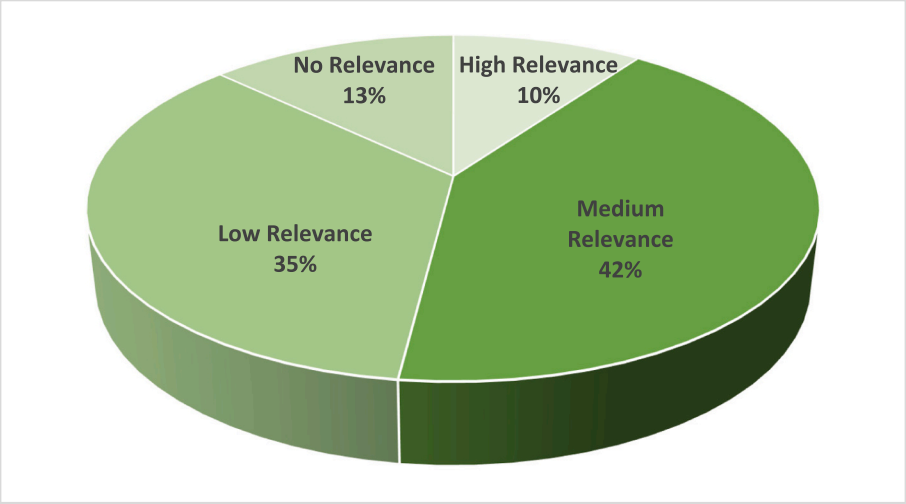

Fig. 3. Determination of the potential relevance of the works to the project.

Fig. 4. Keyword tags extracted from the documents recovered.

Next, we asked the 15 experts to analyse the five selected definitions and rank them in order of importance to determine which of them should be considered for the training course for reflecting the key topics of critical information literacy. In this sense, it is worth noting that the bibliography used for extracting the definitions was not shown at any time to the participants in the Delphi study to avoid influencing their choices.

The definition with the highest score, with an average of 7.6 points, was one from Tewell (2016) in which he rejects the neutrality of information literacy and calls for a greater commitment on the part of libraries to the social and political dimensions of information. Nonetheless, as shown in the table below (Table 2), four of the five definitions were rated at seven out of ten, from which one can infer that their conceptual approaches were highly appreciated for incorporation in the Information Literacy Training Package (ILTP).

On the other hand, the definition of Polizzi (2020), based on the current of authors like Correia (2002), Elmborg (2006), Jacobs and Berg (2011), was the one with the lowest score, 5.8.

And after a long period in which the link between critical information literacy and social justice and the instructive and educational work of libraries (Tewell, 2018) has been a constant in the scientific literature, we are now witnessing a new scenario where online information has become much more complex overall, with an abundance of information and difficulty in identifying reliable sources.

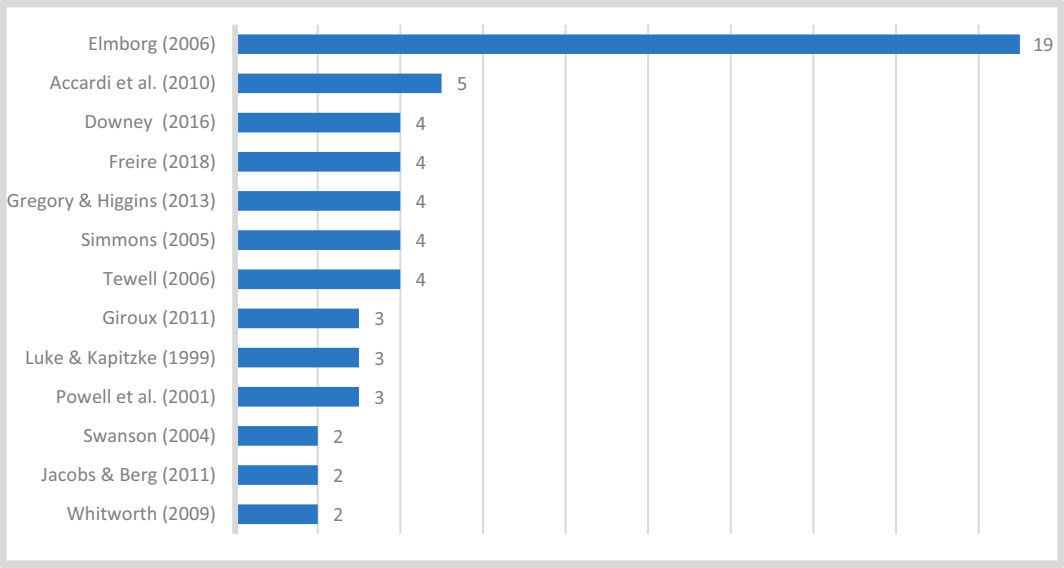

Fig. 5. List of authors whose definitions appear most-often repeated in the sample analysed (Giroux, 2011; Luke and Kapitzke, 1999; Simmons, 2005; Whitworth, 2009).

