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# International dimensions of media literacy in a connected world

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This article presents an in-depth study of international indicators of media literacy in its most relevant contexts. The essay analyzes the main dimensions necessary to be taken into account as the starting point to measure, develop or foster media literacy for students or adults in any scenario. The UNESCO, European, and Australian framework are the three contexts studied as significant contributors to media literacy development. After the analysis, the conclusions focus on four specific indicators that are common to the three contexts studied. These four issues constitute the starting point for every research or researcher interested on media literacy studies.

**Keywords:** Media literacy, digital citizenship, UNESCO, European Union, education, literacy

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## Introduction

It is fairly accepted by consensus, that the exchange and transformation of knowledge through information technologies is a feature of modern societies (Kozma, 2003). Information technologies provide the tools for the creation, collection, storage and use of knowledge as well as for communication and collaboration. However, knowing about, understanding, managing and using information technologies has become essential for life in modern society, and its assessment has become a crucial component for monitoring student achievement (Fraillon et al., 2014).

In this state of affairs, the meaning of literacy has profoundly changed, transitioning into a more complete and flexible concept, shifting towards ownership of new media and digital competencies. In the introduction of the DIGCOMP Report, launched by Joint Research Centre we find: "(...) it is recognised that participation in society nowadays requires a set of competencies related to technologies, which have, over the last decade, begun to be understood as life skills, comparable to literacy and numeracy. They have both become

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"both a requirement and a right". The competencies and competence areas that are defined can be seen as components of e-citizenship, thereby addressing the issue of digital divide. It is in fact recognized that participation in the digital domain is no longer a question of "have" or "have not", but rather an issue of competence" (Ferrari, 2014, p.7).

Therefore, the possibility of accessing the, and participating in the Networked Society we live in certainly depends in the degree of literacy of the citizens, having in mind a new concept of literacy in new media and digital competencies. In this sense, media literacy is understood as a holistic concept of literacy enriched by the different literacies needed, with it playing a leading role in the 21st century, as noted by authors such as Buckingham (2003), Buckingham and Rodriguez (2013) or Warlick (2008). Even though policy makers and international institutions constantly work for a common framework, dimensions in media literacy are a continuously changing set of competencies and indicators that evolve rapidly along with technological and digital transformation.

While media literacy in the 20th century included only traditional media, the development and diffusion of digital media throughout the Internet (García-Ruiz et al., 2014) has now evolved into a complex and multidimensional concept, so much so that even different authors talk about multiliteracies (Cope and Kalantzis, 2009; Crocket et al., 2011). Accepting that this new concept will introduce us to new literacies and new learning in the current century, we should consider media literacy as a pillar of these multiliteracies.

Traditionally speaking, media literacy has been related to data on more traditional broadcast media, including access and consumption, especially focused on the study of audiences. The convergence culture, which evolved with a participatory society, emerged because digital media, digital devices and universal connectivity radically changed the picture (Jenkins, 2009; Siemens, 2008). Data from many countries indicate that digital access has rapidly expanded and has integrated children into the practice of massive consumption of digital media. Children have the same high degree of functional media and digital literacy as adults because they now start to use computers and mobile phones at younger and younger ages, accessing the Internet within formal or informal contexts (Pérez-Escoda et al., 2016). Nevertheless, the subsequent questions to this situation are: How do researchers and policy makers measure the media competence of citizens? Or how do they measure these competencies in order to promote media literacy?

The answer to these questions are based on the indicators and dimensions established in an international context to measure media literacy. This article presents an in-depth study of international indicators in media literacy in its most relevant contexts. The changing nature of the Networked Society affects the media literacy dimensions, so it is important to stay updated on the latest achievements that different institutions and governments have reached. The evolution that occurred in media technologies and the media convergence can be used as the starting point for understanding a holistic concept of media literacy, defined in 2010 as "the ability to access media, to understand and critically evaluate different aspects of media content and to create communications in a variety of contexts" (European Commission, 2010, p.10), but enriched in 2016 as "Media literacy refers to all technical, cognitive, social, civic and creative capacities that allow us to access and have a critical understanding of and interact with media. These capacities allow us to exercise critical thinking, while participating in the economic, social and cultural aspects of society and playing an active role in the democratic process. This concept covers different media: broadcasting, radio, and press, through various channels: traditional, Internet, social media, and addresses the needs of all ages".