Table 1
Conceptual categories in the Educability project.

Conceptual Categories	Meaning
Information Literacy-related	The definition underlines the core information literacy skills
Social and political life	The definition includes the social and political dimensions of information
Social ethics	The definition highlights the ethics in using the information
Education-related	This definition focuses on the use of information so that library users may think critically

Source: TILEM Book (2023)

Table 2
Findings of the Delphi study on the definitions of critical information literacy.

Definitions in order of importance	AVERAGE of points	Conceptual categories
Critical information literacy refutes the neutrality of traditional information literacy and asks library educators and students to engage with the social and political dimensions of information, including its production, dissemination, and reception (Tewell, 2016).	7.60	Information Literacy-related Social and political life
Critical Information Literacy is a way of thinking and teaching that examines the social construction and political dimensions of libraries and information, problematizing information's production and use so that library users may think critically about such forces (Tewell, 2018).	7.53	Education-related Social and political life
Is the ability to understand, find, collect, interpret, visualize and support arguments using quantitative and qualitative data (Deahl, 2014).	7.26	Information Literacy-related
Critical Information Literacy is a consistent tool of resistance to Fake News as it allows people not only survive the informational flood but mainly to build a more ethical society in the use of information (Brisola & Doyle, 2019).	7.00	Information Literacy-related Social ethics
Critical Information Literacy is the ability to question power and authority in ways that facilitate social justice (Polizzi, 2020).	5.80	Social and political life

Source: prepared by the authors.

Judging from the results of this study, one can also deduce that these types of questions associated with fake news and disinformation were not the ones the experts most appreciated. The two highest-rated definitions reinforce the social and political dimensions of the term and the idea of critical thinking.

On the other hand, even though the experts preferred the more classic definitions on the subject, they also had a favourable view of ones that approached and connected with other literacies, such as data literacy (Deahl, 2014).

There was a high degree of consensus regarding the definitions among the panel of experts participating in the Delphi questionnaire. However, the same was not true of the key concepts and content that were going to determine the thematic units of the course's instructional design. In this case, they were asked to rank in order of importance ten key concepts about critical information literacy to be definitively included in the ILTP as the core skills related to this literacy. As shown in Table 3, the consensus achieved was acceptable (Kendall coefficient 0.294), and the teaching unit Introduction to Critical Information Literacy (CIL) held the top position, classified in first place by 69 % of the experts, indicating a certain concern on the part of the experts that the course target audience adequately understand the essence of this literacy.

The following key concepts highlighted by the experts were *Misinformation, fake news and algorithmic bias* (with a score of 3.87, with 1 being the most important and 10 the least), *Ethical and socially responsible behaviour* (4.13), and *Social and economic justice* (4.8). At the other extreme, the least-valued topics for the project's Information Literacy Training Package were *Antiracist pedagogy* (7.73), *Disabilities and special abilities* (7.13) and *Gender equality*. Feminism and LGTBQ (7.07).

Furthermore, it was observed that the teaching unit on *Cultural diversity, interculturality, multiculturalism* also had one of the highest proportions of middle rankings: 38 % of the experts placed it in the fifth position, making it another useful indicator for determining the configuration and order of appearance of the content items in the ILTP.

Lastly, once the Delphi analysis applied to the rest of the elements established in the Educability project (objectives and learning outcomes and evaluation mechanisms) was complete, the six thematic units to configure the critical information literacy training course were determined:

Table 3
Findings of the Delphi study on the key concepts of critical information literacy.