Therefore, it should be said that media literacy is a dynamically-evolving concept and its interpretation is widely influenced by cultural, technological and generational changes, so

the careful review of recent policy frameworks and the reach of academic research, is necessary.

## Understanding media literacy in the digital age

All throughout this century, media literacy has merged its traditional concept with the convergence of multiple platforms and technologies, different and new ways to transfer knowledge that are increasingly fostered on the Internet, becoming an important process of humanity's communicative development, which began with the introduction of the classic written alphabet, and which has extended to the development of electronic media and digitized information (Pérez-Tornero, 2007).

In this respect, a media literate environment requires more supportive actions that can foster a real media literate citizenship containing all new components needed to be literate in the 21<sup>st</sup> Century. Having in mind this continuous evolution, media literacy has not only become a social concern, but an educational one as well. From this, then, emerges the need to measure, with equal and specific indicators, the level of media literacy the citizen manipulate, from adults to kindergarten, in order to perform and foster this media literacy in the proper way (Aguaded et al., 2016).

As it could be found expressed by the "Study Assessment Criteria for Media Literacy Level" launched by the European Commission, in order to shape a new field of teaching and learning: "The evaluation of Media Literacy in its many and varied forms has necessitated the development of tools and indicators capable of providing an insight into the condition, status and ubiquity of Europe's media literacy" (EAVI, 2009, p.13). The final report mentioned evidenced eight principal proposals for media literacy to evolve in a complete sense, with the preconditioning component of media availability that integrates access and use:

1. To identify critical understanding as the key factor in the development of policies for promoting media literacy
2. To promote citizen engagement and media regulatory authorities
3. To encourage national governments and media regulatory authorities to include in their remit the monitoring and enhancement of media literacy; to promote intra and international exchanges of good practice
4. To facilitate and extend access to ICT, with a specific focus on the Internet
5. To promote public debate and awareness of media literacy
6. To encourage the integration of media education in educational curricula both as specific goals and cross-curricular subjects;
7. To sustain the role of civil society organizations and related media literacy initiatives to foster a democratic culture and shared values
8. To encourage active involvement by the media industry, especially audiovisual media.

This set of proposals simultaneously requires the definition of common criteria on the dimensions that define and that could measure media literacy. The paragraphs below describe the indicators or dimensions established in two of the most significant frameworks: Europe and UNESCO.

Living in a digital age, these proposals should start with the development and mastery of digital competencies as key components for being and becoming literate in current society. This is why it is important to mention that in 2015, "almost half (44.5%) of the EU population aged from 16 to 74 had insufficient digital skills to participate in society and economy" (Vuorikari et al., 2016, p.5).

Therefore, for understanding media literacy, it is important to emphasize that digital competencies should be included when studying, analysing, fostering or developing media

education. In this respect, we include the last competency areas considered in the understanding of digital competency as one of the 8 key competencies for lifelong learning (European Commission, 2006). Even though the DIGCOMP project (promoted by the Joint Research Centre of the European Commission) started in 2011, the last study "Digcomp 2.0. The Digital Competence Framework for Citizens" presented an updated overview of digital competency for citizens, as seen in Table 1, which showed that the evolution in the indicators for digital competence was influenced by the fast moving digitalisation of various aspects of society, setting new requirements.

TABLE 1. COMPETENCE AREAS OF DIGITAL COMPETENCE

	A Framework for Developing and Understanding Digital Competence in Europe (Ferrari, 2013)	DigComp 2.0.: The Digital Competence Framework for Citizens (Vuorikari et al., 2016)
Information	<ul style="list-style-type: none"> <li>Browsing, searching, and filtering information</li> <li>Evaluating information</li> <li>Storing and retrieving information</li> </ul>	<ul style="list-style-type: none"> <li>Browsing, searching, and filtering data, information and digital content</li> <li>Evaluating data, information and digital content</li> <li>Managing data, information and digital content</li> </ul>
Communication	<ul style="list-style-type: none"> <li>Interacting through technologies</li> <li>Sharing information and content</li> <li>Engaging in an online citizenship</li> <li>Collaborating through digital channels</li> <li>Netiquette</li> <li>Managing digital identity</li> </ul>	<ul style="list-style-type: none"> <li>Interacting through digital technologies</li> <li>Sharing through digital technologies</li> <li>Engaging in citizenship through digital technologies</li> <li>Collaborating through digital technologies</li> <li>Netiquette</li> <li>Managing digital identity</li> </ul>
Creation	<ul style="list-style-type: none"> <li>Developing contents</li> <li>Integrating and re-elaborating</li> <li>Copyright and Licences</li> <li>Programming</li> </ul>	<ul style="list-style-type: none"> <li>Developing digital contents</li> <li>Integrating and re-elaborating digital contents</li> <li>Copyright and Licences</li> <li>Programming</li> </ul>
Safety	<ul style="list-style-type: none"> <li>Protecting devices</li> <li>Protecting personal data</li> <li>Protecting health</li> <li>Protecting the environment</li> </ul>	<ul style="list-style-type: none"> <li>Protecting devices</li> <li>Protecting personal data and privacy</li> <li>Protecting health and well-being</li> <li>Protecting the environment</li> </ul>
Problem Solving	<ul style="list-style-type: none"> <li>Solving technical problems</li> <li>Identifying needs and technological responses</li> <li>Innovating and creatively using technology</li> <li>Identifying digital competence gaps</li> </ul>	<ul style="list-style-type: none"> <li>Solving technical problems</li> <li>Identifying needs and technological responses</li> <li>Creatively using digital technologies</li> <li>Identifying digital competence gaps</li> </ul>

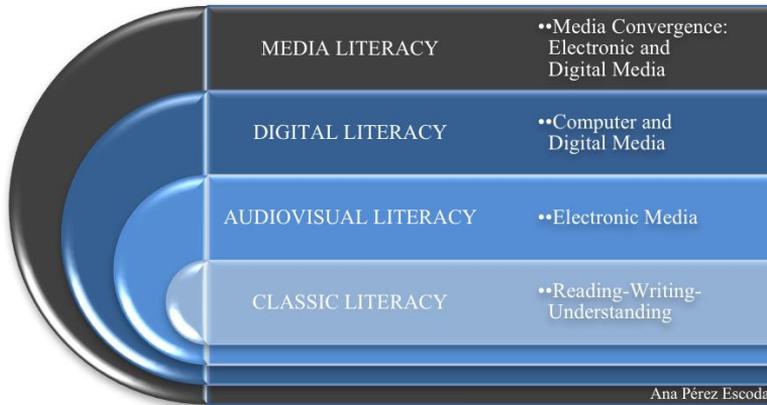
Source: Author created from Ferrari (2013) and Vuorikari et al. (2016).

## Europe, cradle of media literacy

The beginning of the century brought to European governments a special new challenge: to become a more competitive knowledge economy and at the same time a more inclusive knowledge society (European Commission, 2010). This ambitious goal included the construction of a conceptual map of media literacy driven by technological improvements in telecommunications, where proliferation of media should be developed. Fully understanding the nature of media literacy in the new century is essential, bearing in mind the historical milestones in the literacy process, as shown in Figure 1.

In 2009, a Consortium conducted by the European Commission was created, but it was completed by the European Association for Viewers' Interests (EAVI), the Ministère de l'Éducation Nationale Française, the Universitat Autònoma de Barcelona, the Université Catholique de Louvain and the University of Tampere. The Consortium strived to generate the necessary global and organic perspectives of media literacy, identifying two dimensions within media literacy as shown in Table 2.