Rank	Title	Mean Rank
1	Introduction to Critical Information Literacy (CIL)	2.67
2	Misinformation, fake news and algorithmic bias	3.87
3	Ethical and socially responsible behaviour	4.13
4	Social and economic justice	4.8
5	Promotion of equality	5.53
6	Cultural diversity, interculturality, multiculturalism	5.53
7	Activism, information policies and information professionals	6.53
8	Gender equality. Feminism and LGTBQ	7.07
9	Disabilities and special abilities	7.13
10	Antiracist pedagogy	7.73

Source: TILEM Book (2023)

1. Introduction to Critical Information Literacy
2. Misinformation, fake news and algorithmic bias
3. Ethical and socially responsible behaviour
4. Promotion of equity
5. Cultural diversity, interculturality, multiculturalism
6. Information social justice

The criterion established was to select the key concepts that had been selected by at least one expert as the most pertinent out of the ten proposed. With the discarded key concepts, the project research team proceeded in the following manner. The one related to professional activism was added to unit 3. *Ethical and socially responsible behaviour*, and aspects related to gender equality, feminism, LGTBQ+, anti-racism, and disabilities could be of interest in the thematic block dedicated to *Promotion of equity*.

Discussion

Besides its relation to issues such as social justice and critical thinking, critical information literacy has also been linked to topics such as anti-sexism, anti-racism, LGBTQ+ studies, anti-homophobia, Marxism, the power of algorithms, opposition to neoliberalism, or opposition to fake news, as compiled by Martínez-Ávila and Cuevas-Cerveró (2022). In the current digital context, understanding and applying social responsibility in terms of equality, diversity, race, gender, sexuality, and disability is no easy task. In fact, in the Delphi study conducted on critical information literacy for the Educability project, one of the questions that generated some controversy between the experts themselves was the degree to which these subjects should or should not form part of this literacy. While some considered it necessary to expand the definition by admitting questions about the construction of masculinity, sexism, and the patriarchy, others asserted that these subjects had nothing to do with critical information literacy, with disinformation and post-truth culture being the cornerstones of this literacy.

It is true that, with the outbreak of the COVID-19 pandemic, the idea of introducing new approaches in critical information literacy is increasingly being proposed (Pashia, 2021). These include critical literacy in data and environmental literacy, education on sustainable development, emotional traumas or critical literacy on health topics (Abel & McQueen, 2021).

In this transition of seeking new intersections of critical information literacy with other aspects of training and library practice, Brookbank and Haigh (2021) have compiled a series of valuable contributions about how the critical gaze can also be applied in traditional teaching of information literacy through the development of collections, cataloguing, the reference and bibliographic information service, user research, the web archive, or virtual learning spaces. The over two-year fight of a group of Dartmouth College students in Hanover, N.H. (United States) to convince the U.S. Library of Congress to eliminate the term "illegal aliens" from its list of subject headings is one of these cases and a good example of how controlled documentary languages can at times make it impossible to select a "neutral" term (Baron & Gross, 2021).

Conclusions

In a society increasingly focused on interacting with technology, there is a certain degree of ambiguity regarding the roles librarians play in their profession. The Educability project is a conceptual, strategic, technological, and pedagogic initiative aimed at addressing specific needs in the development of skills training for the Information and Knowledge Society through specific educational programs on digital skills that revolve around six emerging multiliteracies related to information literacy. The Educability project represents a comprehensive effort to address the evolving needs of the Information and Knowledge Society by developing educational programs focused on digital skills and emerging multiliteracies.

A key finding of this research is the diversity of interpretations of critical literacy among experts. The Delphi study revealed significant differences in opinions regarding the inclusion of topics such as sexism, patriarchy, and algorithmic bias within the scope of critical information literacy. Some experts advocated for a broader definition that encompasses these social issues, while others argued that the primary focus should remain on misinformation and post-truth culture. This approach ensures that the curriculum is both comprehensive and reflective of the diverse viewpoints within the field.

Critical information literacy encompasses how social changes are influencing the discourse and practice of library science and reflects the changing landscape of library science. It underscores the importance of librarians in facilitating informed and critical engagement with information.

Moving forward, it is essential to continue exploring innovative approaches to digital skills training and information literacy education. By fostering a culture of critical inquiry and social responsibility, educators and librarians can empower individuals to navigate an increasingly complex digital environment and contribute positively to society.

CRediT authorship contribution statement

Miguel Ángel Marzal García-Quismondo: Project administration, Methodology, Investigation, Conceptualization, Writing – review & editing, Writing – original draft. **Pablo Parra Valero:** Methodology, Investigation, Formal analysis, Conceptualization, Writing – review & editing, Writing – original draft. **Sara Martínez Cardama:** Methodology, Investigation, Conceptualization, Writing – review & editing, Writing – original draft.

Declaration of competing interest

none.

Data availability

Data will be made available on request.