FIGURE 1. HISTORICAL MILESTONE IN LITERACY PROCESS



Source: EAVI, 2009

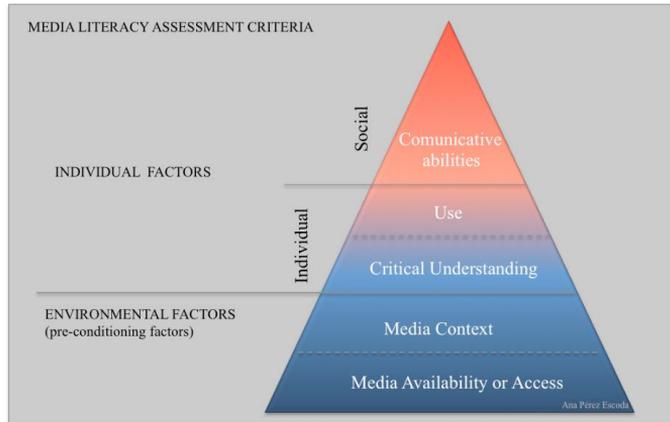
TABLE 2. DIMENSIONS, SUBDIMENSIONS AND SPECIFIC INDICATORS OF MEDIA LITERACY

ENVIRONMENTAL FACTORS	MEDIA AVAILABILITY OR ACCESS		- Mobile phone	- Internet
			- Radio	- Television
				- Newspaper
				- Cinema
		MEDIA LITERACY CONTEXT		- Media education
				- Civil society
				- Media literacy policy
				- Media industry
INDIVIDUAL COMPETENCES	SOCIAL COMPETENCES (COMMUNICATIVE ABILITIES)		- Citizen participation	
			- Social relations	
			- Content creation	
	PERSONAL COMPETENCES	CRITICAL UNDERSTANDING	- Knowledge about media and media regulation	
			- User behaviour	
		- Understanding media content and its functioning		
		USE		
		- Balanced and active use of media		
		- Advanced Internet use		
		- Computer and Internet skills		

Source: EAVI, 2011.

The Consortium works to define and develop a list of the media literacy indicators taking into account their comprehensiveness, quality, and practicability, ensuring those indicators measure the concepts related to media literacy, first proposed in 2009 and later validated in 2011. As shown in Table 1, two main fields within which the indicators were chosen, were proposed: 1) Environmental components that illustrate the necessary conditions for media literacy development, which were basically related, firstly, to the structural availability of media (conceptualized later as "Access") and, secondly, to media context, that implies media education, policy and civil society and industries' initiatives; 2) Individual Competencies, this could be consider as the second level constituted by personal competencies and, mainly, focusing on two scopes: social competencies (communicative abilities) and personal competencies (critical understanding and use). The whole structure can be seen and fully understood in the following Figure 2.

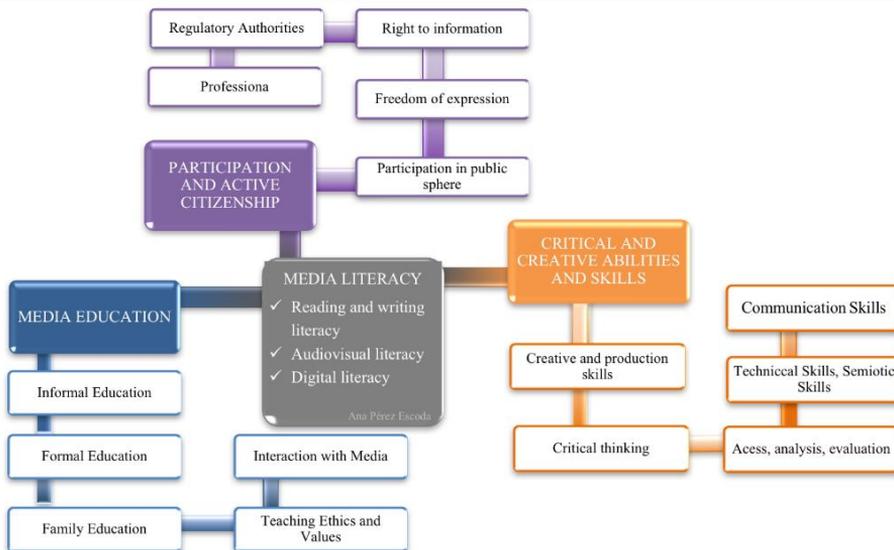
FIGURE 2. ELEMENTS RELATED TO MEDIA LITERACY IN THE NETWORKED SOCIETY



Source: Author created from EAVI, 2009

Furthermore, for trying to include the diversity of topics implicated in media literacy in order to place the concept rightfully in the global context, other elements may be considered, having in mind that media literacy is the result of a process of learning and teaching in any given context, but particularly in formal, social, informal, family and media settings (García-Ruiz et al., 2014). In this sense, media literacy is considered an essential part of active and digital citizenship. The concept map below (Figure 3) shows a visual representation of the relationships between media literacy and these concepts.

FIGURE 3. ELEMENTS RELATED TO MEDIA LITERACY IN THE NETWORKED SOCIETY



Source: Author created.