References

Abel, T., & McQueen, D. (2021). Critical health literacy in pandemics: The special case of COVID-19. *Health Promotion International, 36*(5), 1473–1481.
Accardi, M. T., Drabinski, E., & Kumbier, A. (Eds.). (2010). *Critical library instruction: Theories and methods*. Library Juice Press.
Adams, C., Buetow, S., Edlin, R., Zdravkovic, N., & Heyligers, J. A. (2016). Collaborative approach to integrating information and academic literacy into the curricula of research methods courses. *The Journal of Academic Librarianship, 40*, 222–231.
Andrade-Pereira, F., & Mugnaini, R. (2023). Mapping the use of Google scholar in evaluative bibliometric or scientometric studies: A bibliometric review. *Quantitative Science Studies, 4*(1), 1–19. https://doi.org/10.1162/qss_a_00231
Baneyx, A. (2008). "Publish or perish" as citation metrics used to analyze scientific output in the humanities: International case studies in economics, geography, social

sciences, philosophy, and history. *Archivum Immunologiae et Therapiae Experimentalis, 56*(6), 363–371.
Barbuti, N., Di Giorgio, S., & Valentini, A. (2019). The project BIBLIO – Boosting digital skills and competencies for librarians in Europe: An innovative training model for creating digital librarian. *The International Information & Library Review, 51*(4), 300–304.
Baron, J., & Gross, T. (2021). Sorrow, fury, helplessness, and cynicism: An account of the Library of Congress subject heading "illegal aliens". *Dartmouth Library Staff Publications, 34*.
Black, M., & Rechter, S. (2013). A critical reflection on the use of an embedded academic literacy program for teaching sociology. *Journal of Sociology, 49*(4), 456–470.
Branch, N. A. (2019). Illuminating social justice in the framework: Transformative methodology, concept mapping and learning outcomes development for critical information literacy. *Communications in Information Literacy, 13*(1), 4–22.
Breen, M., Waters, J., & O'Shea, L. (2023). Taking a Lead on digital literacy for students—A case study from the library at the University of Limerick. *New Review of Academic Librarianship, 29*(1), 11–32. https://doi.org/10.1080/13614533.2022.2039243
Brisola, A. C., & Doyle, A. (2019). Critical information literacy as a path to resist "fake news": Understanding disinformation as the root problem. *Open Information Science, 3*(1), 274–286.
Brookbank, E., & Haigh, J. (Eds.). (2021). *Critical library pedagogy in practice*. Innovative Libraries Press.
Correia, A. M. R. (2002). *Information literacy for an active and effective citizenship*. In: White Paper prepared for UNESCO, the US National Commission on Libraries and Information Science, and the National Forum on Information Literacy, for use at the Information Literacy Meeting of Experts, Prague, The Czech Republic.
Deahl, E. (2014). *Better the data you know: Developing youth data literacy in schools and informal learning environments*. Massachusetts Institute of Technology, USA: MS Thesis.
Downey, A. (2016). *2016*. Critical Information Literacy: *Foundations, Inspiration, and Ideas*. Library Juice Press.
Elmborg, J. (2006). Critical information literacy: Implications for instructional practice. *The Journal of Academic Librarianship, 32*(2), 192–199.
European Commission. (2021). *Communication from the commission to the European Parliament, the council, the European economic and social committee and the Committee of the Regions. 2030 digital compass: The European way for the digital decade* European Commission.
Freire, P. (2018). *Pedagogy of the oppressed: 50th anniversary edition* (Bloomsbury Academic).
García-Jiménez, E. (2016). Concepto de excelencia en enseñanza superior universitaria. *Educación Médica, 17*, 83–87. https://doi.org/10.1016/j.edumed.2016.06.003
Giroux, H. (2011). *On critical pedagogy*. *Continuum*.
Guijarro-Jiménez, C., Gomera-Martínez, A., & Antúnez-López, M. (2016). Propuesta de indicadores de la Responsabilidad Social Universitaria conforme a la guía G4 del GRI: el caso de la Universidad de Córdoba. *CIRIEC – España, 87*, 103–137.
Gunn, C., Hearne, S., & Sibthorpe, J. (2011). Right from the start: A rationale for embedding academic literacy skills in university courses. *Journal of University Teaching & Learning Practice, 8*(1), 70–80.
Harzing, A. W. (2007). Publish or perish. *Version, 7*, 2007. Retrieved from https://harzing.com/resources/publish-or-perish. (Accessed 30 March 2024).
Hicks, A., & Sinkinson, C. (2015). Critical connections: Personal learning environments and information literacy. *Research in Learning Technology, 23*, 1–13.