Given the need to put media literacy in context, the European Commission within the European Strategy 2020 (European Commission, 2010) established the policy framework as seen in Figure 3, relating media literacy to different elements as a strategic value: a) participation and active citizenship; b) critical and creative abilities and skills and, c) media education. This last concept is the one in which international organizations will focus on to develop specific indicators for Media Literacy. Otherwise, in the European Strategy 2020, European leaders draw upon a common analysis to face the challenges ahead, by selecting more than 100 indicators divided into thematic groups, which are key dimensions needed to achieve an intelligent and competitive European Society. The dimensions that are related to media literacy and that enclose these competences are:

1. Audiovisual and media content, itemised in three different indicators: a) Reading/Downloading online newspapers/news magazines; b) Playing or downloading games, images, films or music; and c) Household subscribed to video on demand
2. Digital skills, with a wider range of indicators than digital competence: a) Individuals who have written a computer program using a specialised programming language; b) Individuals who have obtained ICT skills through formal educational institutions; c) Persons employed using computers with access to the Web at work (business sector); d) Workers who judge their current ICT skills insufficient for changing jobs within a year; e) Science and technology graduates: e) Digital Skills Indicator: internet users and all individuals; and f) Digital skills such as information domain, communication domain, problem solving domain and Software for content manipulation.
3. Information and Computer Technologies in Education, focusing on two items: computers for educational purposes and schools that have a website.

Later in 2011 in the Digital Agenda framework, the European Commission fostered the Media Literacy Expert Group (2011-2015) in order to: analyse if and how media literacy was included in education policies of each country, and evaluate the feasibility of and possibly proposing a plan for assessing media literacy levels in Europe. The main outcomes of the group can be found in the EMEDUS Project and in the EC Pilot Initiative on Assessing Media Literacy Levels.

## UNESCO as pioneer in media literacy

The United Nations Educational, Scientific and Cultural Organization, generally known as UNESCO, has been a pioneer in expanding and developing media literacy and media education. Since the Gründwald Declaration (1982) where the main framework was established, and then the Alexandria Declaration (2005) that entailed a systematization and a more precise definition, passing through the Conference in Vienna (1999) that took into account the digital advances and the new communicative era and lately, the UNESCO Paris Agenda (2007), UNESCO has been a pathfinder to media literacy (UNESCO, 2011).

In 2008, the organization presented the ICT Competency Framework for Teachers, focusing on ICT in Education as a consequence of the "mainstream rollout of computers in schools", introducing Technology Literacy as the essential stage of teacher development (UNESCO, 2008). After that, in 2011, the UNESCO went further with the AMI Curriculum, combining media and information literacy as prerequisites in the Networked Society for all citizens, but centering on teachers as leaders in media education.

The new framework established in the AMI Curriculum introduced nine core indicators (Table 3) to be developed from five key elements:

- Understand the role and functions of media in democratic societies
- Understand the conditions under which media can fulfil their functions
- Critically evaluate media content in light of media functions
- Engage with media for self-expression and democratic participation

Review skills (including ICTs) needed to produce user-generated content

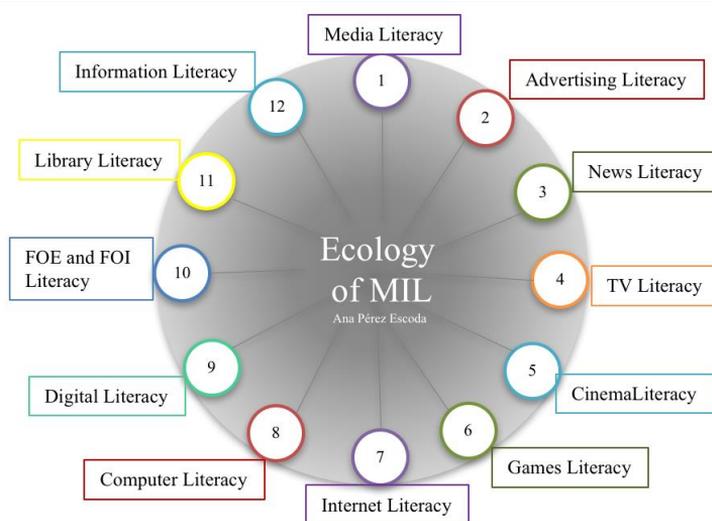
TABLE 3. CORE INDICATORS IN AMI CURRICULUM

1. UNDERSTAND THE ROLE AND FUNCTIONS OF MEDIA AND INFORMATION IN DEMOCRACY	- Citizenship, freedom of expression and information, access to information, democratic discourse and lifelong learning - Understanding the news, media and information ethics - Communication, MIL and learning
2. UNDERSTANDING MEDIA CONTENTS AND ITS USES	- Understanding the news, media and information ethics - Representation in media and information - Languages in media and information - Audience - Advertising
3. ACCESSING INFORMATION EFFECTIVELY AND EFFICIENTLY	- Citizenship, freedom of expression and information, access to information, democratic discourse and lifelong learning - Internet opportunities and challenges - Information Literacy and Library skills
4. CRITICALLY EVALUATING INFORMATION AND INFORMATION SOURCES	- Representation in media and information - Advertising - Internet opportunities and challenges - Information literacy and Library skills - Communication

Source: UNESCO, 2011.

In another way, as in the European context, UNESCO connected media literacy to different notions that link and enrich the media literacy ecosystem, building an ecology of MIL (media and information literacy) as shown in Figure 4.

FIGURE 4. MIL ECOLOGY

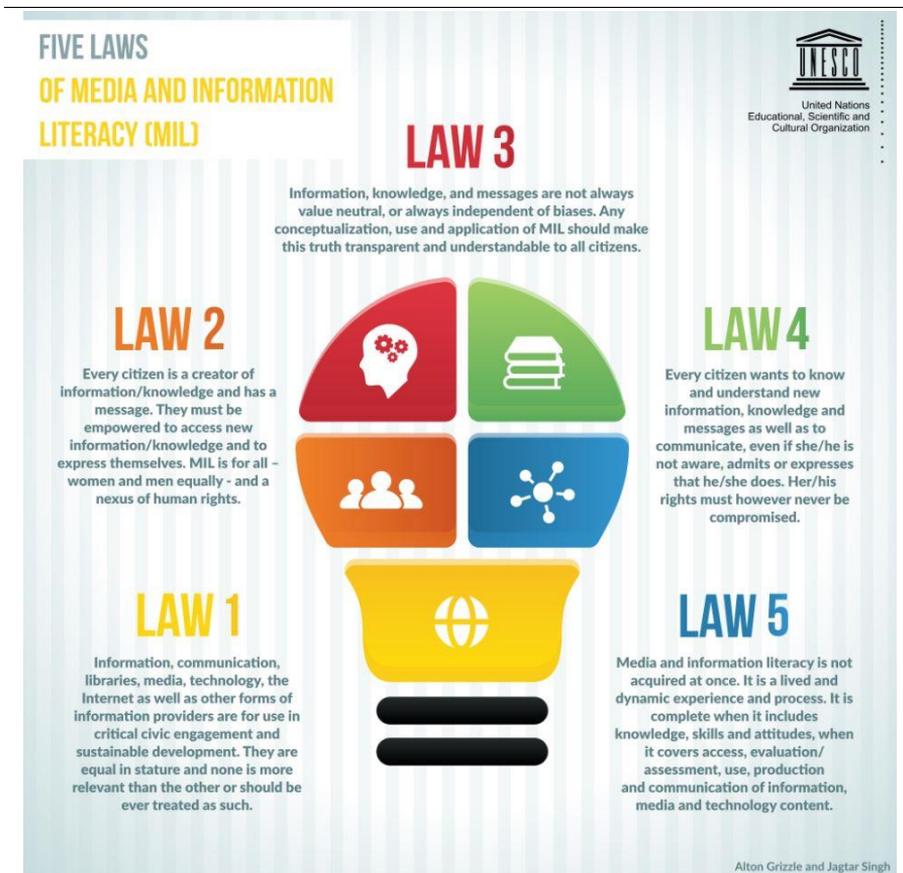


Source: Author created from UNESCO, 2011

It is important to note that UNESCO proposed several indicators with the main aim of decreasing the inequality that still remains in the global context, by using education as the

necessary tool to narrow the gap, as recently recognized in the MIL Week 2016: "MIL (Media and Information Literacy) provides citizens with essential competencies for life and work in the 21st century. In line with this understanding, UNESCO, Global Alliance for Partnerships on MIL (GAPMIL) and UNAOC believe in the importance of ongoing education and debate about MIL as a means to open, rights-based, secure and inclusive development" (UNESCO, 2016, p.1). In this context, UNESCO proposes "Five Laws of Media and Information Literacy" as shown in Figure 5, with the aim of engendering media and information literate societies and ensuring the access to information with quality and conditions of equality and freedom.