Higgins, S., & Gregory, L. (2013). *Information literacy and social justice*. Radical Professional Praxis: Library Juice Press.
Knezović, A. (2016). Rethinking the languages for specific purposes syllabus in the 21st century: Topic-centered or skills-centered. *World Academy of Science, Engineering and Technology, International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering, 10*(1), 122–137.
Jacobs, H. L., & Berg, S. (2011). Reconnecting information literacy policy with the Core values of librarianship. *Library Trends, 60*(2), 383–394.
Luke, A., & Kapitzke, C. (1999). Literacies and libraries: Archives and cybraries. *Curriculum Studies, 7*(3), 467–491.
MacMillan, M., & MacKenzie, A. (2012). Strategies for integrating information literacy and academic literacy. Helping undergraduate students make the Most of scholarly articles. *Library Management, 33*(8–9), 525–535.
Martínez-Ávila, D., & Cuevas-Cerveró, A. (2022). Alfabetización informacional crítica: una corriente política cada vez más necesaria. *Anuario ThinkEPI*, 16, e16a31.
Moselen, C., & Wang, L. (2014). Integrating information literacy into academic curricula: A professional development Programme for librarians at the University of Auckland. *The Journal of Academic Librarianship, 40*, 116–123.
Pashia, A. (2021). Critical information literacy and structural oppression: Reflecting on challenges and looking forward. In J. Crilly, & R. Everitt (Eds.), *Narrative expansions: Interpreting decolonisation in academic libraries, 73–88* (Facet).
Polizzi, G. (2020). Information literacy in the digital age: Why critical digital literacy matters for democracy. In S. Goldstein (Ed.), *Informed societies: Why information literacy matters for citizenship, participation and democracy (pp. 1–24)*. Facet Publishing.
Ponjuán, G., Pinto, M., & Uribe-Tirado, A. (2015). Conceptualización y perspectivas de la alfabetización informacional en Iberoamérica: un estudio Delphi. *Information Research, 20*(3), 1–26.
Raji, N. A., Busson-Crowe, D. A., & Dommett, E. J. (2023). University-wide digital skills training: A case study evaluation. *Education in Science, 13*(4), 333.
Red de Bibliotecas Universitarias y Científicas Españolas. (2023). Retrieved from https://www.rebiun.org. (Accessed 30 March 2024).
Schachter, D. (2019). Information literacy teaching in BC academic libraries: Research into critical approaches to library practices. *Canadian Journal of Information and Library Science, 43*(1), 48–65.
Saunders, L. (2009). The future of information literacy in academic libraries: A Delphi study. *Portal. Libraries and the Academy, 9*(1), 99–114. https://doi.org/10.1353/pla.0.0030
Simmons, M. H. (2005). Librarians as disciplinary discourse mediators: Using genre theory to move toward critical information literacy. *Portal. Libraries and the Academy, 5*(3), 297–311.
Sobota, D. (2023). The Delphi method in information literacy research. In *European conference on information literacy* (pp. 3-14). Springer nature Switzerland.
Solimine, G., & Marzal, M.Á. (2020). Propuesta de indicadores de Visual Literacy para cursos competenciales: perspectiva de la academic literacy para la excelencia académica. *JLIS.it: Italian Journal of Library, Archives and Information Science. Rivista italiana di biblioteconomia, archivistica e scienza dell'informazione, 11*(1), 17–35.
Swanson, T. A. (2004). A radical step: Implementing a critical information literacy model. *Portal. Libraries and the Academy, 4*(2), 259–273.
Tewell, E. C. (2015). A decade of critical information literacy: A review of the literature. *Communications in Information Literacy, 9*(1), 24–43.
Tewell, E. C. (2016). Toward the resistant reading of information: Google, resistant spectatorship, and critical information literacy. *Portal. Libraries and the Academy, 16*(2), 289–310.
Tewell, E. C. (2018). The practice and promise of critical information literacy: Academic Librarians' involvement in critical library instruction. *College & Research Libraries, 79*(1), 10–34.
Townsend, L., Hofer, A. R., Lin Hanick, S., & Brunetti, K. (2016). Identifying threshold concepts for information literacy: A Delphi study. *Communications in Information Literacy*, *10* (1), 23-49. Doi:10.15760/comminfolit.2016.10.1.13.
Whitworth, A. (2009). *Information obesity* (Chandos).
Zervas, M., Kola, E., Evagorou, A., Nikolaidou, F., Kyprianou, M., Akroteriatou, M., ... & Theodoridou, K. (2022). *Transnational Information Literacy Ecosystem Mapping (TILEM)*. Building the Capacity of Educators & Librarians in Information Literacy (EDUCABILITY).