FIGURE 5. FIVE LAWS OF MIL



Source: UNESCO, 2016.

### ACMA an important contribution to media literacy

As it has been analyzed in preceding paragraphs, media literacy has been merged within the concerns of new skills and new competencies for the 21<sup>st</sup> century in the use and access to media and new media. The next analysis in our study focuses on the Australian context, where media literacy has been considered essential in the new century, putting the emphasis on an enriched concept: Digital media literacy. ACMA conceptualizes this

concept as: "the key competence of the twenty-first century, with the effective use of media and communications services increasingly pivotal to citizen and consumer participation across the economy and society in general".

From this starting point the Australian Communication and Media Authority (ACMA, 2009) was created to undertake a range of activities that support or promote digital media literacy, recognizing that the complexity of the changing communications and media environment required new regulatory and program responses that will:

- Prepare Australians to participate in a convergent communications environment, having in mind the choice of multiple devices and multiple distribution platforms;
- Assist Australians in understanding the nature and characteristics of material made available by electronic communications and media and an understanding of how such material is or can be regulated; and
- Helps Australians make informed judgements about their digital communications practices and manage their online security and privacy.

In 2007, ACMA initiated a research program that focused on digital media literacy with four specific scopes (ACMA, 2009, p.13):

- a) Publishing a literature review of approaches to media literacy research and education,
- b) Establishing connections with key intermediaries and agencies in Australia responsible for the promotion of media literacy through a Media Literacy Forum and creation of a media literacy website,
- c) Assessing existing evidence to inform future ACMA research and promotion activities in the area of media literacy; and,
- d) Commissioning two qualitative studies to better understand behaviors and attitudes identified in existing quantitative research. In Table 4 we can find the ACMA indicators for digital media literacy.

TABLE 4. EXISTING INDICATORS OF DIGITAL MEDIA LITERACY IN AUSTRALIA

1. ACCESS TO DIGITAL MEDIA SERVICES	- Broadband speeds and penetration
	- Mobile services access
	- Influence of internet access on uses of other technology services
	- Uptake to digital television
2. USE AND UNDERSTANDING OF DIGITAL MEDIA PLATFORMS AND SERVICES	- Use of internet services
	- Trust and security practices
	- Ability to discern search results
	- Self-reported competency levels
	- Ability to keep up with technology changes
	- Multitasking and impact on traditional media
	- Mobile internet use
3. CREATION OF DIGITAL CONTENT AND SERVICES	- Membership communities
	- Participatory skills
	- Social networking and privacy/use of personal information
	- Types of content creation
4. CRITICAL COMPETENCIES	- Evaluation of search results
	- Perceive reliability of internet sources

Source: ACMA, 2009.

## Conclusion

Having in mind all the indicators studied in the different frameworks, we can summarize that if we talk about media literacy, it necessarily should involve four dimensions to be considered if developing or fostering media literacy or media education. Therefore, it could be said that any research that aims to measure media literacy from citizens in the 21<sup>st</sup> century should include the dimensions analysed, all of them expressed in the different international contexts studied in this article, that could be summarized in four global issues to be studied, developed and fostered to reach a real e-citizenship:

- a) Access and use media and new media,
- b) Communication and creation through new media
- c) Critical understanding about media and new media and
- d) Digital competence domain.

We would like to finish with a specific reflexion for policy makers and teachers, who are the main figures responsible in media education: it is crucial to stay abreast, develop learning programs and educational policies that foster media literacy in the convergence culture, where the challenges are many and exciting. We not only live in an emergent culture, but in the most rapidly-changing culture ever. Lastly, we would like to finish our essay by leaving three issues to be responded by every stakeholder, every country, every school, and every teacher, for whomever media literacy matters:

- How can we help to prepare children/students/adults to participate in the new convergent culture having the proper domain of digital tools?
- Can we help them realise how the media are shaping their understandings?
- How can we help them make informed value judgements about their digital practices in a global sense?

Answering these questions entails a challenge for researchers as well as to whoever may contribute with empirical data to the decision-making processes, playing a very important role in their impact. Being conscious of these main dimensions or indicators, researchers would be more able to appropriately study media literacy in all citizens, from kindergarten to adults.

## References

- Aguaded I., Sandoval Y., Rodríguez-Rosell M., 2016. "Media literacy from international organizations in Europe and Latin America", *The Journal of Media Literacy*, Vol.65(1-2), pp.10-17.
- ACMA, 2007. Media literacy - concepts, research and regulatory issues. Commonwealth of Australia. Australian Communication and Media Authority.
- ACMA, 2009. Digital media literacy in Australia. Key indicators and research sources. Commonwealth of Australia. Australian Communication and Media Authority.
- Buckingham D., 2003. Media education. Literacy, learning and contemporary culture. Polity Press, Cambridge.
- Buckingham D., Rodríguez C., 2013. "Learning about power and citizenship in an online virtual world", *Comunicar*, Vol.40, pp.49-58.
- Cope B., Kalantzis M., 2009. "Multiliteracies: New literacies, new learning", *Pedagogies: An International Journal*, Vol.4(3), pp.164-195.
- Crocket L., Jukes I., Churches A., 2011. Literacy is not enough: 21st Century Fluencies from the digital age. Paperback and Corwin.
- EAVI, 2009. Study on assessment criteria for media literacy levels. Final Report. Retrieved from: [http://www.gabinetecomunicacionyeducacion.com/sites/default/files/field/adjuntos/eavi\\_study\\_on\\_assessment\\_criteria\\_for\\_media\\_literacy\\_levels\\_in\\_europe\\_last.pdf](http://www.gabinetecomunicacionyeducacion.com/sites/default/files/field/adjuntos/eavi_study_on_assessment_criteria_for_media_literacy_levels_in_europe_last.pdf)

- EAVI and Danish Technological Institute, 2011. Testing and refining criteria to assess media literacy levels in Europe. Final Report.
- European Commission, 2006. European Recommendation on Key Competences (2006), Official Journal of the European Union, L394. December 18th 2006.
- European Commission, 2010. Communication from the Commission Europe 2020. A strategy for Smart, sustainable and inclusive growth. COM (2010)2020.
- Ferrari A., 2013. DIGCOMP: A framework for developing and understanding digital competence in Europe. IPTS. Luxembourg: European Union.
- Fraillon J., Ainley J., Wolfram S., Friedman T., Gebhardt E., 2014. Preparing for life in a digital Age. The IEA International Computer Literacy Study. International Report. Springer Open.
- García-Ruiz R., Ramírez A., Rodríguez-Rosell M.M., 2014. "Media literacy education for a new prosumer citizenship", *Comunicar*, 22(43), pp.15-23.
- Jenkins H., 2009. Confronting the challenges of participatory culture. Media education for the 21st century. Massachusetts Institute of Technology.
- Kozma R. (Ed.), 2003. Technology, innovation, and educational change: A global perspective. ISTE, Eugene, OR.
- Pérez-Escoda A., Castro-Zubizarreta A., Fandos M., 2016. "Digital skills in the Z generation: Key questions for a curricular introduction in primary school", *Comunicar*, Vol.49, pp.71-79.
- Pérez-Escoda A., Castro-Zubizarreta A., García-Ruiz R., Aguaded I., 2016. "Media literacy for an inclusive knowledge society: International indicators", *TEEM '16 Proceedings of the Fourth International Conference on Technological Ecosystems for Enhancing Multiculturality*, pp.625-630.
- Pérez-Tornero J.M., Celop P. and Varis T., 2007. Study on the current trends and approaches to media literacy in Europe. Retrieved November 14th from: [http://ec.europa.eu/culture/library/studies/literacy-trends-report\\_en.pdf](http://ec.europa.eu/culture/library/studies/literacy-trends-report_en.pdf)
- Siemens G. 2008. Learning and knowing in networks: Changing roles for educators and designers. ITFORUM for discussion.
- UNESCO, 2008. ICT Competency framework for teachers.
- UNESCO, 2011. Media and Information Literacy, Curriculum for Teachers.
- UNESCO, 2016. Global MIL Week 2016. Concept Note.
- Vuorikari R., Punie Y., Carretero S., Brande L. Van den, 2016. DigComp 2.0: The digital competence framework for citizens. Update Phase 1: The conceptual reference model. Luxembourg.
- Warlick D. F., 2008. Redefining Literacy 2.0. Columbus: Linworth books